Global Shock, Risks, and Asian Financial Reform
Global Shock, Risks, and Asian Financial Reform

Edited by
Iwan J. Azis
Asian Development Bank and Cornell University, USA

Hyun Song Shin
Professor of Economics, Princeton University, USA

CO-PUBLICATION OF THE ASIAN DEVELOPMENT BANK
AND EDWARD ELGAR PUBLISHING

Edward Elgar
Cheltenham, UK • Northampton, MA, USA
# Contents

*List of contributors* ix  
*List of abbreviations* xi  

## PART I  OVERVIEW AND SUMMARY

1  Overview and summary  
   *Iwan J. Azis and Hyun Song Shin*  
   3  

## PART II  MACRO-PRUDENTIAL SUPERVISORY SYSTEM AND DEVELOPMENT IMPACT

Introduction  
   *Hyun Song Shin*  
   15  

2  Monetary aggregates and procyclicality of the financial system: an Asian perspective  
   *Joon-Ho Hahm, Hyun Song Shin and Kwanho Shin*  
   22  

3  Non-core bank liabilities and vulnerability to crisis: implications for Asia  
   *Joon-Ho Hahm, Hyun Song Shin and Kwanho Shin*  
   74  

4  Monetary aggregates and global liquidity: evidence from individual firm data from Asia  
   *Hyun Song Shin and Laura Yi Zhao*  
   102  

5  Economy-wide vulnerability in Asia: flow-of-fund analysis  
   *Iwan J. Azis and Damaris Yarca*  
   150  

## PART III  ISSUES AND CHALLENGES ON THE LEGAL AND INSTITUTIONAL FRAMEWORK FOR EMERGING ASIA

Introduction  
   *Fariborz Moshirian*  
   197
6 Addressing systemic risk in East Asia: financial regulatory design
   Rolf H. Weber, Douglas W. Arner, Evan C. Gibson and Simone Baumann

7 Financial innovation and development in East Asia: balancing risks and opportunities
   Ross P. Buckley, Douglas W. Arner and Michael Panton

8 Implications of global financial and regulatory policies on systemic risk in Asia
   Fariborz Moshirian

PART IV FINANCIAL INTEGRATION AND COOPERATION TO SUPPORT FINANCIAL STABILITY

Introduction
   Noritaka Akamatsu

9 Equity home bias, financial integration, and regulatory reforms: implications for emerging Asia
   Cyn-Young Park and Rogelio V. Mercado, Jr

10 Regional financial arrangements: lessons from the Eurozone crisis for East Asia
    Emilios Avgouleas, Douglas W. Arner and Uzma Ashraf

11 The role of deposit insurance in financial stability: issues and options in the ASEAN+3
    A. Michael Andrews

12 Effective resolution regimes for financial institutions in ASEAN+3
    A. Michael Andrews

13 Capital structure and the issuance of corporate bonds in emerging Asia
    Paul Mizen, Frank Packer, Eli Remolona and Serafeim Tsoukas

PART V FINANCIAL SUPERVISION AND DEVELOPMENT CHALLENGES IN ASIA

Introduction
   Ramesh Subramaniam
Contents

14 Financial monitoring in the new ASEAN-5 countries 554
   Se Hee Lim and Noel G. Reyes

15 Financial inclusion and regulatory implications 600
   Qifeng Zhang and Josephine B. Valle-Sison

16 Innovative financing models for SMEs and the regulatory implications 628
   Shigehiro Shinozaki

17 Global financial regulatory trends and challenges for the development of the insurance and pensions sector in the Asia-Pacific region 676
   Arup Chatterjee

18 Impact of the global financial crisis on trade finance in Asia and the cooperative effort to respond 701
   Steven Beck

Index 717
Contributors

Noritaka Akamatsu, Deputy Head of the Office of Regional Economic Integration, ADB.


Douglas W. Arner, Asian Institute of International Financial Law, Faculty of Law, University of Hong Kong, China.

Uzma Ashraf, Asian Institute of International Financial Law, Faculty of Law, University of Hong Kong, China.

Emilios Avgouleas, University of Edinburgh, UK.

Iwan J. Azis, ADB and Cornell University, USA.

Simone Baumann, University of Zurich, Switzerland.

Steven Beck, Head of Trade Finance, Private Sector Operation, ADB.

Ross P. Buckley, CIFR King & Wood Mallesons Professor of International Finance Law, University of New South Wales, Australia.

Arup Chatterjee, Principal Financial Sector Specialist, ADB.

Evan C. Gibson, Asian Institute of International Financial Law, Faculty of Law, University of Hong Kong, China.

Joon-Ho Hahm, Professor of International Economics and Finance at the Graduate School of International Studies, Yonsei University.

Se Hee Lim, Financial Supervisory Service, Korea.

Rogelio V. Mercado, Jr, Economics Research Department, ADB.

Paul Mizen, University of Nottingham, UK.

Fariborz Moshirian, Institute of Global Finance, University of New South Wales, Sydney, Australia.

Frank Packer, Bank for International Settlements.

Michael Panton, Asian Institute of International Financial Law, Faculty of Law, University of Hong Kong, China.
Cyn-Young Park, Assistant Chief Economist, Economics and Research Department, ADB.


Noel G. Reyes, Office of Regional Economic Integration, ADB.

Hyun Song Shin, Professor of Economics, Princeton University, USA.

Kwanho Shin, Professor of Economics at Korea University.

Shigehiro Shinozaki, Office of Regional Economic Integration, ADB.

Ramesh Subramaniam, Deputy Director General, Southeast Asia Department, ADB.

Serafeim Tsoukas, University of Glasgow, UK.

Josephine B. Valle-Sison, Office of Regional Economic Integration, ADB.

Rolf H. Weber, University of Zurich, Switzerland.

Damaris Yarcia, Consultant, Department of Social Welfare and Development, Government of the Philippines; graduate student, School of Statistics, University of the Philippines Diliman.

Qifeng Zhang, Office of Regional Economic Integration, ADB.

Laura Yi Zhao, Office of Regional Economic Integration, ADB.
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>93 SNA</td>
<td>1993 System of National Accounts</td>
</tr>
<tr>
<td>ABF</td>
<td>Asian Bond Fund</td>
</tr>
<tr>
<td>ABF2</td>
<td>Asset-based finance</td>
</tr>
<tr>
<td>ABIF</td>
<td>ASEAN Banking Integration Framework</td>
</tr>
<tr>
<td>ABL</td>
<td>Asset-based lending</td>
</tr>
<tr>
<td>ABMIF</td>
<td>Asian Multicurrency Bond Issuance Facility</td>
</tr>
<tr>
<td>ABS</td>
<td>Asset-backed securities</td>
</tr>
<tr>
<td>ACC</td>
<td>Asian Consultative Committee</td>
</tr>
<tr>
<td>ACE</td>
<td>Access, Certainty, Efficiency</td>
</tr>
<tr>
<td>ACMF</td>
<td>ASEAN Capital Markets Forum</td>
</tr>
<tr>
<td>ACU</td>
<td>Asian currency unit</td>
</tr>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>ADF</td>
<td>Asian Development Fund</td>
</tr>
<tr>
<td>ADF</td>
<td>Augmented Dickey-Fuller</td>
</tr>
<tr>
<td>AEC</td>
<td>ASEAN Economic Community</td>
</tr>
<tr>
<td>AFAS</td>
<td>ASEAN Framework Agreement on Services</td>
</tr>
<tr>
<td>AFC</td>
<td>Asian financial crisis</td>
</tr>
<tr>
<td>AFSD</td>
<td>Asian Financial Stability Dialogue</td>
</tr>
<tr>
<td>AIG</td>
<td>American Insurance Group</td>
</tr>
<tr>
<td>AIGFP</td>
<td>American Insurance Group Financial Products</td>
</tr>
<tr>
<td>AIM</td>
<td>Alternative Investment Market</td>
</tr>
<tr>
<td>AMBD</td>
<td>Autoriti Monetari Brunei Darussalam</td>
</tr>
<tr>
<td>AMBIF</td>
<td>Asian Multicurrency Bond Issuance Framework</td>
</tr>
<tr>
<td>AML</td>
<td>Anti-money laundering</td>
</tr>
<tr>
<td>AML-CFT</td>
<td>Anti-money laundering and combating the financing of terrorism</td>
</tr>
<tr>
<td>AMRO</td>
<td>ASEAN+3 Macroeconomic Research Office</td>
</tr>
<tr>
<td>APEC</td>
<td>Asia-Pacific Economic Cooperation Conference</td>
</tr>
<tr>
<td>APRA</td>
<td>Australian Prudential Regulatory Agency</td>
</tr>
<tr>
<td>ASEAN 5</td>
<td>Indonesia, Malaysia, the Philippines, Thailand, and Vietnam</td>
</tr>
</tbody>
</table>
ASEAN
ASEAN+3
ASEAN-4
ATM
AVC
Basel III
BCBS
BCMLV
BIS
BN
BND
BNM
BOK
BOL
BPS
BSE
BSP
BSP
CAMELCAR
CBM
CBOE
CCFCPP
CCT
CD
CDO
CDS
CEBS
CEIOPS
CES
CESR
CET
CFT
CGAP
CGE
CGIF
CVIRC

Association of Southeast Asian Nations
ASEAN plus the PRC, Japan, and the Republic of
Korea
Indonesia, Malaysia, the Philippines, and Thailand
automated teller machine
asset value correlation
Basel Capital Accord
Basel Committee on Banking Supervision
Brunei Darussalam, Cambodia, Myanmar, the Lao
People’s Democratic Republic and Viet Nam
Bank for International Settlements
Brunei Darussalam
Brunei Darussalam dollar
Bank Negara Malaysia
Bank of Korea
Bank of Lao
Badan Pusat Statistik (Central Bureau of Statistics)
Bombay Stock Exchange
Bankgo Sentral ng Pilipinas
Bankgo Sentral ng Pilipinas
capital adequacy, asset quality, management quality,
earnings, and liquidity
capital adequacy ratio
Central Bank of Myanmar
Chicago Board Options Exchange
credit conversion factor
central counterparties
conditional cash transfer
certificate of deposit
collateralized debt obligation
credit default swap
Committee of European Banking Supervisors
Committee of European Insurance and Occupational
Pensions Supervisors
constant elasticity of substitution
Committee of European Securities Regulators
constant elasticity of transformation
combating the financing of terrorism
Consultative Group to Assist the Poor
computable general equilibrium
Credit Guarantee and Investment Facility
China Insurance Regulatory Commission
CMG  Crisis Management Group
CMI  Chiang Mai Initiative
CMIM  Chiang Mai Initiative Multilateralization
CMIM-PL  CMIM Precautionary Line
CML  Capital Markets Law
CN  China PRC
CNY  Chinese yuan
CoCos  convertible contingent capital
ComFrame  Common Framework for the Supervision of Internationally Active Insurance Groups
CP  commercial paper
CPA  certified public accountant
CPIS  Coordinated Portfolio Investment Survey
CPSS  Committee on Payment and Settlement Systems
CSIF  Cross-border Settlement Infrastructure Forum
CSRC  China Securities Regulatory Commission
DATC  Debt and Asset Trading Company
DBN  De Nederlandsche Bank
DCC  dynamic conditional correction
DDR  deposit reserve ratio
DFID  Department for International Development
DGS  deposit guarantee scheme
DICJ  Deposit Insurance Corporation of Japan
DRR  deposit reserve ratio
D-SIFI  domestic systematically important financial institution
DTI  debt to income
DVI  Deposit Insurance of Viet Nam
EBA  European Banking Authority
EBU  European Banking Union
ECA  export credit agency
ECB  European Central Bank
EDP  excessive deficit procedure
EEC  European Economic Community
EIOPA  European Insurance and Occupational Pensions Authority
EME  emerging market economy
EMEAP  Executives’ Meeting of East Asia Pacific Central Banks
EMS  European Monetary System
EMU  European Monetary Union
ERM  enterprise risk management
ERM II  Exchange Rate Mechanism II
ERPD  Economic Review and Policy Dialogue
Global shock, risks, and Asian financial reform

ESA European Supervisory Authority
ESCB European System of Central Banks
ESFS European System of Financial Supervision
ESM European Stability Mechanism
ESMA European Securities and Markets Authority
ESRB European Systemic Risk Board
ETP Electronic Trading Platform
EU European Union
FAS Financial Access Survey
FASB Financial Accounting Standards Board
FATF Financial Action Task Force
FCI Factors Chain International
FCL flexible credit line
FCY foreign currency
FDI foreign direct investment
FDIC Federal Deposit Insurance Corporation
Fed Federal Reserve
FINMA Swiss Financial Market Supervisory Authority
FINMASA Swiss Financial Market Supervisory Act
FOF flow of funds
FPC Financial Policy Committee
FSA Financial Services Authority
FSAP Financial Sector Assessment Program
FSAP Financial Services Action Plan
FSB Financial Stability Board
FSC Financial Services Commission
FSF Financial Stability Forum
FSS Financial Supervisory Service
FTAAP Free Trade Area of the Asia-Pacific
FX foreign exchange
G20/G-20 Group of 20
GAAP generally accepted accounting principles
GARCH generalized autoregressive conditional heteroskedasticity
GDP gross domestic product
GEM Growth Enterprise Market
GFC global financial crisis
GISC Global Industry Classification Standard
Global Findex Global Financial Inclusion Database
GPFI Global Partnership for Financial Inclusion
GRIF general rule of international factoring
G-SIFI global systematically important financial institution
G-SII global systemically important insurer
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKMA</td>
<td>Hong Kong Monetary Authority</td>
</tr>
<tr>
<td>HLA</td>
<td>higher loss absorbency</td>
</tr>
<tr>
<td>HP</td>
<td>Hodrick-Prescott</td>
</tr>
<tr>
<td>HRE</td>
<td>Hypo Real Estate</td>
</tr>
<tr>
<td>HSX</td>
<td>Hanoi Stock Exchange</td>
</tr>
<tr>
<td>IADI</td>
<td>International Association of Deposit Insurers</td>
</tr>
<tr>
<td>IAI</td>
<td>Initiative for ASEAN Integration</td>
</tr>
<tr>
<td>IAIG</td>
<td>internationally active insurance group</td>
</tr>
<tr>
<td>IAIS</td>
<td>International Association of Insurance Supervisors</td>
</tr>
<tr>
<td>IAS</td>
<td>international accounting standards</td>
</tr>
<tr>
<td>IASB</td>
<td>International Accounting Standards Board</td>
</tr>
<tr>
<td>IBF</td>
<td>international banking facility</td>
</tr>
<tr>
<td>IBRA</td>
<td>Indonesian Bank Restructuring Agency</td>
</tr>
<tr>
<td>ICAPM</td>
<td>International Capital Asset Pricing Model</td>
</tr>
<tr>
<td>ICC</td>
<td>International Chamber of Commerce</td>
</tr>
<tr>
<td>ICP</td>
<td>Insurance Core Principle</td>
</tr>
<tr>
<td>ICRG</td>
<td>International Co-operation Review Group</td>
</tr>
<tr>
<td>ICT</td>
<td>information communications technology</td>
</tr>
<tr>
<td>ID</td>
<td>identity</td>
</tr>
<tr>
<td>ID</td>
<td>Indonesia</td>
</tr>
<tr>
<td>IDIC</td>
<td>Indonesia Deposit Insurance Corporation</td>
</tr>
<tr>
<td>IDR</td>
<td>Indonesian rupiah</td>
</tr>
<tr>
<td>IDS</td>
<td>Information Disclosure System</td>
</tr>
<tr>
<td>IDSA</td>
<td>International Derivative and Swap Association</td>
</tr>
<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
</tr>
<tr>
<td>IFG</td>
<td>International Factors Group</td>
</tr>
<tr>
<td>IFRS</td>
<td>International Financial Reporting Standards</td>
</tr>
<tr>
<td>IFS</td>
<td>International Financial Statistics</td>
</tr>
<tr>
<td>IIP</td>
<td>International Investment Position</td>
</tr>
<tr>
<td>IIX</td>
<td>Impact Investment Exchange Asia</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>INFE</td>
<td>International Network on Financial Education</td>
</tr>
<tr>
<td>INVA</td>
<td>investment over total assets</td>
</tr>
<tr>
<td>IOSCO</td>
<td>International Organization of Securities Commissions</td>
</tr>
<tr>
<td>IPO</td>
<td>initial public offering</td>
</tr>
<tr>
<td>IRDA</td>
<td>Insurance Regulatory and Development Authority</td>
</tr>
<tr>
<td>IT</td>
<td>information technology</td>
</tr>
<tr>
<td>JBIC</td>
<td>Japan Bank for International Cooperation</td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>JSDA</td>
<td>Japan Securities Dealers Association</td>
</tr>
<tr>
<td>KOFIA</td>
<td>Korea Financial Investment Association</td>
</tr>
<tr>
<td>KONEX</td>
<td>Korea New Exchange</td>
</tr>
</tbody>
</table>
KOSDAQ  Korean Securities Dealers Automated Quotations
KRW    Korean won
KRX    Korea Exchange
KYC    know your client/customer
LAK    Laotian kip
L/C    letters of credit
Lao PDR Lao People's Democratic Republic
LCR    liquidity coverage ratio
LCY    local currency
LOLR   lender of last resort
LSX    Lao Securities Exchange
LTCM   Long Term Capital Management
LTV    loan to value
mai    market for alternative investment
MAS    Monetary Authority of Singapore
MCR    minimum capital requirement
MEB    Myanmar Economic Bank
MEF    Ministry of Economy and Finance
MES    marginal expected shortfall
MESDAQ Malaysian Exchange of Securities Dealing and Automated Quotation
MetLife Metropolitan Life Insurance Company
MFB    microfinance banks
MFI    microfinance institution
MiFID  Markets in Financial Instruments Directive
ML     maximum likelihood
MNO    mobile network operator
MOF    Ministry of Finance
MOU    Memorandum of Understanding
MPI    macro-prudential indicators
MPS    macro-prudential policy and surveillance
MSEC   Myanmar Securities Exchange Center Company Limited
MSMEs  micro, small, and medium-sized enterprises
MY     Malaysia
NAFMII National Association of Financial Market Institutional Investors
NBC    National Bank of Cambodia
NCD    negotiable certificate of deposit
NDF    non-deliverable forward
NBFI   non-bank financial institution
NDRC   National Development and Reform Commission
NGO    non-governmental organization
NIEs newly industrialized economies
NPL non-performing loan
NPV net present value
NSE National Stock Exchange
NSFR net stable funding ratio
NYU New York University
OECD Organisation for Economic Co-operation and Development
OFID OPEC Fund for International Development
OLS ordinary least squares
OMT outright monetary transaction
OPEC Organization of Petroleum-Exporting Countries
OREI Office of Regional Economic Integration
ORSA Own Risk and Solvency Assessment
OTC over the counter
PBOC People’s Bank of China
PCL precautionary credit line
PCR prescribed capital requirement
PDIC Philippines Deposit Insurance Corporation
PDR Peoples’ Democratic Republic
PPP public–private partnership
PRA Prudential Regulatory Authority
PRC People’s Republic of China
Q3 quarter 3
Q4 quarter 4
QAB Qualified ASEAN Bank
QE quantitative easing
QIB qualified institutional buyer
RAF risk appetite framework
RBA Reserve Bank of Australia
RBI Reserve Bank of India
RCC rural credit cooperative
RCEP Regional Comprehensive Economic Partnership
RDB Regional Development Bank
repo overnight repurchase agreement
RMB renminbi
RP repurchase agreement
RRP recovery and resolution plan
RSI Regional Settlement Intermediary
R-SIFI regional systematically important financial institution
RWA risk-weighted asset
RYM Malaysian ringgit
S&P 500  Standard and Poors 500 Stock Index
SBV  State Bank of Viet Nam
SCF  supply chain finance
SCR  solvency capital requirement
SEACEN  Southeast Asian Central Banks
SEC  Securities and Exchange Commission
SECC  Securities and Exchange Commission of Cambodia
SECO  Securities and Exchange Commission Office
SES  systemic expected shortfall
SET  Securities Exchange of Thailand
SGD  Singapore dollar
SGP  Stability and Growth Pact
SIB  systemically important bank
SIFI  systematically important financial institution
SMEs  small and medium-sized enterprises
SNB  Swiss National Bank
SOE  state-owned enterprise
SRISK  systemic risk
SRM  single resolution mechanism
SRO  self-regulatory organization
SSC  State Securities Commission
SSM  single supervisory mechanism
SZSE  Shenzhen Stock Exchange
TARP  Troubled Asset Relief Program
TBTF  too big to fail
TFEU  Treaty on the Functioning of the European Union
TFP  Trade Finance Program
TH  Thailand
THB  Thai baht
TRACE  Trade Reporting and Compliance Engine
UK  United Kingdom
UN  United Nations
US  United States of America
USD  United States of America dollar
VAMC  Viet Nam Asset Management Company
VAS  Viet Nam accounting standards
VIX  Volatility Index
VN  Viet Nam
VND  Vietnamese dong
VS  vertical specialization
WMP  wealth management product
WTO  World Trade Organization
PART I

Overview and Summary
1. Overview and summary

Iwan J. Azis and Hyun Song Shin

The growth of financial markets has clearly outpaced the development of financial market regulations. With growing complexity in the world of finance and the resultant higher frequency of financial crises, all eyes have shifted toward the current inadequacy of financial regulation. With financial innovation and securitization becoming more popular, interconnectedness in the financial system is at its height, both for intra- and extra-sovereign jurisdictions. Geographical boundaries have less relevance for financial flows than they do for trade in goods. During good economic times in the past, supported by financial innovation, financial and non-financial institutions alike were eager to participate in the expanding financial sector with its promise of high returns. The risk compression was widespread. Seen from this perspective, the 2008–09 global financial crisis (GFC) that occurred in the US, and the subsequent crisis in the Eurozone, should not be too surprising. Meanwhile, the policy response has been unprecedented. And surely it affects Asia.

The book is about what this episode means for Asia’s financial sector and its stability, and what will be the implications for the region’s financial regulation.

Fluctuations in US and Eurozone interest rates since 2000 could not have been more pronounced. Responding to the 2000 recession and the events of 11 September 2001, the US Federal Funds rate fell precipitously from over 6 percent in 2001 to a mere 1 percent by summer of 2003. Over the same period, the European Central Bank (ECB) rate dropped from over 4 percent to 2 percent. Fears of asset bubbles subsequently led to interest rate increases in the US and Europe. By late 2007, on the eve of recession and the subprime crisis, rates had doubled in Europe and increased more than fivefold in the US. As the recession began in December 2007, the Federal Reserve drastically shifted gears again, lowering interest rates steadily from more than 5 percent to 2 percent by mid-2008. The subsequent collapse of Lehman Brothers in September forced the Federal Reserve to be even more aggressive in pushing down rates, with the Federal Funds rate reaching 0.25 percent by the end of 2008, which
is where it remains at the time of writing. The fall of interest rates in the Eurozone was not much less dramatic, with a steady decline from over 4 percent in 2007 to 1 percent shortly after the Lehman crisis, to 0.5 percent in mid-2013, and 0.25 percent at the time of writing.

Amid financial globalization, such sharp swings in interest rates in developed economies have generated waves of capital flows to developing economies, including in Asia which has already held considerable excess savings since the aftermath of the 1997–98 Asian financial crisis. What are the impacts of such flows in terms of the risks of financial instability, and to what extent do the excess savings affect the investment decisions of agents? These fundamental questions are dealt with in Part II.

Much of the flow of capital into Asia has been intermediated by the banking sector as evidenced by the increasing share of banks’ non-core liabilities, which also reflects changes in the wholesale funding market. This poses the risk of procyclicality and it also reduces the sensitivity of non-core liabilities to output changes and monetary policy. The resulting financial cycle is not in synchronization with the business cycle, making monetary policy alone insufficient to deal with the procyclicality and financial instability caused by such bank-led flows. This is the reason why macro-prudential policy needs to complement standard macroeconomic policy.

Given changes in global financial conditions, the importance of the non-core liability ratio as part of an early warning system cannot be overemphasized. The power of this ratio to predict financial and currency crises, under different levels of capital market openness, is shown in Chapter 3, which suggests that macro-prudential policy must take into account the complex relationship between banks’ non-core liabilities and capital flows. Any efforts to further liberalize the financial sector also must account for such a relationship.

However, not all countries in Asia have a liberalized system of capital flows. Those economies that still control flows can insulate themselves from risk. At least that is what many would expect. Yet, even in a relatively closed banking system, non-financial firms can take up the role of financial intermediation by depositing external funds and their proceeds in the domestic banking system, which in effect influences domestic credit conditions. Thus, the risks of procyclicality remain in place even in a closed banking system. In such circumstances, decomposing M2 into core and non-core liabilities is more useful for the purpose of gauging financial stability. By using the case of the PRC and utilizing firm-level data, this issue is analyzed in detail in Chapter 4.

With the emergence of excess savings after the 1997–98 Asian financial crisis, massive inflows of capital also meant additional liquidity in the
region’s economy. The cost of capital fell markedly as a result. This environment has changed the investment decisions and behavior of banks, firms, and households, as they lean toward more risky spending and prefer investing in financial assets. The macro-financial implications and how they affect the real sector, including socioeconomic conditions, are discussed in the last chapter of Part II. It is shown that the composition of excess savings differs across countries in the region, and that the visible trends are also unequal. The rise of corporate savings is notable, largely caused by improved current accounts and growing per capita income across the region.

Prior to the GFC, a growing share of capital inflows was intermediated through the banking sector, and hence was labeled bank-led flows. After the GFC, the flows going through debt or bond markets became significant, and hence were labeled debt-led flows. In addition to the exchange rate pressure exerted by capital inflows, these two types of flows are particularly volatile. As bank-led flows lead to rapid growth in credit, especially in the property and consumer goods sectors, and also raise banks’ preferences for risky financial assets, the risk of procyclicality can be high. The reaction to the Federal Reserve’s announcement in mid-2013 that it was considering tapering its quantitative easing measures also shows that the reversals of debt-led flows can easily cause fluctuations in exchange rates and rattle bond markets. This can undermine long-term financing in capital markets. Clearly, policymakers and regulators are faced with a very serious challenge.

The rise of agents’ preference for financial assets is largely driven by the lure of high returns in the fast-growing financial sector, the perception of low risk compared with investing in the real sector (owing to numerous difficulties associated with a less-than-favorable business climate), and the greater number of financial instruments created through financial liberalization and innovation. Yet, the fact that in most countries only a tiny share of the population has access to the financial sector may have exacerbated already skewed income and asset inequality. This phenomenon is highlighted in the last section of Part II by using an empirical case study based on an economy-wide model where a large portion of the increased income of financial asset holders (mostly the urban rich) is generated from asset returns, leaving those with no financial assets in a relatively disadvantaged position. The development impact of investing the excess savings in financial assets rather than in real sector investment is also apparent in the labor market. To the extent that the job-creating capacity of financial investment is smaller than that of real sector investment, this contributes to falling employment elasticities observed throughout Asia.

The analysis in Part II shows that the risks of procyclicality associated
with increased non-core liabilities through bank-led flows and volatility in capital markets are not only manifest in macro-financial vulnerability, but also in development terms through rising income inequality and unemployment. Based on this premise, therefore, if appropriately designed and effectively enforced, the proposed macro-prudential policy may provide benefits beyond just ensuring financial stability.

The resulting effect of the procyclicality risks can also interrupt business and financial cycles, which may reduce the effectiveness of standard macroeconomic policy, as discussed in detail in Part III. More seriously, given the dominant role of banks, including their influence over capital markets in the region, the risks can be systemic. This is where the rules and standards play an essential function, especially in relation to systematically important financial institutions (SIFIs). The supervision of SIFIs – whether domestic (D-SIFIs), regional (R-SIFIs), or global (G-SIFIs) – is critical as their failing can result in severe financial instability impacting a nation’s financial system and economy, and further spreading into regional and global financial systems. Although the economies of emerging Asia are typically characterized by relatively large D-SIFIs with only a handful of G-SIFIs, hence international financial regulatory standards may not currently be a priority, increasingly more D-SIFIs in the region have transformed into R-SIFIs. As this will increase the amount of cross-border operations, the regulatory design and standards must eventually address issues surrounding how to supervise the cross-border operations of SIFIs. This topic is discussed in Chapter 6. It is also argued in this section that a regulatory structure must vary according to the nature and size of its financial sector, its domestic and international importance, and the skills and resources of regulators and the particular government.

To the extent that financial liberalization offers benefits but also carries risks of financial crisis, the discussions in Chapter 7 put the whole concept of financial liberalization and innovation into a more balanced perspective, whereby all the potential risks are matched with the benefits and opportunities of liberalization, including opportunities associated with development-related matters (for example, mortgage markets, small and medium-sized enterprises – SMEs – finance, non-bank finance, trade finance, and mobile financial services). By focusing on legal and institutional frameworks, this section elaborates on various issues and challenges in terms of how financial liberalization can maximize the benefits and minimize the risks of crisis.

Understanding the importance of systemic risk is important, but measuring it is another issue. What elements and factors need to be incorporated in the measure of systemic risks? To the extent that banks’ operations are becoming more interconnected, especially between large and medium-sized
Overview and summary

banks, Chapter 8 explores alternative measures of systemic risk by using the examples of some ASEAN+3 countries, as well as India, in comparison with the situations in Europe and the US.\textsuperscript{1} It is argued that although only a handful of G-SIFIs are operating in Asia, some of the large regional banks could pose potential risks to overall financial stability in the region.

Integration and cooperation in support of financial stability is discussed in Part IV. The current dominance of D-SIFIs in Asia resembles the situation in the region’s capital markets. In general, Asian investors have a strong home bias and, to a lesser extent, a global bias, while lacking a regional bias. Yet, as discussed in Chapter 9, home bias is inefficient as investors concentrate on domestic assets, reducing portfolio diversification, the efficient allocation of capital, and risk sharing. To the extent that increased integration and home bias are interlinked, the type and quality of financial reform to create greater transparency and lower information asymmetry to promote integration can also influence the degree of home bias. Whether they will result in increased cross-border flows within Asia more than increased flows between Asia and the rest of the world should not be a concern. To reduce the level of home bias, the focus should be on removing the unnecessary obstacles that remain.

While opening up financial markets offers benefits, as discussed in Chapter 10, the risks involved are not small. The bitter experience of the 1997–98 Asian financial crisis still lingers. The misplaced policy response advocated by the IMF had consequences that led ASEAN+3 countries to set-up a new regional financial arrangement. Known as the Chiang Mai Initiative (CMI), the arrangement started with a series of bilateral swaps that were subsequently combined and multilateralized (henceforth known as the CMIM). Efforts were also made in the area of crisis prevention. Learning from Europe’s challenges in dealing with crisis in an environment where integrated supranational institutions are not supported by suitable institutions to absorb shocks, Chapter 10 reviews the nature of regional financial arrangement in ASEAN+3 and presents some suggestions for future development.

But the crisis management component in regional financial arrangements needs to go beyond financial swaps. To limit costs to taxpayers and minimize the political fallout when financial institutions fail, and to increase depositor confidence during a crisis, a well-designed deposit insurance scheme is also imperative. This is also an important part of financial safety nets. Chapter 11 makes the argument that the old system of insurance is flawed in that it relies on low coverage limits and systems funded by assessments of surviving institutions. While the trade-off between securing stability through a pre-funded system and efficiency through an unfunded system is at the core of designing a deposit insurance system, by using
examples from the ASEAN+3, it is further argued that deposit insurance cannot be intended to absorb all the costs of a systemic crisis. However, government will always have to intervene if depositors are to be protected. Nonetheless, since it is part of the broader role of financial safety nets, the standard requirements for the system to be effective must be in place, such as macroeconomic stability, a sound banking system, governance, prudential regulation and supervision, a strong legal framework, and a sound accounting and disclosure regime.

More generally, an effective resolution regime is needed as part of crisis management. In this context, global policy development that is principles-based would be ideal, but what is more important is not the form of regulation rather than the practical function of the regulation. This is one of the arguments made in Chapter 12. The best practices and the post-GFC cases in Europe, the US, and the ASEAN+3 are discussed in detail, providing a wide range of resolution regimes. When special resolution does not exist, it is recommended that for bank-dominated ASEAN+3 countries the focus should be on banks as opposed to other financial institutions, as they have the most systemic significance.

Learning from the damaging effects of a double mismatch scenario that led to the 1997–98 Asian financial crisis, and the fact that Asia still needs a huge amount of long-term financing for investment in infrastructure (hard and soft), overreliance on the banking sector cannot be maintained. Financing from capital markets, especially bond markets, should play a greater role. Banks’ ability to obtain long-term financing has been reduced and will be curtailed even further when Basel III rules are imposed. In Asia, bond markets have developed steadily, especially in ASEAN+3 countries, following the Asian financial crisis. The creation of the Asian Bond Market Initiative (ABMI) is expected to further strengthen the regional bond market. While government bonds have dominated the market, corporate bonds have grown faster during the last few years. It is in this context that the discussion in Chapter 13 focuses on factors that affect corporate bond issuance and the capital structure of corporations in emerging Asia. Using eight countries as the sample for the period 1995–2007, these factors are classified into firm and market characteristics. The results show that size, leverage, profitability, and growth prospects all influence the decision to issue for both seasoned and unseasoned issuers. Market and interest rate differentials also impact decisions. In the case of issuance of foreign currency bonds, the following factors have a positive impact: size of firm, availability of tangible and collateral assets, short-term interest rate differentials, and scale of foreign participation. Meanwhile, the following factors have a negative impact: profitability, debt-to-GDP ratio, and stock market turnover. Overall, since the depth and liquidity of the market matter,
efforts to improve them are recommended, including lowering withholding taxes and liberalizing foreign exchange swap and derivatives markets that allow non-resident issuers to hedge against risks.

The recent phenomena of capital flows and excess savings in Asia that influence the region’s financial sector and related financial regulations are important. Yet, focus should remain on their manifestation in the real sector and the welfare of the population in general. Seemingly unrelated issues such as inequality and the role of SMEs are in fact closely related with financial sector regulation. To the extent that the majority of participants in the financial sector are high-income and urban-based agents, when the sector grows the gains in wealth and financial returns also concentrate among these agents. As discussed in Chapter 5, this can exacerbate already rising inequality in Asia. In those countries where the financial sector is either newly established or less developed – for example, in Brunei Darussalam, Cambodia, Myanmar, the Lao People’s Democratic Republic (Lao PDR), and Viet Nam, which are known collectively as the BCMLV countries – the degree of concentration can be even higher. Yet, these countries and others still need further financial sector development. This is where efforts to promulgate and implement financial inclusion become important, along with improvements in corporate governance.

Chapter 14 in Part V emphasizes corporate governance in the BCMLV countries by utilizing the results of a survey of monetary authorities, regulators, and stock exchanges. The discussion also emphasizes the importance of sequencing financial reforms and taking into consideration the different conditions in each country and the danger that the growth of the financial sector will outpace a country’s regulatory capabilities. The approaches to promote financial inclusion are discussed in Chapter 15. Implicit in the discussion is the notion of striking a balance between expanding participation in the financial sector and ensuring financial stability. To promote financial inclusion the following should be ensured: (1) the regulatory architecture for financial inclusion is coherent with the current legal framework; (2) an additional layer of intra-agency and central and local government coordination to cope with the variety of institutions, products, and businesses; and (3) the governance of regulatory and supervisory bodies, particularly in preventing possible conflict of interests, is of paramount importance to safeguarding and leveling the playing field, and ensuring the efficiency and effectiveness of regulations.

Financing for SMEs is another important component of financial inclusion. Small and medium enterprises often suffer from unstable access to appropriate funding, yet such stable access is an important precondition for the sustainability of their operations. Chapter 16 identifies the limitations of traditional bank lending for SMEs from an empirical analysis and
suggests possible regulatory responses to innovative financing modalities for them from a holistic point of view.

As capital markets become even more important, it is expected that a large pool of funds will shift toward capital markets. Two potential sources are pension funds and insurance companies. While the share of these sources has indeed been growing, the level is still limited. There is ample room for these sources to play a greater role in the coming years. Yet, from the regulatory framework perspective, a lot of improvements need to be made. Given the diversity in regulatory quality and enforcement across the region, and with some frameworks far from being harmonized with international standards, a wide range of reforms is clearly needed in the areas of solvency standards, risk assessment, and governance. As more jurisdictions begin to implement the Insurance Core Principles (ICP), assessing how best to accommodate multi-jurisdictional compliance and reporting requirements will become a growing strategic challenge. In Chapter 17, it is argued that regulators of banks, pensions funds, and insurance companies should analyze the interactions of new regulations, the associated trade-offs and risks, and their consistency to avoid creating the wrong incentives.

Striking the balance between maintaining stability and growth is always a primary challenge for policymakers and regulators. To the extent that growth in many Asian countries is dependent on trade (both exports and imports), the role of the financial sector and its regulation in affecting trade cannot be overlooked. One of the critical areas of support to trade is the provision of trade finance. During the GFC, as the interbank market practically ceased to function due to the reluctance of banks in advanced countries to lend dollars and provide guarantees, banks around the world, including in Asia, had difficulty acquiring funding for trade finance. This severely curtailed the region’s capacity to conduct trade. Pricing for trade finance doubled and fluctuated wildly, irrespective of the health of the region’s financial sector. This contributed to the dark days in 2009 when trade volumes fell drastically. Despite various interventions to mitigate this problem, the last section of Part V suggests that there are a number of factors hampering efforts to close the trade finance gap. These include the regulatory environment and anti-money-laundering (AML) and know-your-client (KYC) requirements that are not uniform across jurisdictions while also being costly amid weak banking systems that lack transparency. Clearly, more systematic interventions and reforms are needed to secure the sustainability of trade financing. Regional cooperation in this area may also help minimize the impacts of a shock in trade financing like what happened in 2008–09.

Connecting all the narratives and the analysis above, the following storyline emerges. While the coexistence of excess savings and massive
capital flows in Asia during the past decade may have contributed to strong
growth, it also elevated the risks of financial instability. These risks can
lead to a financial cycle not being in sync with the business cycle, making
monetary policy insufficient to deal with procyclicality. The challenges
faced by policymakers and regulators to strike a balance between financial
development and stability, or between maximizing benefits and minimizing
risks of financial liberalization, get increasingly more difficult. Facilitating
cross-border flows to reduce home bias through harmonization, and sup-
porting the development of corporate bonds are examples that can help to
maximize the benefits. On the other hand, strengthening financial regula-
tion and its enforcement with good monitoring and supervision, and at
the same time providing an effective resolution mechanism, including a
deposit insurance system and financial safety nets, can help reduce the
potential risks and damaging impacts of financial instability and crisis.
Yet, the bottom line should never be overlooked, that the purpose of
financial development is to support the real sector without exacerbating
already worsening income inequality throughout Asia, as the welfare of
the majority is the ultimate development goal. Asia still requires financial
development, but development of an inclusive nature with support for
SMEs, long-term financing from capital markets to promote infrastructure
development (hard and soft), and more stable trade financing to promote
the region’s exports and imports. Any proposed framework of financial
regulation should take these factors into consideration.

NOTES

1. ASEAN+3 refers to the ten members of the Association of Southeast Asian Nations
   plus the PRC, Japan, and the Republic of Korea.
2. In response to Asia’s widening trade finance gap, the Asian Development Bank (ADB)
   increased the amount of risk that its Trade Finance Program (TFP) could assume to
   US$1 billion at any one time from the original limit of US$150 million. The TFP seeks
to: (1) close private sector market gaps by providing guarantees and loans within 24 hours
at market rates through partner banks to support trade, and (2) leverage resources by
bringing in co-financing partners. Between 2009 and the first half of 2013, the TFP had
attracted US$8.4 billion in co-financing to support trade in the most challenging markets
where gaps are proportionally the largest. The co-financing also drew private sector enti-
ties into challenging markets for the first time. In general, the TFP’s due diligence and
rigorous monitoring of bank risk provide comfort and bring the private sector into TFP
transactions in the most challenging markets. The TFP also provides technical assistance
to help Asian companies get more and better-priced access to trade finance.
PART II

Macro-prudential Supervisory System and Development Impact
Introduction
Hyun Song Shin

The guiding theme of the chapters in this part of the book is that the procyclicality of the financial system provides an organizing framework for selecting indicators of vulnerability to crises, especially those that are associated with banks and financial intermediaries.

In addressing the procyclicality of the financial system, it is useful to distinguish between the core and non-core liabilities of the banking sector. Core liabilities can be defined as the funding that the bank draws on during normal times and that is (mainly) sourced domestically.

When banking sector assets are growing rapidly, the core funding available to the banking sector is likely to be insufficient to finance the rapid growth in new lending. This is because retail deposits grow in line with the aggregate wealth of the household sector. In a lending boom when credit is growing very rapidly, the pool of retail deposits is not likely to be sufficient to fund the increase in bank credit, and other sources of funding must then be tapped. The state of the financial cycle is thus reflected in the composition of bank liabilities.

The exact dividing line between core and non-core liabilities will depend very much on the financial system in question and the degree of openness and level of development of financial markets and institutions. For a developed financial system, as in the United States (US) and western Europe, the distinction between core and non-core liabilities seems reasonably well captured by the distinction between deposit versus non-deposit funding.

For emerging and developing economies, more thought is needed in finding a useful classification system between core and non-core liabilities. In an emerging economy where the banking system is open to funding from global banks, rapid increases in the non-core liabilities of the banking system would show up as capital inflows through increased foreign exchange-denominated liabilities of the banking system. For this reason, foreign exchange-denominated liabilities of the banking sector can be expected to play a key role in diagnosing the potential for financial instability.

Hahm et al. in Chapter 2, which is based on Hahm et al. (2013a), examine
the procyclicality of the financial system in Asia by investigating the degree of procyclicality in several Asian countries. There are two strands to the investigation. First, Hahm et al. investigate the (semi-) elasticity of the liability aggregate with respect to changes in gross domestic product (GDP) as a measure of procyclicality. This is accomplished by regressing the log of bank liabilities on the log of real GDP and short-term interest rates. The countries examined are the Republic of Korea, Indonesia, Malaysia, the Philippines, Singapore, and Thailand. The investigation also examines the sensitivity of the liability aggregate to the funding cost faced in the wholesale funding market, as measured by the US federal funds target rate. (Bruno and Shin 2012b have separately investigated the ‘risk-taking channel’ of monetary policy and how such a channel impacts capital flows.)

The second strand of the empirical investigation is to examine the responsiveness of core and non-core bank liabilities to global liquidity and measures of the market price of risk, such as the VIX, the index of implied volatility of Standard and Poors (S&P) 500 options, as well as to measures of cross-border banking activity as measured by the interoffice assets of foreign banks in the US. Bruno and Shin (2012a) have previously shown that the interoffice assets series provides a timely and informative picture of the role of global banks in driving cross-border capital flows.

The main findings by Hahm et al., in Chapter 2, confirm that bank liabilities in Asian countries are highly procyclical as indicated by the significantly positive real GDP elasticities, although the degree of procyclicality varies across countries. In countries with relatively high real GDP elasticities, such as the Republic of Korea and Indonesia, non-core liabilities are more procyclical than core liabilities. Also, non-core liabilities, such as foreign borrowings, tend to be more procyclical in the boom period.

With respect to US monetary policy, Hahm et al. find that bank liabilities are responsive to both domestic and the US policy interest rates, but there are some differences across the countries studied. In the Republic of Korea and Singapore, bank liabilities tend to increase faster when US federal funds rates are low, which indicates that US monetary policy has important spillover effects on bank leverages in emerging Asian countries.

With regard to the impact of the interoffice assets of foreign banks in the US, Hahm et al. find that bank liabilities in many Asian countries respond positively to US cross-border interoffice loans and the elasticities are higher for non-core liabilities. The impact of global market uncertainty, as measured by the VIX, seems less significant in Asian countries, and in many cases, the elasticity has an opposite sign.

In Chapter 3 (originally Hahm et al. 2013b), the authors provide an empirical framework for assessing the vulnerability of an economy to a
Introduction

financial crisis. Following the same methodology used in 2011, Hahm et al. conduct a panel probit study of the susceptibility of emerging and developing economies to a financial crisis using the non-core bank liabilities as the conditioning variable. However, this new study differs from Hahm et al. (2011) in two respects. First, it focuses on the role of capital market openness in driving the relationship between non-core bank liabilities and financial crises. As most Asian countries have not completely opened their capital markets, examining how capital market openness affects the extent to which non-core liabilities increase the likelihood of currency and credit crises should yield important policy implications. In this chapter Hahm et al. adopt two measures of capital markets openness: (1) a de jure Chinn–Ito index based on International Monetary Fund (IMF) classifications, and (2) a de facto Lane and Milesi-Ferretti index based on actual financial transactions.

The second strand of the investigation in Chapter 3 explores how global financial conditions impact the level of vulnerability to currency and credit crises. As experienced in two previous crisis episodes in 1997–98 and 2007–08, Asian countries suffer from financial crises when their economic fundamentals deteriorate and when global financial conditions are aggravated. Hahm et al. employ two measures of global financial conditions – US cross-border interoffice loans and the VIX index of implied volatility – and analyze their relationship with the likelihood of a crisis.

The main findings in Chapter 3 are as follows. First, the non-core bank liability ratio has significant predictive power for both currency and credit crises even after the degree of capital market openness is controlled.

Second, between the two openness measures, the de facto Milesi-Ferretti index seems to have a superior explanatory power than the de jure Chinn–Ito index, which suggests that actual openness could differ widely from regulatory and institutional openness.

Third, capital market openness seems to have a significant impact on the level of vulnerability to financial crises, not only independently but also by interacting non-linearly with non-core bank liabilities.

Fourth, the interaction effect between capital market openness and the non-core liability ratio seems to materialize heterogeneously across currency and credit crises. For a currency crisis, while capital market openness itself tends to increase vulnerability to a crisis, the interaction term with the non-core liability ratio turns out to be negative. Hence, an increase in the non-core liability ratio raises the likelihood of a currency crisis less proportionately when capital markets are more open. However, for a credit crisis, the interaction term is positive in many cases, indicating that with more open capital markets, an increase in the non-core liability ratio raises the likelihood of a credit crisis even more proportionately.
Fifth, as conjectured, global financial conditions exert a significant impact on the crisis incidence. A higher VIX of market risk significantly raises the crisis incidence of emerging market countries for both currency and credit crises. However, it is worth noting that US interoffice loans have heterogeneous impacts on currency and credit crises. An increase in cross-border bank capital flows from the US raises the likelihood of a currency crisis, while it reduces the likelihood of a credit crisis.

Overall results are consistent with the hypothesis that non-core bank liabilities matter more in open emerging market countries than in relatively closed economies. However, the impacts of non-core liabilities materializes in highly non-linear and heterogeneous ways across different crises episodes. Policymakers in emerging Asian economies must therefore take these complex interaction effects into consideration when they pursue capital market opening by designing a careful macro-prudential policy framework as a guard against potential risks.

The discussion so far is appropriate for an economy such as the Republic of Korea’s where the domestic banking sector has access to funding from the global banking system. However, in some financial systems that are at an earlier stage of development, or where the banking sector is restricted by regulation from having access to the global banking system, the distinction between the core and non-core liabilities of the banking system will look different, although the same principles from the system-wide accounting framework will continue to apply.

When the domestic banking sector is mostly closed from the global banking sector, deposits will constitute the lion’s share of banking sector liabilities. At the same time, traditional monetary aggregates such as M2 become highly variable and procyclical, encompassing volatile banking liabilities. In such instances it may be more meaningful to decompose M2 into its core and non-core components. The non-core component may include the deposits of non-financial companies that end up recycling funding within the economy and hence become integrated into the intermediary sector itself. The People’s Republic of China (PRC) and India are two examples of where this distinction between core and non-core liabilities may be usefully employed. In both cases, foreign exchange-denominated bank liabilities or market-based funding instruments play a much smaller role than in a more open economy such as the Republic of Korea.

In Chapter 4, Shin and Zhao provide a firm-level analysis of the role of non-financial corporates acting as surrogate financial intermediaries. The focus of analysis is mainly on non-financial corporates in the PRC, but comparisons are also made with non-financial corporates in other Asian economies.

The investigation centers on the key prediction that non-financial firms
borrow from financial markets in order to hold financial assets, in particular deposits in the banking system. Shin and Zhao explore this hypothesis by examining the correlation between the financial liabilities and cash holdings of non-financial firms. They examine the variation of the correlation between financial liabilities and cash holdings—across countries, industries, and periods—using firm-level data in the Compustat Global datasets for seven economies: the PRC; Japan; the Republic of Korea; and the four largest economies in the Association of Southeast Asian Nations (ASEAN), which are Indonesia, Malaysia, the Philippines, and Thailand.

The main findings are as follows. First, among Chinese firms, financial liabilities and cash holdings are positively correlated when both are divided by sales, which is different from Opler’s (1999) findings for US firms. Second, firms in the manufacturing sector display a notably larger intermediary activity. This finding is strongest for the PRC, Japan, and Indonesia. Third, when the sample period for the PRC is divided into three sub-periods (1991–2001, 2002–07, and 2008–11) and the sample period for Japan is divided into two sub-periods (1987–90 and 1991–2011), the interaction between the manufacturing dummy and financial liabilities is positive and significant only in 2002–07 and 2008–11 for the PRC and in 1987–90 for Japan, while being insignificant in all other sub-periods. These findings are hard to reconcile with the financing hierarchy theory, but are consistent with the theory of Hattori et al. (2009).

The results in Shin and Zhao’s chapter point to a broader theme of the ‘financialization’ of non-financial companies. Non-financial firms have taken on attributes of financial firms as they increase the size of their balance sheets relative to their activities in generating sales. As a consequence, they contribute to the amplification of financial cycles.

As monetary policy moves from the role of banks to the functioning of bond markets and the availability of credit to borrowers from long-term investors, such as asset managers that act on behalf of pension funds and insurance companies, the role of non-financial firms will take on increased significance. The findings by Shin and Zhao in Chapter 4 should contribute to a better understanding of the channels through which global liquidity conditions are transmitted to the domestic financial system.

Azis and Yarcia (in Chapter 5) focus on the nature and implications of the dramatic shift in the Asian economy since the 1997–98 financial crisis, which has seen excess investments turn into excess savings. The chapter begins with a discussion of the trend of excess savings and capital flows in selected Asian countries by using flow-of-funds (FOF) data, with a particular focus on the 1997–98 Asian financial crisis as a crucial turning point. The chapter then analyzes the implications of the trend on agents’ preferences, determines the key contributing factors to changing
preferences among agents, and considers other economy-wide impacts of
the trend. In particular, it highlights the potential vulnerabilities associated
with macro-financial and socioeconomic risks. The chapter also consid-
ers the rapid surge in corporate savings after the 1997–98 crisis and seeks
to identify the most important determinants of corporate savings. The
chapter extensively analyzes the trend and the characteristics of excess
savings with respect to five Asian economies: Indonesia; the Republic of
Korea; the Philippines; Taipei, China; and Thailand. The analysis looks at
two key time periods: pre-global financial crisis (2000–07) and post-global
financial crisis (2008–11). The authors conclude that surpluses usually
come from households and deficits from corporations, except in the case
of the Philippines where corporations are net savers and the government
is a net borrower.

Chapter 5 also examines the extent to which the behaviors of house-
holds, firms, and the financial sector have changed in light of the trend
towards excess savings, particularly since the global financial crisis. Graphical
representations are utilized to analyze agents’ behavioral patterns, match
the flow of the different components of liabilities and assets of each agent
based on FOF data, and estimate the trend-line for each period. The analy-
sis carried out led to inferences about the impacts of the abundant liquidity
associated with excess savings and capital inflows on agents’ behavior, and
to the general conclusion that, as expected, agents in each country exhibit
different behavior as to what sources of funds they prefer and where they
choose to invest excess savings. The authors also look at the shifting trends
over time in terms of capital inflows and outflows in Asia and their impli-
cations. The focus is on rising levels of capital outflows, outward foreign
direct investment (FDI) and equity investment, and capital inflows, which
in the midst of excess savings have further enhanced emerging Asia’s
macro-financial liquidity. The repercussions of foreign events and other
contributing factors – including the recession in the US as well as the ultra-
easy monetary policies of and growing risks in advanced economies – are
also considered. The authors flag the relationship between gross inflows
and gross outflows, particularly the almost symmetrical rise of the two in
2002.

This chapter further considers the potential vulnerabilities associated
with the macro-financial and socioeconomic risks of growing excess
savings and increased capital flows, and focuses on two types of economy-
wide risks: macro-financial and socioeconomic. It considers a balancing
act of the benefits of increased inflows to recipient countries against the
volatile patterns of these inflows, and how procyclicality can lead to a
build-up of financial risks and imbalances. The chapter examines both
the asset side and the liability side of bank balance sheets to demonstrate
how bank-led flows can cause the risks of a banking crisis to increase, particularly in times of an external shock such as deleveraging by Eurozone banks. The authors then discuss long-term financing accessed through regional bond markets as another type of vulnerability. Finally, Chapter 5 illustrates the socioeconomic risks associated with growing excess savings and increased capital flows, and the implications of those risks, including the worsening of income inequality and the subsequent effect of lowering growth prospects. It shows how the shift toward a greater preference for investing in financial assets can cause a worsening of the already unfavorable conditions of income inequality in Asia as only a very small percentage of the population in each country has access to the rapidly growing financial sector.

REFERENCES

2. Monetary aggregates and procyclicality of the financial system: an Asian perspective

Joon-Ho Hahm, Hyun Song Shin and Kwanho Shin

1 INTRODUCTION

Financial procyclicality is a feature commonly observed in most economies. However, driving factors could vary across advanced and emerging market countries, and closed versus open economies. A crucial task in mitigating procyclicality of credit growth, which is a key challenge in macro-prudential policy, is to monitor and identify the relevant stage of financial cycles.

As we have seen from the recent credit booms in the period leading to the global financial crisis in 2007–08, excessive credit growth is mirrored on the liabilities side of a bank balance sheet by shifts in the composition of funding. Stable sources of funding available to the banking sector are, for instance, retail deposits of household savers. However, retail deposits grow slowly in line with the aggregate wealth of the household sector. In a credit boom when bank lending is growing very rapidly, the pool of retail deposits is not sufficient to fund the increase in bank credit, and other sources of funding must be tapped. Consequently, the state of the financial cycle is reflected in the composition of bank liabilities.

In open emerging economies, rapid increases in the liabilities of the banking system often show up as capital inflows through increased foreign currency liabilities of the banking system. Fluctuations in the cross-border bank capital flows from the advanced economies thus lead to credit boom–bust cycles in emerging market countries. By engaging in foreign currency financial intermediation, banks in open emerging economies are exposed to significant liquidity risk and bank-run problems. Increasing dependence on wholesale and off-balance sheet sources in foreign currency funding substantially raises the liquidity risk profile of banks in emerging market countries. Funding liquidity risk and market liquidity risk may interact
Monetary aggregates and procyclicality of the financial system

in a compound way to propagate foreign currency liquidity crisis into a system-wide banking crisis. Hence, policymakers in open emerging market economies need effective measures to monitor and control procyclicality and build-up of systemic risk that can be caused by capital flows.

Recent research indicates that bank liability aggregates based on core and non-core properties prove to be useful in monitoring the stages of financial cycles in open emerging market countries. The proposition that the proportion of non-core bank liabilities can serve as a useful indicator of the stage of the financial cycle and the degree of vulnerability of the banking system to a downturn of the financial cycle has been first presented by Shin and Shin (2011), and further developed by Hahm et al. (2012) and Hahm et al. (2013). They propose an approach to gauging the stage of the financial cycle by utilizing the information on the liabilities side of the banking-sector balance sheet. Although traditional monetary aggregates are also liabilities-side aggregates of the banking sector, they argue that traditional monetary aggregates can be refined and improved upon so as to serve as a powerful set of indicators that underpin effective macro-prudential policies.

The objective of the present paper is threefold: First, by following the methodology developed in Hahm et al. (2012), we construct bank liability aggregates based on core versus non-core properties for six Asian countries – Indonesia, the Republic of Korea, Malaysia, the Philippines, Singapore, and Thailand. Second, using the liability aggregates thus constructed, we evaluate empirical relevance of the bank liability aggregates as a measure of financial procyclicality and systemic vulnerability in Asian countries. Third, we also empirically investigate the relationship between bank liability aggregates in Asian countries and global financial cycles.

The chapter is organized as follows. In section 2, we provide a conceptual framework for new bank liability aggregates based on the core and non-core properties. In section 3 we construct core and non-core bank liability aggregates for six Asian economies. Section 4 examines empirical properties and procyclicality of bank liability aggregates in Asia. Finally, section 5 provides a summary and concluding remarks.

2 CONCEPTUAL FRAMEWORK OF NEW BANK LIABILITY AGGREGATES

2.1 Traditional Monetary Aggregates and the Financial Cycle

Monetary aggregates can be used as a window on the size and composition of bank liabilities providing an insight into the stage of the financial
cycle. For this reason, central banks have recently emphasized the financial stability properties of monetary aggregates. For instance, the European Central Bank has recently shifted to interpreting their monetary pillar increasingly as a financial stability pillar (Papademos and Stark 2010). However, the financial stability properties of traditional monetary aggregates are limited in nature as they are based upon the classification of bank liabilities emphasizing the transactions role of money.

As traditional classifications of monetary aggregates focus on the transactions role of money as a medium of exchange, the criterion is based on how close to cash a particular financial claim is. Namely, the traditional hierarchy of monetary aggregates goes from cash to the very liquid claims, such as demand deposits, going out to more illiquid claims on the banking sector, such as term savings deposits. As the criterion is how easily such claims can be used to settle transactions, in the context of quantity equation of money, this traditional monetary aggregate is more appropriate in identifying the extent to which inflation is likely.

For financial stability purposes however, we may conceive an alternative classification scheme which is more directly related to the propagation of financial risks. Rather than the money demand decisions by savers, we can look at the money supply and funding decisions of banks. The movement of this alternative aggregate must have implications on the stage of financial cycle and the systemic risk, which cannot be captured by ease of settlement of transactions. For instance, overnight repurchase agreements (repos) between financial institutions are claims that are short term and highly liquid. However, the recent global financial crisis demonstrated that repos could be highly destabilizing when higher margins are charged by creditors in crisis episodes, setting off a spiral of distress in the financial system as a whole (Gorton 2008; Morris and Shin 2009; Adrian and Shin 2010).

Shin and Shin (2011) emphasized that an important dimension that is not addressed in the traditional hierarchy of monetary aggregates is who holds the claims. This dimension is important for financial stability purposes as the same claim can have very different stability implications if they are held by heterogeneous entities. The cash deposits of a leveraged hedge fund at its prime broker are similar to demand deposits of household savers in the banking system in terms of how liquid the claim is. However, they have very different systemic risk implications. At the other end of the spectrum, a covered bond issued by a bank is an extremely illiquid long-term claim that is not money-like at all. However, a covered bond held by long-term investors such as a pension fund is similar to retail deposits in that the funding provided to the banking sector is more stable than a mortgage-backed security or a collateralized debt obligation (CDO) held by a securities firm.
Hence, from the perspective of financial stability, traditional monetary aggregates such as M1 and M2 are less useful in identifying the stage of financial cycles. The relevant distinction is not how ‘cash-like’ a claim is as embedded in traditional monetary aggregates, but the core versus non-core properties that have to do with whether the claim is held by the ultimate domestic creditors, such as households, as it is more stable. Overnight repurchase agreements and other claims held by financial corporations on other financial corporations can be regarded as non-core liabilities which are less sticky and more volatile.

Furthermore, we cannot readily identify traditional monetary aggregates with the size of the liabilities of leveraged institutions which play a crucial role in the fluctuation of financial cycles. Many of the leveraged institutions, such as investment banks, hedge funds, and off-balance sheet vehicles, do not belong to deposit-funded banks. Hence, their liabilities are not counted as ‘money’. In countries with a more capital-market oriented financial system, traditional monetary aggregates may represent only a small proportion of aggregate size of the leveraged financial institutions. The increasing trend toward greater reliance on non-traditional, non-deposit based funding, such as interbank loans, commercial papers, and asset-backed securities, has also made traditional monetary aggregates less appropriate for macro-prudential policy.

For countries with considerably open capital markets, foreign capital flows play a particularly important role in financial cycles. During a credit boom when bank credits are growing rapidly, the funding required outstrips the growth of domestic deposits, and is often met by foreign capital flows, which is reflected in the growth of short-term foreign currency bank liabilities. As such, short-term foreign currency bank liabilities can also be seen as the volatile non-core liabilities in open emerging market economies.

Overall, the classification of bank liabilities based upon the core versus non-core properties would provide a better window on the actual exposure of the banking sector to financial vulnerability and their willingness to take risks. As such, the relative size of non-core versus core liabilities can be used as a useful monitoring tool to reflect the stage of the financial cycle and the degree of vulnerability to potential setbacks.

2.2 An Accounting Framework for Core and Non-core Bank Liability Aggregates

Shin and Shin (2011) considered a basic accounting framework to clarify the notion of core and non-core liabilities. This section follows Shin and Shin (2011). Suppose that the domestic financial system consists of ultimate borrowers (domestic firms and households) and ultimate creditors
Global shock, risks, and Asian financial reform

(domestic households). The domestic banking sector channels funds from ultimate creditors to ultimate borrowers. There exists also a foreign sector that stands ready to supply funds to the domestic banking sector. Shin and Shin (2011) show that the aggregate balance sheet identity can be represented as follows:

\[ \text{Total core liabilities} = \sum_{i=1}^{n} e_i z_i (\lambda_i - 1) \]  

(2.1)

where \( e_i \) is the equity of bank \( i \), \( \lambda_i \) is the leverage of bank \( i \), \( z_i \) is the ratio of bank \( i \)'s core liabilities to its total liabilities, and \( n \) is the number of banks in the banking system. The core liabilities of a bank are its liabilities to the non-bank domestic creditors (such as through retail deposits). The non-core liabilities of a bank are either a liability to another bank, or a liability to a foreign creditor – usually a global bank. Since total core liabilities (retail deposits) are sticky and slow-moving, in equation (2.1), a rapid increase in total bank assets (equity multiplied by leverage) must result in lower \( z_i \) values, implying a greater reliance on non-core liabilities.

In this way, there are close conceptual links between procyclicality, interconnectedness and the stock of non-core liabilities of the banking system. In a boom, we have the conjunction of three features:

- total lending increases rapidly in a credit boom;
- non-core (including foreign currency) liabilities increase as a proportion of total liabilities; and
- systemic risk increases through greater cross-holdings among financial intermediaries.

As such, systemic risk is procyclical and non-core liabilities lie at the heart of the increase in bank interconnectedness. Addressing excessive asset growth in booms will go a long way toward mitigating systemic risks and the cross-exposure among banks. Note also that the growth in non-core liabilities is typically accompanied by the shortening of maturity of the liabilities. The prevalence of short-maturity liabilities is a consequence of longer intermediation chains and the need to maintain a lending spread for each link in the chain given a normally upward sloping term structure. Hence, lengthening of the intermediation chains increases cross exposures across intermediaries.

The discussion so far suggests that the definition of core and non-core liabilities should focus on whether the liability is to ultimate domestic creditors or not. In practice however, the classification is not so clear-cut. For instance, the claims held by domestic non-financial corporate firms
share features of both core and non-core liabilities, and thus are not easy to classify. For small and medium-sized firms with an owner-manager, the bank deposits held by those firms are similar in nature with household deposits. However, deposits can be held by large enterprises with access to market financing, who can issue bonds and then deposit the proceeds in the banking system. In this case, those deposits should not be counted as a core liability, since the creditor firm is acting like a financial intermediary who borrows in the financial markets to lend to the banks.

Therefore, to take account of such ambiguities, it would be more practical to rely on a more graduated distinction between core and non-core bank liabilities allowing intermediate categories. As shown in Table 2.1, Shin and Shin (2011) suggested a two-way classification taking account of the traditional concern with the liquidity of monetary aggregates on one front, and the dimension of whether the liabilities are core or non-core on the other front. They used the distinction to examine the case of the Republic of Korea.

More specifically, Shin and Shin (2011) defined non-core liabilities based upon instruments as the sum of: (1) bank liabilities to foreign creditors, (2) bank debt securities, (3) promissory notes, (4) repos, and (5) certificates of deposit.² They examined the empirical properties of the non-core liabilities of the Korean banking sector and found that the non-core liabilities have undergone substantial changes over the financial cycle

Table 2.1 Classification of core versus non-core liabilities

<table>
<thead>
<tr>
<th></th>
<th>Core liability</th>
<th>Intermediate</th>
<th>Non-core liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly liquid</td>
<td>Cash &amp; Demand deposits</td>
<td>Demand deposits (non-financial corporate)</td>
<td>Repos</td>
</tr>
<tr>
<td></td>
<td>(households)</td>
<td></td>
<td>Call loans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short-term FX bank debt</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Time deposit &amp; CDs</td>
<td>Time deposit &amp; CDs (non-financial corporate)</td>
<td>Time deposit &amp; CDs (banks &amp; securities firms)</td>
</tr>
<tr>
<td></td>
<td>(households)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiquid</td>
<td>Trust accounts (households)</td>
<td>Trust accounts (non-financial corporate)</td>
<td>Long-term bank debt securities (banks &amp; securities firms)</td>
</tr>
<tr>
<td></td>
<td>Covered bonds (households)</td>
<td></td>
<td>ABS &amp; MBS</td>
</tr>
</tbody>
</table>

and traced out dramatic patterns over the two financial crises – the 1997 Asian financial crisis and the 2008 global crisis following the bankruptcy of Lehman Brothers.

Note that this measure of non-core liabilities is an approximation of true non-core liabilities as the classification is still based upon financial instruments rather than actual claim holders. For instance, bank debt securities such as debentures and CDs can be held by households, and those must be excluded from the non-core liabilities.

Utilizing the flow of funds data in the Republic of Korea, Hahm et al. (2012) further extended the framework to construct bank liability aggregates based upon who holds the claim. There are two key advantages of using the flow of funds data. First, bank liability aggregates classified by claim holders can be constructed as we can utilize detailed information on asset items of households and nonfinancial corporations in the flow of funds table. Second, unlike traditional monetary aggregates such as M1 and M2 in which interbank assets and liabilities are being netted out within a sector, the flow of funds data from the 1993 System of National Accounts (93 SNA) do not net out interbank liabilities within the banking sector and report assets and liabilities of banks in gross terms. Therefore, we can actually figure out a much more exact profile of bank liabilities to financial intermediaries, which is a key component of our non-core liabilities.

Using the bank liability aggregates based upon claim holders in the Republic of Korea, Hahm et al. (2012) examined the procyclicality of core and non-core liabilities over the business cycle. They found that non-core bank liabilities are much more procyclical than core liabilities, as hypothesized in the framework above. They also found that the accumulation of non-core bank liabilities in the Republic of Korea is more affected by the US monetary policy rate than the domestic policy rate. Based upon the findings, they argued that the new framework of bank liability aggregates based upon core versus non-core properties is a particularly useful tool to monitor the stages of the financial cycle in open emerging market countries. In the next section, we present the detailed methodologies of Hahm et al. (2012) and apply them to Asian countries.

3 CONSTRUCTION OF CORE AND NON-CORE BANK LIABILITIES IN ASIAN COUNTRIES

In this section, based upon the framework above, we construct core and non-core bank liability aggregates for the Republic of Korea and five other Asian countries – Indonesia, Malaysia, Singapore, Thailand, and the
Philippines. As the detailed flow of funds data required in constructing the core and non-core bank liabilities are relatively more readily available in the Republic of Korea, we first present the case of the Republic of Korea to illustrate detailed methodologies and then apply them to other Asian countries to the extent possible.

3.1 The Case of the Republic of Korea

Following the methodology of Hahm et al. (2012), we update and extend their dataset to include the period after the recent global financial crisis and construct detailed measures of core and non-core bank liabilities for the Republic of Korea. As mentioned above, by utilizing information in the flow of funds data, we can construct bank liabilities classified by claim holders. In the Republic of Korea, the flow of funds data reports the financial flows across various sectors of the economy. Since it contains information on both assets and liabilities of each sector classified by detailed instruments, we can infer the information about who holds the claim. We obtained the Republic of Korea’s flow of funds data from the Bank of Korea (BOK; http://ecos.bok.or.kr/, accessed 30 November 2012).

To construct bank liability aggregates, we focus on the liabilities outstanding (that is, stock measures) of depository financial corporations, which include domestically licensed banks, specialized banks, foreign bank branches, bank holding companies, and non-bank depository institutions such as bank trust accounts and credit unions. Hereinafter, we simply refer to the depository financial corporations as banks. The data are quarterly (end of quarter) from 2002 quarter 4 (Q4) to 2012 quarter 3 (Q3). Our sample period begins from 2002 Q4 due to the substantial revision of the data collection method following the 93 SNA. Before 2002 Q4, no data are reported according to the new 93 SNA and no separate accounts exist for different types of financial corporations. As mentioned above, another advantage of using the 93 SNA data is that it reports gross liability data within each sector without netting cross transactions within the sector, which is far more appropriate to capture the expansion and shrinkage of the balance sheet of financial intermediaries. Hence, we can capture more accurately the procyclicality of interbank liabilities, which is not possible in the case of traditional monetary aggregates in which interbank liabilities are being netted out by construction. Given our purpose of constructing core and non-core bank liabilities, we exclude equities, FDIs, Bank of Korea loans, beneficiary certificates and miscellaneous items from the total liabilities of banks.

Our bank liabilities data are classified by two dimensions: by instruments
and by claim holders. First, as for the dimension of instruments, bank liabilities are classified into six broad categories: deposits; securities other than shares; loans; call loans and call money; financial derivatives; and other foreign claims. Other foreign claims are mainly foreign borrowings of domestic banks and foreign bank branches located in the Republic of Korea. Deposits are further classified into six sub-categories: transferable and short-term deposits; long-term savings deposits; cover bills; negotiable certificate of deposits (CDs); repurchase agreements (RPs); and money in trust. Securities other than shares (hereinafter securities) are further classified into three categories: financial debentures; commercial papers (CP); and external securities. Loans are further classified into four categories (excluding the BOK loans): depository corporation loans; insurance company loans; loans by credit-specialized financial institutions; and loans by public financial institutions.

Figure 2.1 shows the trends of banks’ liabilities classified by instruments. In terms of size, deposits are the largest item, constituting over 50 percent of the total bank liabilities. The growth of most instruments other than deposits has stagnated in the aftermath of the global financial crisis in 2008. Note also that four instruments in particular – securities, financial derivatives, loans, and foreign debts exhibit a more pronounced rise and fall around the crisis.

Second, on the dimension of claim holders, the bank liabilities are classified into four categories depending upon who holds the claim: other financial corporations; non-financial corporations; individuals (households); and the rest of the world (foreign sector). More detailed information on the items in the flow of funds – asset liability stock dataset utilized to build bank liabilities by claim holders – are as follow:

1. **Claim holder: Financial institutions** (= depository corporations + insurance corporations + other financial intermediaries). We add the following asset items of financial institutions to construct bank liabilities to financial institutions:
   (a) transferable and short-term deposits
   (b) long-term savings deposits
   (c) cover bills
   (d) negotiable certificate of deposits
   (e) repurchase agreement
   (f) money in trust
   (g) financial debentures
   (h) financial derivatives
   (i) call loans and money.

   We also add the following liability item of the depository institutions:
Note: Units are billion KRW. Deposits are measured by the right axis. Others are measured by the left axis.

Figure 2.1 Bank liabilities by instruments – Republic of Korea
Global shock, risks, and Asian financial reform

(j) loans (BOK loans and loans by public financial institutions excluded).

2. **Claim holder: Individuals.** We add the following asset items of households and nonprofit organizations to construct bank liabilities to individuals:
   - (a) transferable and short-term deposits
   - (b) long-term savings deposits
   - (c) cover bills
   - (d) negotiable certificate of deposits
   - (e) repurchase agreement
   - (f) money in trust
   - (g) financial debentures
   - (h) beneficiary certificates
   - (i) financial derivatives.

3. **Claim holder: Nonfinancial corporations.** As for the bank liabilities to nonfinancial corporations, we add the following asset items of nonfinancial corporations:
   - (a) transferable and short-term deposits
   - (b) long-term savings deposits
   - (c) cover bills
   - (d) negotiable certificate of deposits
   - (e) repurchase agreement
   - (f) money in trust
   - (g) financial debentures
   - (h) beneficiary certificates
   - (i) financial derivatives.

4. **Claim holder: Rest of the world.** For the bank liabilities to the foreign sector, rather than the flow of funds data, we used more exact data on the external debts of depository corporations from the balance of payments account.

   The evolution over time of bank liabilities by claim holders in the Republic of Korea is shown in Figure 2.2. The upper panel shows the stacked chart and the lower panel shows more detailed trends of respective liabilities with liabilities to the rest of the world shown on the separate right axis. Note that in the previous section, core liabilities were defined as liabilities held by individuals or non-financial corporations, and non-core liabilities as those held by financial corporations or by the foreign sector. Both the liabilities held by financial corporations and liabilities held by the foreign sector had increased rapidly at the onset of the 2007–08 crisis and then decreased afterwards, which is a typical dynamic of non-core liabilities around financial crisis. While foreigners had reduced their holdings
Figure 2.2  Bank liabilities by claim holders – Republic of Korea
Figure 2.2 (continued)
at the end of 2008 and maintained their position subsequently, financial institutions reduced their holdings most dramatically after the crisis. In contrast, the liabilities held by individuals and by non-financial corporations have increased steadily without much fluctuation around the crisis, which is a typical property of core liabilities.

We can also classify bank liabilities by both dimensions of instruments and claim holders jointly. To illustrate the importance of distinguishing claims by creditors even at the individual instrument level, Figure 2.3 further classifies bank debentures by claimholders. It is worth noting that even at the specific instrument level, bank debentures held by financial corporations show relatively higher fluctuations, a typical feature of non-core liabilities.

### 3.2 Other Asian Countries

We now apply the framework above to five other Asian countries and construct bank liabilities. The five Asian countries include Indonesia, Malaysia, Singapore, Thailand, and the Philippines. As in the case of the Republic of Korea, we attempted to construct bank liabilities by claim holders by including deposit as well as other non-deposit liabilities to the extent that those data are available. However, in many Asian countries, data on non-deposits liabilities of banks by claim holders are not available. Detailed bank liabilities and data sources for respective countries are as follows:

1. **Indonesia.** We construct liabilities by claim holders for private deposits of commercial and rural banks in Indonesia, which are the sum of demand deposits, time deposits and savings deposits. (Data source: http://www.bi.go.id/web/en/Statistik/Statistik+Ekonomi+dan+Keuangan+Indonesia/Versi+HTML/Sektor+Moneter/)

2. **Malaysia.** For bank liabilities in Malaysia, we used deposit data of commercial banks, finance companies, and merchant or investment banks. Deposits include demand deposits, fixed deposits, special investment deposit and general investment deposit, saving deposits, repurchase agreements, negotiable instruments of deposits, foreign currency deposits, and other deposits accepted. (Data source: http://www.bnm.gov.my/index.php?ch=en_publication catalogue&pg=en_publication msb&mth=8&yr=2012&lang=en)

3. **The Philippines.** For the Philippines, bank liabilities are defined as liabilities of universal and commercial banks, thrift banks, and rural and cooperative banks. Detailed instruments of bank liabilities include deposit liabilities (both peso and foreign currency), bills
Figure 2.3  Bank debentures by claim holders – Republic of Korea
payable (deposit substitutes, and others), and special financing (time certificates of deposits, special time deposits, and trust receipt). Unfortunately, it is not possible to obtain disaggregated bank liabilities data by claim holders. Hence, we just compare bank liabilities to all sectors and bank liabilities to foreign sectors. (Data source: http://www.bsp.gov.ph/banking/)

4. **Singapore.** For bank liabilities in Singapore, we used deposits (excluding Singapore dollar negotiable certificates of deposit – NCDs) of domestic banking units by types of non-bank customers. Deposit instruments include demand deposits (sight deposits or call deposits), fixed deposits (time deposits), savings and other deposits. While we could obtain bank liabilities to non-bank financial institutions and liabilities to foreign sector, it is not possible to decompose bank liabilities into individuals and non-financial corporations. Hence, we report bank liabilities to individuals and nonfinancial corporations combined. (Data source: http://www.mas.gov.sg/en/Statistics /Monthly-Statistical-Bulletin /Money-and-Banking.aspx)

5. **Thailand.** For Thailand, deposits refer to deposits issued by commercial banks and foreign bank branches including the Bangkok international banking facility (IBF) and stand-alone IBFs. Deposits include demand deposits, time deposits and saving deposits. (Data source: http://www. bot.or.th/English/Statistics/FinancialInstitutions/CommercialBank/Pages/StatDepositsAndLoans.aspx)

Note that, as for the bank liabilities to the rest of the world, we use the Bank for International Settlements (BIS) cross-border bank debt data for all five Asian countries.

Figures 2.4 to 2.8 show bank liabilities classified by claim holders for the respective five Asian countries. Again stacked charts are provided to help compare relative magnitudes of each bank liability and line charts to highlight detailed time-series patterns of each bank liability by claim holders. Note that a common striking feature of the bank liabilities in Asian countries is that bank liabilities from the rest of the world show a typical dynamic pattern as a non-core liability. Namely, in every Asian country we examine, the bank liabilities to foreign sector reveal the highest volatility, which is also consistent with the Korean case presented above.

Another interesting observation is that, unlike the Republic of Korea, bank liabilities to financial institutions, which are another source of non-core liability, show a much smoother pattern. However, this feature may come from the data problem. Note that bank liabilities to financial corporations in the Republic of Korea include interbank liabilities while bank liabilities to financial corporations in the other five Asian countries include
Figure 2.4  Bank liabilities by claim holders – Indonesia
Figure 2.5  Bank liabilities by claim holders – Malaysia
Figure 2.6  Bank liabilities by claim holders – the Philippines
Figure 2.7  Bank liabilities by claim holders – Singapore
Figure 2.8  Bank liabilities by claim holders – Thailand
only deposits made by other non-bank financial institutions. This may also reflect that the non-bank financial institutions sector is not large enough relative to the commercial banking sector in these countries, and hence that the magnitude of bank liabilities to non-bank financial institutions is relatively small as we can see from Figures 2.4–2.8. Therefore, it would be premature and misleading to conclude that bank liabilities to financial institutions do not show non-core properties in other Asian countries without taking interbank liabilities into account. In the next section, we use these bank liability measures to investigate their empirical properties in a more rigorous way.

4 PROCYCLICALITY OF BANK LIABILITY AGGREGATES IN ASIA

In mitigating procyclicality of credit growth, which is a key challenge in macro-prudential policies, it is necessary to monitor and identify the relevant stage of financial cycles. As emphasized in the previous section, we hypothesize that financial cycles are characterized by the expansion and shrinkage of non-core bank liabilities. During the boom, when bank lending increases fast, liabilities also increase but all the liabilities do not respond to the stage of the business cycle evenly. This differential response of liabilities is instrumental in constructing core and non-core liabilities. Namely, non-core liabilities tend to be more procyclical than core liabilities. In this section, we examine empirical properties of core and non-core bank liabilities in Asian countries using our measures of bank liability aggregates constructed above.

4.1 Responsiveness of Bank Liabilities to Real GDP

We follow Hahm et al. (2012) to obtain measures of procyclicality of bank liabilities with respect to the domestic business cycle. They obtain the responsiveness of a bank liability over the business cycle by estimating the elasticity of the liability with respect to real GDP. The elasticity of each bank liability $i$ with respect to real GDP is calculated through regressions of the following form:

$$\ln(L_{it}) = \beta_0 + \beta_1 \ln(y_{t+\tau}) + u_{it}, \quad \tau = -1,0,1$$  (2.2)

Here, $L_{it}$ is bank liability $i$ at date $t$ and $y_{t+\tau}$ is real GDP at date $t + \tau$, where $\tau$ takes values $\tau = -1,0,1$. In the regression the estimated value of $\beta_1$ represents the elasticity of liability $i$ with respect to the current real GDP.
(\(\tau = 0\)), the lagged real GDP (\(\tau = -1\)) and the lead real GDP (\(\tau = 1\)). We run the above regression for each of the six Asian countries in order to identify which type of bank liability is most responsive to real GDP in each country. The estimation period is from 2002 Q4 to 2012 Q2. We also estimate separate regressions for the period of global credit boom before the Lehman fallout in 2008 (2002 Q4–2008 Q3).

As more detailed information on bank liabilities for non-deposit instruments is available in the Republic of Korea, we first estimate the responsiveness of various instruments to real GDP in the Republic of Korea. Table 2.2 shows the regression results.\(^4\) While we used revised and updated data, the findings are very consistent with those reported in Hahm et al. (2012). Since the estimated elasticity measures across different time lags and leads in real GDP are similar in magnitude, to simplify our discussion, we focus on the elasticity estimates with respect to the contemporaneous real GDP. The elasticity estimate of the aggregate liabilities with respect to real GDP in the entire sample period is 2.42 and in the boom period 2.34. Hence aggregate bank liabilities fluctuate approximately 2.3–2.4 times more than real GDP over the business cycle in the Republic of Korea. Contraction in bank liabilities seem to be slightly more responsive in business cycle downturns as boom period elasticity is a little bit lower.

Now we compare the GDP elasticity by instruments. The GDP elasticity of deposits is lower in general; it is 2.14 in the entire sample period and 1.58 in the boom period. In contrast, GDP elasticity estimates of securities such as financial debentures and external securities are relatively high; they are 3.01 and 4.18 respectively in the entire sample period and 4.16 and 4.26 respectively in the boom period. As anticipated, the GDP elasticity estimates of financial derivatives and other foreign claims are also quite high; they are estimated to be 6.86 and 3.48 in the entire sample period and 7.0 and 3.51 in the boom period. Among all the instruments, the highest GDP elasticity is estimated for financial derivatives.\(^5\) Overall results are consistent with what our hypothesis suggests. Liability instruments more geared to non-core wholesale funding such as securities, external borrowing, and financial derivatives seem to be more procyclical.

We now turn to more exact classifications of core and non-core liabilities, namely, bank liabilities by claim holders. In Table 2.3 we report the estimated elasticity measures with respect to real GDP of bank liabilities in the Republic of Korea classified by claim holders.\(^6\) As can be seen in Table 2.3, the credit provided by households is the most stable source of bank liabilities in the Republic of Korea; the GDP elasticity of bank liabilities held by households is estimated to be 1.81 in the entire sample period and 1.06 in the boom period. The GDP elasticity of liabilities held by nonfinancial corporations is also relatively low: it is around 2.7 in the
entire sample period and around 2.2 in the boom period. This property that liabilities held by households are less procyclical is the key in defining the liabilities held by households as core liabilities. The liabilities held by nonfinancial corporations are in the intermediate range, but at least for the Republic of Korea they must be included as core liabilities as well.

In contrast, the liabilities held by financial corporations and the foreign

Table 2.2  Real GDP elasticity of bank liabilities by instruments – Republic of Korea

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elasticity</td>
<td></td>
<td>Elasticity</td>
</tr>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Aggregate</td>
<td>2.42***</td>
<td>2.42***</td>
<td>2.44***</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.11)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>Deposits Total</td>
<td>2.16***</td>
<td>2.14***</td>
<td>2.13***</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Short term</td>
<td>2.35***</td>
<td>2.31***</td>
<td>2.29***</td>
</tr>
<tr>
<td></td>
<td>(0.15)</td>
<td>(0.15)</td>
<td>(0.15)</td>
</tr>
<tr>
<td>Long term</td>
<td>2.02***</td>
<td>2.02***</td>
<td>2.00***</td>
</tr>
<tr>
<td></td>
<td>(0.10)</td>
<td>(0.10)</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Cover bills</td>
<td>−3.22***</td>
<td>−3.21***</td>
<td>−3.20***</td>
</tr>
<tr>
<td></td>
<td>(0.40)</td>
<td>(0.38)</td>
<td>(0.39)</td>
</tr>
<tr>
<td>CDs</td>
<td>1.20</td>
<td>1.50*</td>
<td>1.90**</td>
</tr>
<tr>
<td></td>
<td>(0.82)</td>
<td>(0.79)</td>
<td>(0.79)</td>
</tr>
<tr>
<td>Money in trust</td>
<td>3.91***</td>
<td>3.69***</td>
<td>3.58***</td>
</tr>
<tr>
<td>Securities Total</td>
<td>2.76***</td>
<td>2.80***</td>
<td>2.89***</td>
</tr>
<tr>
<td></td>
<td>(0.21)</td>
<td>(0.21)</td>
<td>(0.21)</td>
</tr>
<tr>
<td>Financial debentures</td>
<td>2.93***</td>
<td>3.01***</td>
<td>3.13***</td>
</tr>
<tr>
<td></td>
<td>(0.25)</td>
<td>(0.25)</td>
<td>(0.26)</td>
</tr>
<tr>
<td>External securities</td>
<td>4.12***</td>
<td>4.18***</td>
<td>4.20***</td>
</tr>
<tr>
<td></td>
<td>(0.22)</td>
<td>(0.23)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Loans</td>
<td>1.77***</td>
<td>1.72***</td>
<td>1.78***</td>
</tr>
<tr>
<td></td>
<td>(0.29)</td>
<td>(0.29)</td>
<td>(0.30)</td>
</tr>
<tr>
<td>Financial derivatives</td>
<td>6.77***</td>
<td>6.86***</td>
<td>7.09***</td>
</tr>
<tr>
<td></td>
<td>(0.79)</td>
<td>(0.78)</td>
<td>(0.82)</td>
</tr>
<tr>
<td>Call loans and money</td>
<td>1.42***</td>
<td>1.71***</td>
<td>1.88***</td>
</tr>
<tr>
<td></td>
<td>(0.52)</td>
<td>(0.52)</td>
<td>(0.53)</td>
</tr>
<tr>
<td>Other foreign claims</td>
<td>3.54***</td>
<td>3.48***</td>
<td>3.47***</td>
</tr>
<tr>
<td></td>
<td>(0.27)</td>
<td>(0.27)</td>
<td>(0.31)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
sector are much more procyclical over the business cycle. Hence they constitute non-core liabilities. The GDP elasticity of the liabilities held by financial corporations is 3.06 in the entire sample period and 3.33 in the boom period. The GDP elasticity of the liabilities held by the foreign sector is 3.89 in the entire sample period and 4.41 in the boom period. Overall, the new estimation results in the Republic of Korea based on revised and updated data confirm that bank liabilities can be classified as core versus non-core liabilities depending upon who holds the claim, and this classification accurately captures the heterogeneous degree of respective liabilities’ contribution to financial procyclicality.

We apply the same methodology to other Asian countries in order to examine whether bank liabilities in other Asian countries also show a similar pattern. Tables 2.4 to 2.8 show the estimated elasticity measures of bank liabilities by claim holders with respect to real GDP for Indonesia, Malaysia, the Philippines, Singapore, and Thailand, respectively. As the tables show, bank liabilities in Asian countries are also quite procyclical as indicated by the significantly positive real GDP elasticity estimates although the elasticity estimates are in general slightly lower than those in the Republic of Korea. The degree of procyclicality varies across claim holders and across countries.

In Indonesia, during the whole period, bank liabilities to financial corporations exhibit relatively high elasticity estimates, however in the boom

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Whole period</th>
<th>Boom period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1 0 1</td>
<td>−1 0 1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>3.03***</td>
<td>3.06***</td>
</tr>
<tr>
<td></td>
<td>(0.19)</td>
<td>(0.20)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>2.71***</td>
<td>2.70***</td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
<td>(0.14)</td>
</tr>
<tr>
<td>Households</td>
<td>1.82***</td>
<td>1.81***</td>
</tr>
<tr>
<td></td>
<td>(0.10)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>3.91***</td>
<td>3.89***</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
<td>(0.27)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
## Table 2.4  Real GDP elasticity of bank liabilities by claim holders – Indonesia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>2.50***</td>
<td>2.35***</td>
</tr>
<tr>
<td>(0.16)</td>
<td>(0.16)</td>
<td>(0.16)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>0.81***</td>
<td>0.79***</td>
</tr>
<tr>
<td>(0.23)</td>
<td>(0.23)</td>
<td>(0.24)</td>
</tr>
<tr>
<td>Households</td>
<td>2.27***</td>
<td>2.22***</td>
</tr>
<tr>
<td>(0.06)</td>
<td>(0.07)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>2.28***</td>
<td>2.25***</td>
</tr>
<tr>
<td>(0.14)</td>
<td>(0.14)</td>
<td>(0.15)</td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

## Table 2.5  Real GDP elasticity of bank liabilities by claim holders – Malaysia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>2.53***</td>
<td>2.58***</td>
</tr>
<tr>
<td>(0.14)</td>
<td>(0.14)</td>
<td>(0.13)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>2.53***</td>
<td>2.58***</td>
</tr>
<tr>
<td>(0.10)</td>
<td>(0.11)</td>
<td>(0.11)</td>
</tr>
<tr>
<td>Households</td>
<td>1.58***</td>
<td>1.60***</td>
</tr>
<tr>
<td>(0.07)</td>
<td>(0.08)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.56*</td>
<td>0.69**</td>
</tr>
<tr>
<td>(0.32)</td>
<td>(0.31)</td>
<td>(0.32)</td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
Monetary aggregates and procyclicality of the financial system

period, liabilities to foreign sector yield higher elasticity estimates. Liabilities to nonfinancial corporations exhibit relatively low responsiveness to real GDP. In Malaysia as well, liabilities to financial corporations show relatively high elasticity estimates in the entire period, but in the boom period, liabilities to the foreign sector exhibit higher elasticity, which implies that foreign liabilities are more procyclical in the global credit cycle boom period. As anticipated, household claims are less procyclical in Malaysia, but interestingly, liabilities to nonfinancial corporations show fairly high elasticity estimates.

### Table 2.6 Real GDP elasticity of bank liabilities by claim holders – the Philippines

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1 0 1</td>
<td>−1 0 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All sectors</td>
<td>1.51*** (0.17) 1.54*** (0.17) 1.47*** (0.19)</td>
<td>1.07*** (0.16) 1.08*** (0.18) 1.02*** (0.19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.95*** (0.22) 1.12*** (0.20) 0.94*** (0.24)</td>
<td>1.41*** (0.31) 1.63*** (0.27) 1.49*** (0.33)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

### Table 2.7 Real GDP elasticity of bank liabilities by claim holders – Singapore

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1 0 1</td>
<td>−1 0 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial corporations</td>
<td>2.36*** (0.15) 2.33*** (0.16) 2.31*** (0.17)</td>
<td>1.69*** (0.19) 1.68*** (0.19) 1.62*** (0.20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households + nonfinancial</td>
<td>1.64*** (0.07) 1.63*** (0.08) 1.63*** (0.08)</td>
<td>1.31*** (0.08) 1.30*** (0.08) 1.28*** (0.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.51*** (0.08) 0.51*** (0.08) 0.51*** (0.09)</td>
<td>0.80*** (0.10) 0.77*** (0.10) 0.69*** (0.11)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
In the Philippines we could not obtain disaggregated bank liabilities by claim holders. However, we also observe that foreign claims become more procyclical in boom period. In Singapore, financial corporations show the highest elasticity estimates while households and nonfinancial corporations combined show relatively low elasticity estimates, which is consistent with our core versus non-core liability hypothesis. Note, interestingly, that foreign sector claims exhibit fairly low real GDP elasticity in Singapore, suggesting that external debt of Singaporean banks are not very responsive to the domestic real GDP cycle. However, this does not necessarily suggest that the banking sector in Singapore is less sensitive to global financial conditions. Singapore is a small country with a relatively large financial sector, and bank liabilities, as shown in section 2.3, are more responsive to other external factors such as global liquidity than domestic GDP. In Thailand, nonfinancial corporations exhibit the highest real GDP elasticity in the whole sample, while foreign sector liabilities become much more responsive to real GDP in the boom period. Household claims are again a stable source of bank financing in Thailand confirming their core properties.

### 4.2 Responsiveness of Bank Liabilities to Policy Interest Rates

Following Hahm et al. (2012), we also estimate the responsiveness of bank liabilities with respect to the stance of monetary policy as measured by the

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Elasticity</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Whole period</td>
<td>Boom period</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial corporations</td>
<td>0.57***</td>
<td>0.71***</td>
<td>0.64***</td>
<td>0.27</td>
<td>0.60**</td>
<td>0.82***</td>
</tr>
<tr>
<td></td>
<td>(0.20)</td>
<td>(0.19)</td>
<td>(0.18)</td>
<td>(0.26)</td>
<td>(0.25)</td>
<td>(0.22)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>1.93***</td>
<td>1.95***</td>
<td>1.92***</td>
<td>1.86***</td>
<td>1.88***</td>
<td>1.93***</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.14)</td>
<td>(0.15)</td>
<td>(0.19)</td>
<td>(0.20)</td>
<td>(0.22)</td>
</tr>
<tr>
<td>Households</td>
<td>0.77***</td>
<td>0.78***</td>
<td>0.73***</td>
<td>0.57***</td>
<td>0.58***</td>
<td>0.57***</td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td>(0.07)</td>
<td>(0.07)</td>
<td>(0.05)</td>
<td>(0.06)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.14</td>
<td>0.38</td>
<td>0.37</td>
<td>1.62***</td>
<td>1.99***</td>
<td>2.43***</td>
</tr>
<tr>
<td></td>
<td>(0.40)</td>
<td>(0.39)</td>
<td>(0.41)</td>
<td>(0.56)</td>
<td>(0.51)</td>
<td>(0.46)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
short-term policy interest rate, and investigate whether core and non-core liabilities show a differential responsiveness. For instance, a permissive monetary policy environment characterized by low interest rates may lead to amplification of financial cycles through expansion of short-term market-based borrowings. Furthermore, from the perspective of financial stability policy of central banks to use monetary policy to lean against excessive build-up of bank liabilities, it will be instructive to investigate if bank liabilities respond to the change in the policy interest rate.

In order to examine this possibility, we estimate a semi-elasticity of bank liabilities with respect to the domestic policy interest rate by estimating the following regression:

$$\ln(L_{it}) = \beta_0 + \beta_1 \ln(y_i) + \beta_2 i_{t+\tau} + u_{it}, \quad \tau = -1, 0, 1$$

(2.3)

where $i_{t+\tau}$ is the domestic policy interest rate at time $t + \tau$. In the regression the estimated value of $\beta_2$ represents a semi-elasticity of liability $i$ with respective to the policy rate after controlling the impact of real GDP in each country. While our regression results do not specify any causal relationship, if we take the policy rate to be exogenous, we could interpret the estimates as the response of bank liabilities to the domestic policy rate and thereby explore whether local monetary policy can be used for a prudential purpose to contain excessive loan growth and thus procyclicality of bank credits.

Tables 2.9 to 2.14 report estimates of the semi-elasticity with respect to the domestic policy interest rate of bank liabilities classified by claim holders for the Republic of Korea and five other Asian countries. First, as the tables show, Asian countries, including the Republic of Korea, exhibit relatively low interest rate semi-elasticity estimates. In many cases, the estimates are not significantly different from zero, and even in the case where they are significant, the elasticity estimates are not much different from zero. This finding suggests that monetary policy may not be a useful tool to lean against financial cycles in Asia.

Second, while domestic liabilities tend to show negative elasticity estimates in many cases as expected, bank liabilities to the foreign sector mostly exhibit quite significant positive estimates. In the whole sample period, Indonesia, Malaysia, the Philippines, and Thailand show significantly positive interest rate semi-elasticity estimates. In the boom period, foreign claims in the Republic of Korea also show quite strong interest rate semi-elasticity while Singapore is the only exception which shows negative elasticity. The seemingly opposite sign of the semi-elasticity across domestic and foreign claim holders is suggestive of that, while domestic monetary policy may exert influence over domestic bank liabilities, its effectiveness
Table 2.9  Interest rate elasticity of bank liabilities by claim holders – Republic of Korea

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interest rate elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>−1</td>
<td>0</td>
</tr>
<tr>
<td>Financial corporations</td>
<td></td>
<td>0.02</td>
<td>−0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td></td>
<td>−0.02</td>
<td>−0.05***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.02)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Households</td>
<td></td>
<td>−0.04***</td>
<td>−0.04***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td></td>
<td>0.07**</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
</tbody>
</table>

Note:  T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

Table 2.10  Interest rate elasticity of bank liabilities by claim holders – Indonesia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interest rate elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>−1</td>
<td>0</td>
</tr>
<tr>
<td>Financial corporations</td>
<td></td>
<td>−0.01</td>
<td>−0.03*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td></td>
<td>0.07***</td>
<td>0.06***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Households</td>
<td></td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td></td>
<td>0.02*</td>
<td>0.04***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
</tbody>
</table>

Note:  T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
gets significantly impaired in the case of bank liabilities to foreign claim holders. Namely, when domestic policy rates are tightened, bank liabilities to the foreign sector tend to increase rather than decrease.

Note that this heterogeneous response of bank liabilities with respect to interest rates may arise from the fact that, in open emerging economies, bank liabilities are often affected by foreign monetary policies and global liquidity conditions. For instance, lax monetary policies in advanced

### Table 2.11 Interest rate elasticity of bank liabilities by claim holders – Malaysia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interest rate elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>-0.03</td>
<td>-0.06*</td>
<td>-0.06*</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>-0.01</td>
<td>-0.05*</td>
<td>-0.06**</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Households</td>
<td>-0.02</td>
<td>-0.05***</td>
<td>-0.07***</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.37***</td>
<td>0.38***</td>
<td>0.40***</td>
</tr>
<tr>
<td></td>
<td>(0.07)</td>
<td>(0.07)</td>
<td>(0.06)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

### Table 2.12 Interest rate elasticity of bank liabilities by claim holders – the Philippines

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interest rate elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>All sectors</td>
<td>-0.08***</td>
<td>-0.08***</td>
<td>-0.08***</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.07***</td>
<td>0.06***</td>
<td>0.06***</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
Global shock, risks, and Asian financial reform

countries and affluent global liquidity condition can be transmitted to emerging market countries through the risk-taking channel. Ioannidou et al. (2009) examine a quasi-controlled experiment in Bolivia and find that lower US federal funds rates increase lending to low-quality borrowers,

**Table 2.13** Interest rate elasticity of bank liabilities by claim holders – Singapore

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interest rate elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1 0 1</td>
<td>−1 0 1</td>
<td>−1 0 1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>−0.11***</td>
<td>−0.12***</td>
<td>−0.12***</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Households + nonfinancial</td>
<td>−0.05***</td>
<td>−0.06***</td>
<td>−0.06***</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.00</td>
<td>−0.01</td>
<td>−0.01</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

**Table 2.14** Interest rate elasticity of bank liabilities by claim holders – Thailand

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interest rate elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1 0 1</td>
<td>−1 0 1</td>
<td>−1 0 1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>0.02</td>
<td>0.01</td>
<td>−0.01</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>0.03**</td>
<td>0.03**</td>
<td>0.03**</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Households</td>
<td>0.01</td>
<td>0.00</td>
<td>−0.00</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.16***</td>
<td>0.18***</td>
<td>0.19***</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.01)</td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
who end up with a higher rate of defaults yet at lower interest rate spreads. Bruno and Shin (2012a, 2012b) discuss and provide evidence for the risk-taking channel of monetary policy in the global context. In open emerging economies where the banking system is open to funding from global banks, rapid increases in the non-core liabilities of the banking system would show up as capital inflows through increased foreign exchange denominated liabilities of the banking system.

While we will explore more direct evidence of domestic bank liabilities being responsive to global liquidity shocks in the next section, we can get some indirect evidence by simply replacing the domestic policy interest rate with the foreign policy interest rate. For the foreign policy rate, we use the US federal funds rate set by the Federal Reserve (Fed). We estimate the regression equation modified as the following form:

\[
\ln(L_t) = \beta_0 + \beta_1 \ln(y_t) + \beta_2 i_{US}^{t+\tau} + u_{it}, \quad \tau = -1,0,1
\] (2.4)

where \(i_{US}^{t+\tau}\) is the US policy interest rate at time \(t + \tau\).

Global shock, risks, and Asian financial reform

Table 2.16 Federal Reserve fund rate elasticity of bank liabilities by claim holders – Indonesia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Federal Reserve fund rate elasticity</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Whole period (2002 Q4–2012 Q2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>−1 0 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial corporations</td>
<td>−0.04*** −0.04*** −0.04***</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>0.00</td>
<td>−0.01</td>
<td>−0.03**</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>0.04** 0.03 0.01</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>0.08**</td>
<td>0.05</td>
<td>0.01</td>
<td>(0.04)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Households</td>
<td>−0.02*** −0.02*** −0.01**</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>0.02***</td>
<td>0.02***</td>
<td>0.01</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.02* 0.01 0.01</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>0.04</td>
<td>0.02</td>
<td>0.00</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

Table 2.17 Federal Reserve fund rate elasticity of bank liabilities by claim holders – Malaysia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Federal Reserve fund rate elasticity</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Whole period (2002 Q4–2012 Q2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>−1 0 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial corporations</td>
<td>−0.01 −0.01 −0.01</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>0.04***</td>
<td>0.03**</td>
<td>0.03**</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>−0.01 −0.01 −0.01</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>0.02**</td>
<td>0.02*</td>
<td>0.01</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Households</td>
<td>−0.02*** −0.02*** −0.02**</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>0.00</td>
<td>−0.00</td>
<td>−0.00</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.11*** 0.11*** 0.11***</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>0.06**</td>
<td>0.05**</td>
<td>0.02</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

nonfinancial corporations, and the foreign sector show significantly negative estimates during the boom period. These findings are consistent with the conjecture that the US monetary policy shocks are transmitted to bank liabilities in the Republic of Korea. Singapore is another country that
exhibits significantly negative elasticity estimates with respect to the US policy rate. In Singapore, bank liabilities to all sectors are negatively related with the US policy rate in the boom period. However, in other Asian countries with a relatively closed financial sector, the elasticity estimates are relatively small and signs are not consistent across different bank liability aggregates.

In open emerging market countries, when foreign interest rates are low, financial intermediaries are more engaged in the carry trade of borrowing.

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Federal Reserve fund rate elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Whole period</td>
</tr>
<tr>
<td></td>
<td>(2002 Q4–2012 Q2)</td>
</tr>
<tr>
<td></td>
<td>−1 0 1</td>
</tr>
<tr>
<td>All sectors</td>
<td>−0.03*** −0.03*** −0.03***</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.01) (0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.06*** 0.05*** 0.05***</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.01) (0.01)</td>
</tr>
<tr>
<td></td>
<td>Boom period</td>
</tr>
<tr>
<td></td>
<td>(2002 Q4–2008 Q3)</td>
</tr>
<tr>
<td></td>
<td>−1 0 1</td>
</tr>
<tr>
<td>All sectors</td>
<td>0.04** 0.02 0.02</td>
</tr>
<tr>
<td></td>
<td>(0.02) (0.02) (0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.011*** 0.09*** 0.06***</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.02) (0.02)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Federal Reserve fund rate elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Whole period</td>
</tr>
<tr>
<td></td>
<td>(2002 Q4–2012 Q2)</td>
</tr>
<tr>
<td></td>
<td>−1 0 1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>−0.06*** −0.07*** −0.07***</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.01) (0.01)</td>
</tr>
<tr>
<td>Households + nonfinancial</td>
<td>−0.03*** −0.03*** −0.04***</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.00) (0.00)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.01 −0.00 −0.01</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.01) (0.01)</td>
</tr>
<tr>
<td></td>
<td>Boom period</td>
</tr>
<tr>
<td></td>
<td>(2002 Q4–2008 Q3)</td>
</tr>
<tr>
<td></td>
<td>−1 0 1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>−0.05** −0.06*** −0.05**</td>
</tr>
<tr>
<td></td>
<td>(0.03) (0.02) (0.02)</td>
</tr>
<tr>
<td>Households + nonfinancial</td>
<td>−0.02* −0.03*** −0.03***</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.01) (0.01)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>−0.05*** −0.05*** −0.05***</td>
</tr>
<tr>
<td></td>
<td>(0.01) (0.01) (0.01)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
Global shock, risks, and Asian financial reform

from the low foreign interest rate instruments and investing in higher domestic interest rate instruments. This carry trade implies more foreign borrowings, leading to larger bank liabilities held by the foreign sector. Since the intermediaries with more funding through the carry trade lend not only to firms and households but also to other intermediaries, banks’ liabilities held by financial corporations may also increase. Since these two non-core liabilities, held by the foreign sector and by financial corporations, are the major source of rapid accumulation of banks’ liabilities, the foreign interest rate must play an important role in open emerging market countries such as the Republic of Korea and Singapore.

4.3 Responsiveness of Bank Liabilities to Global Liquidity Conditions

Our findings in the previous section call for more direct evidence on the relationship between bank liability aggregates in emerging market countries and global liquidity conditions. Recent studies on the risk-taking channel of monetary policies in the global context indicate that global financial conditions are closely intertwined with cross-border banking and that global factors drive capital flows into diverse emerging market countries. For instance, according to Bruno and Shin (2012b), the US monetary policy shock that lowers the dollar funding cost of banks in capital flow-recipient economies gives an initial impetus for greater risk taking,
as banks in the recipient economy take advantage of lower dollar funding costs by increasing lending to domestic entities.

In this section, in order to yield further insights into the transmission of global financial conditions to Asian economies across borders, we investigate the impact of global factors such as cross-border bank capital flows and global market sentiment on bank liability aggregates in Asia. For instance, Bruno and Shin (2012b), in their empirical study, find that when the US dollar bank funding rate declines, there follows an increase in the leverage of the banking sector and increased capital flows as measured by the BIS banking statistics, which supports the risk-taking channel of monetary policy that operates through banking sector leverage. Following Bruno and Shin (2012a), as a measure of global liquidity condition, we employ the series on net interoffice assets of foreign banks in the US published by the Federal Reserve in its H8 data on commercial banks, for the specific category of foreign-related institutions. Another variable we employ as a measure of global financial market condition is the VIX index of implied volatility of S&P 500 equity index option prices from Chicago Board Options Exchange (CBOE) used in Adrian and Shin (2010, 2012), Forbes and Warnock (2011), Bekaert et al. (2012), and Bruno and Shin (2012a, 2012b).

More specifically, we estimate the following regressions to diagnose the impact of global liquidity and financial market conditions on bank liability aggregates in Asia:

\[
\ln(L_{it}) = \beta_0 + \beta_1 \ln(y_t) + \beta_2 \ln(\text{interoffice}_{t+\tau}) + u_{it}, \quad \tau = -1,0,1 \quad (2.5)
\]
\[
\ln(L_{it}) = \beta_0 + \beta_1 \ln(y_t) + \beta_2 \ln(VIX_{t+\tau}) + \beta_3 \ln(\text{interoffice}_{t+\tau}) + u_{it}, \quad \tau = -1,0,1 \quad (2.6)
\]

where \text{interoffice}_{t+\tau} and \text{VIX}_{t+\tau} are net interoffice assets of foreign banks in the US and VIX implied volatility index at time \( t + \tau \), respectively.

Estimation results of the regression (2.5) are reported in Tables 2.21 to 2.26. Consistent with the results in the previous section, the impact of cross-border interoffice loans from the US seems to be significant in many Asian countries, and most vividly materializes in relatively more open Asian countries such as the Republic of Korea and Singapore in which, global banks are more actively present. In the Republic of Korea, both liabilities to financial corporations and liabilities to the foreign sector, namely our definition of non-core liabilities, exhibit significantly positive and higher elasticity estimates relative to core liabilities such as household claims. In the boom period, the interoffice loan elasticity of non-core liabilities becomes even larger in magnitude. In Singapore, in the whole
### Table 2.21 Interoffice loan elasticity of bank liabilities – Republic of Korea

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>−1</td>
<td>0</td>
</tr>
<tr>
<td>Financial corporations</td>
<td></td>
<td>4.60***</td>
<td>3.68**</td>
</tr>
<tr>
<td>(1.60)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td></td>
<td>0.90</td>
<td>0.30</td>
</tr>
<tr>
<td>(1.27)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td></td>
<td>−2.57***</td>
<td>−2.84***</td>
</tr>
<tr>
<td>(0.69)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign sector</td>
<td></td>
<td>6.85***</td>
<td>5.67***</td>
</tr>
<tr>
<td>(2.14)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

### Table 2.22 Interoffice loan elasticity of bank liabilities – Indonesia

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>−1</td>
<td>0</td>
</tr>
<tr>
<td>Financial corporations</td>
<td></td>
<td>−8.32***</td>
<td>−8.38***</td>
</tr>
<tr>
<td>(1.68)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td></td>
<td>8.68***</td>
<td>7.79***</td>
</tr>
<tr>
<td>(2.95)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households</td>
<td></td>
<td>−2.34***</td>
<td>−2.52***</td>
</tr>
<tr>
<td>(0.86)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign sector</td>
<td></td>
<td>5.73***</td>
<td>4.66***</td>
</tr>
<tr>
<td>(1.77)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
sample period, only foreign claims are responsive, but in the boom period, all claims show significantly positive elasticity estimates and become much more responsive to interoffice capital flows. In relatively closed Asian economies, the interoffice loan elasticity measures do not seem to show a robust pattern across different claim holders and sample periods.

Table 2.27 to 2.32 report estimation results on regression (2.6). When we include both cross-border interoffice loans and VIX implied volatility index, it turns out that the VIX volatility index does not seem to

Table 2.23 Interoffice loan elasticity of bank liabilities – Malaysia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1 0 1</td>
<td>−1 0 1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>−5.07 −2.34 0.04</td>
<td>5.75 8.47* 6.49</td>
</tr>
<tr>
<td></td>
<td>(3.52) (3.13) (2.25)</td>
<td>(6.01) (5.13) (5.72)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>−1.35 −0.52 1.30</td>
<td>6.83* 6.24* 5.08</td>
</tr>
<tr>
<td></td>
<td>(2.85) (2.49) (1.76)</td>
<td>(3.63) (3.24) (3.63)</td>
</tr>
<tr>
<td>Households</td>
<td>−1.95 −2.34 −0.90</td>
<td>6.33*** 6.21*** 5.69***</td>
</tr>
<tr>
<td></td>
<td>(2.07) (1.77) (1.29)</td>
<td>(1.46) (1.26) (1.58)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>6.26* 7.37** 8.04***</td>
<td>1.92 −3.21 −0.34</td>
</tr>
<tr>
<td></td>
<td>(3.27) (2.94) (2.96)</td>
<td>(9.73) (8.62) (7.69)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

Table 2.24 Interoffice loan elasticity of bank liabilities – the Philippines

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1 0 1</td>
<td>−1 0 1</td>
</tr>
<tr>
<td>All sectors</td>
<td>2.28 0.69 −0.69</td>
<td>12.21*** 11.55*** 11.26***</td>
</tr>
<tr>
<td></td>
<td>(2.01) (1.71) (1.56)</td>
<td>(1.19) (1.06) (1.22)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>1.29 1.42 2.02</td>
<td>2.33 1.91 6.07</td>
</tr>
<tr>
<td></td>
<td>(2.43) (2.03) (1.83)</td>
<td>(4.50) (4.08) (4.31)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
Global shock, risks, and Asian financial reform

Table 2.25 Interoffice loan elasticity of bank liabilities – Singapore

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interoffice loan elasticity</th>
<th>Whole period</th>
<th>Boom period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Financial</td>
<td>−2.92</td>
<td>−3.78</td>
<td>−3.33</td>
</tr>
<tr>
<td>corporations</td>
<td>(3.11)</td>
<td>(2.53)</td>
<td>(2.29)</td>
</tr>
<tr>
<td>Households</td>
<td>−0.87</td>
<td>−1.31</td>
<td>−1.28</td>
</tr>
<tr>
<td>nonfinancial</td>
<td>(1.46)</td>
<td>(1.20)</td>
<td>(1.08)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>4.89***</td>
<td>3.61***</td>
<td>3.22***</td>
</tr>
<tr>
<td></td>
<td>(1.25)</td>
<td>(1.08)</td>
<td>(0.98)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

Table 2.26 Interoffice loan elasticity of bank liabilities – Thailand

<table>
<thead>
<tr>
<th>Creditors</th>
<th>Interoffice loan elasticity</th>
<th>Whole period</th>
<th>Boom period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Financial</td>
<td>−7.15***</td>
<td>−5.81***</td>
<td>−3.11**</td>
</tr>
<tr>
<td>corporations</td>
<td>(1.26)</td>
<td>(1.28)</td>
<td>(1.39)</td>
</tr>
<tr>
<td>Nonfinancial</td>
<td>−2.43**</td>
<td>−2.14*</td>
<td>−1.01</td>
</tr>
<tr>
<td>corporations</td>
<td>(1.22)</td>
<td>(1.11)</td>
<td>(1.13)</td>
</tr>
<tr>
<td>Households</td>
<td>−2.15***</td>
<td>−2.05***</td>
<td>−1.43***</td>
</tr>
<tr>
<td></td>
<td>(0.48)</td>
<td>(0.42)</td>
<td>(0.42)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>−0.25</td>
<td>1.34</td>
<td>3.26</td>
</tr>
<tr>
<td></td>
<td>(3.55)</td>
<td>(3.24)</td>
<td>(3.26)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

have significant impacts on bank liabilities in Asian countries, while the cross-border interoffice loan continues to exert significant impacts. The VIX elasticity estimates are not much different from zero in all countries, and even in the presence of VIX, the interoffice loan elasticity estimates remain strongly positive in many countries, especially in the Republic of Korea and Singapore. These results may indicate that, while impacted through cross-border interbank lending, some Asian banking sectors are
not directly integrated with global financial markets, and thus are less exposed to fluctuations in global market volatility. Overall, our findings in this section indicate that the accumulation of bank liabilities in open emerging market economies is significantly affected by the global liquidity condition.

5 SUMMARY AND CONCLUDING REMARKS

The degree of financial procyclicality is amplified by the expansion and shrinkage of non-core bank liabilities. Namely, the financial cycle shows up in the composition of bank liabilities, and the share of non-core liabilities increases rapidly before the crisis, only to collapse with the crisis. In this chapter, we provided a conceptual framework for new bank liability aggregates based on the core and non-core properties, and applied it to six Asian countries to characterize financial procyclicality of bank liabilities in Asian economies. Our major findings can be summarized as follows.
Global shock, risks, and Asian financial reform

First, bank liabilities in Asian countries are quite procyclical as indicated by the significantly positive real GDP elasticity estimates although the degree of procyclicality varies across countries. In many Asian countries, non-core bank liabilities such as liabilities to financial institutions and liabilities to the foreign sector exhibit higher elasticity estimates than core liabilities such as liabilities to household sector.

Second, a common striking feature in Asian countries is that bank liabilities to the foreign sector show a typical dynamic pattern pertained in a non-core liability. The liabilities to foreign sector exhibit higher elasticity in the boom period and thus become more procyclical in global credit cycle upturns.

Third, Asian countries in general exhibit relatively low interest rate semi-elasticity estimates. In particular, bank liabilities to the foreign sector exhibit positive domestic policy interest rate semi-elasticity. The seemingly opposite sign of the elasticity measures across domestic and foreign claims is suggestive of that, while domestic monetary policy may exert influence over domestic bank liabilities, its effectiveness is significantly undermined.

Table 2.28  VIX, interoffice loan elasticity of bank liabilities – Indonesia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>VIX, interoffice loan elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>–1</td>
<td>0</td>
</tr>
<tr>
<td>Financial</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>corporations</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Interoffice</td>
<td>–8.24***</td>
<td>–8.34***</td>
<td>–7.67***</td>
</tr>
<tr>
<td></td>
<td>(1.72)</td>
<td>(1.52)</td>
<td>(1.45)</td>
</tr>
<tr>
<td>Nonfinancial</td>
<td>0.01***</td>
<td>0.01***</td>
<td>0.01*</td>
</tr>
<tr>
<td>corporations</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>(2.70)</td>
<td>(2.42)</td>
<td>(2.42)</td>
</tr>
<tr>
<td>Households</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Interoffice</td>
<td>–2.14**</td>
<td>–2.45***</td>
<td>–1.93***</td>
</tr>
<tr>
<td></td>
<td>(0.85)</td>
<td>(0.79)</td>
<td>(0.78)</td>
</tr>
<tr>
<td>Foreign</td>
<td>0.00**</td>
<td>0.01***</td>
<td>0.00*</td>
</tr>
<tr>
<td>sector</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>(1.69)</td>
<td>(1.54)</td>
<td>(1.48)</td>
</tr>
</tbody>
</table>

Note: T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
Table 2.29  VIX, interoffice loan elasticity of bank liabilities – Malaysia

<table>
<thead>
<tr>
<th>Creditors</th>
<th>VIX, interoffice loan elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Financial corporations</td>
<td>VIX</td>
<td>0.00**</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>Interoffice</td>
<td>−3.48</td>
<td>−1.82</td>
</tr>
<tr>
<td></td>
<td>(3.43)</td>
<td>(3.26)</td>
<td>(2.29)</td>
</tr>
<tr>
<td>Nonfinancial corporations</td>
<td>VIX</td>
<td>0.00***</td>
<td>0.00*</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>Interoffice</td>
<td>0.73</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>(2.43)</td>
<td>(2.47)</td>
<td>(1.80)</td>
</tr>
<tr>
<td>Households</td>
<td>VIX</td>
<td>0.00***</td>
<td>0.00***</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>Interoffice</td>
<td>0.04</td>
<td>−1.09</td>
</tr>
<tr>
<td></td>
<td>(1.41)</td>
<td>(1.61)</td>
<td>(1.29)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>VIX</td>
<td>−0.01***</td>
<td>−0.01**</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>Interoffice</td>
<td>5.54*</td>
<td>7.03**</td>
</tr>
<tr>
<td></td>
<td>(3.02)</td>
<td>(2.77)</td>
<td>(2.96)</td>
</tr>
</tbody>
</table>

Note:  T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.

Table 2.30  VIX, interoffice loan elasticity of bank liabilities – the Philippines

<table>
<thead>
<tr>
<th>Creditors</th>
<th>VIX, interoffice loan elasticity</th>
<th>Whole period (2002 Q4–2012 Q2)</th>
<th>Boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>All sectors</td>
<td>VIX</td>
<td>0.01***</td>
<td>0.01***</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>Interoffice</td>
<td>2.57</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>(1.76)</td>
<td>(1.57)</td>
<td>(1.45)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>VIX</td>
<td>−0.00**</td>
<td>−0.00</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td></td>
<td>Interoffice</td>
<td>1.04</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>(2.32)</td>
<td>(2.02)</td>
<td>(1.83)</td>
</tr>
</tbody>
</table>

Note:  T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
in the case of bank liabilities to the foreign sector. That is, when domestic policy rates are tightened, bank liabilities to the foreign sector tend to increase rather than decrease.

Fourth, as for foreign monetary policy rates, in countries with considerably open financial sectors, such as the Republic of Korea and Singapore, bank liabilities show significantly negative elasticity estimates with respect to the US Fed fund rate, suggesting that the US monetary policy has a strong spillover effect into the region and global monetary policy shocks are transmitted to the banking sectors in Asia.

Fifth, the accumulation of bank liabilities in open emerging market economies in Asia is significantly affected by the global liquidity condition. The impact of cross-border interoffice loans from the US is quite significant in many Asian countries and most vividly materializes in relatively more open Asian countries, such as the Republic of Korea and Singapore, in which global banks are more actively present.

Sixth, while the cross-border interoffice loans are a significant driver, the VIX volatility index does not seem to have a significant impact on bank liabilities in Asian countries. This result implies that, while influenced by cross-border interbank lending, some Asian banking sectors are not directly integrated with global financial markets, and thus are less exposed to fluctuations in global market volatility.

Table 2.31  VIX, interoffice loan elasticity of bank liabilities – Singapore

<table>
<thead>
<tr>
<th>Creditors</th>
<th>VIX, whole period (2002 Q4–2012 Q2)</th>
<th>VIX, boom period (2002 Q4–2008 Q3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−1</td>
<td>0</td>
</tr>
<tr>
<td>Financial</td>
<td>0.01***</td>
<td>0.01***</td>
</tr>
<tr>
<td>VIX</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Interoffice</td>
<td>−1.69</td>
<td>−2.40</td>
</tr>
<tr>
<td></td>
<td>(2.25)</td>
<td>(2.06)</td>
</tr>
<tr>
<td>Households</td>
<td>0.01***</td>
<td>0.01***</td>
</tr>
<tr>
<td>VIX</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Interoffice</td>
<td>−0.20</td>
<td>−0.61</td>
</tr>
<tr>
<td></td>
<td>(0.85)</td>
<td>(0.94)</td>
</tr>
<tr>
<td>Foreign sector</td>
<td>0.00***</td>
<td>0.01***</td>
</tr>
<tr>
<td>VIX</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Interoffice</td>
<td>5.29***</td>
<td>4.35***</td>
</tr>
<tr>
<td></td>
<td>(1.04)</td>
<td>(0.72)</td>
</tr>
</tbody>
</table>

Note:  T-values are reported in the parenthesis and the statistical significance at 10 percent, 5 percent and 1 percent levels is denoted by *, **, and ***, respectively.
Overall the findings of the present study strongly suggest that monetary policies in advanced economies and global liquidity conditions have cross-border spillover effects in Asia, and that the stages of domestic financial cycle and thus the buildup of financial risks may not be addressed effectively solely by domestic monetary policies. Policymakers in Asia may need a separate macro-prudential tool other than traditional monetary policy tools if they want to respond to the buildup of financial risks in a preemptive manner. The situation at the current juncture thus argues for an even greater focus on macro-prudential policies in open emerging market economies, and we see that our bank liability aggregates based upon core and non-core properties prove to be useful in monitoring the stages of financial cycles in Asia.

ACKNOWLEDGMENTS

This chapter is a paper prepared for the Asian Development Bank Technical Assistant Project, ‘Financial Regulatory Reforms in Asia’. We
Global shock, risks, and Asian financial reform

are grateful to seminar participants at the ADB-HKMA Conference, Hong Kong, China, 29 January 2013, and the ADB-FSS Conference, Seoul, 2 July 2013 for their useful comments. We also thank Ernalyin Lising and Ilsoo Han for their data compilation and research assistance. All views expressed in this chapter are those of the authors and not necessarily of the Asian Development Bank.

NOTES

1. This section draws heavily from Shin and Shin (2011) and Hahm et al. (2012).
2. Shin and Shin (2011) included CDs in non-core liabilities based on the fact that CDs are often held by financial institutions engaged in the carry trade, who use CDs as an alternative to holding Korean government securities in their carry trade.
3. Existing literature on financial procyclicality focuses more on the asset side such as procyclicality of bank credits. For instance, Craig et al. (2006) investigated procyclicality of bank credits in 11 Asian countries. They found that procyclicality among credit growth, GDP and property prices is strong in Asia.
4. Table 2.1 is a replication of table 5.1 in Hahm et al. (2012). The BOK recently revised the past data, so the results in the last three columns for the boom that covers the same sample period have been changed.
5. Financial derivatives in our study do not take into consideration any implicit liabilities recorded off balance sheet. Only realized profits and losses, and premium receipts and payments, are included as assets and liabilities in the balance sheet, and we simply used the liabilities recorded in the balance sheet.
6. Table 2.2 is a replication of table 5.2 in Hahm et al. (2012), but using revised and updated data. We do not report the GDP elasticity of bank liabilities held by the general government.

REFERENCES


3. Non-core bank liabilities and vulnerability to crisis: implications for Asia

Joon-Ho Hahm, Hyun Song Shin and Kwanho Shin

1 INTRODUCTION

The recent global financial crisis highlights the vulnerability of Asian economies again. Despite structural changes made since the Asian crisis ten years ago, some of Asian countries were severely hit by the recent crisis. This time, Asia is not the origin of the crisis, but it has not been spared the deepest financial crisis ever since the Great Depression in 1929. As the world economy is getting more globally connected, few countries are expected to be immune to global financial conditions.

One of the important lessons we learned from the recent global financial crisis is that shocks in the financial sector can have a devastating impact on the real economy. In particular, the active role played by banks in driving financial cycles has been emphasized by Shin (2010), among others. According to this study, fluctuations in the leverage in the banking sector are characterized by fluctuations in the total size of the balance sheet with equity being almost fixed. Since banks' balance sheet capacity depends on the amount of bank capital and the degree of 'permitted leverage', when the economy is in a boom period, as credit risk gets lower, banks can expand lending to fill up spare capacity of balance sheets. However, traditional deposit funding, the core source to banks, does not grow in line with banks' intended increase in lending. In this case, banks have to turn to other non-core sources of funding to support its lending.

Shin and Shin (2011) emphasize that this distinction between core and non-core sources of funding of the banking sector is crucial in understanding the stage of the financial cycle. In particular, the relative size of non-core liabilities of the banking sector undergoes substantial changes over the financial cycle. Unlike the core liabilities that are stable, the non-core
liabilities are subject to runs and hence a rapid accumulation of non-core liabilities signals the vulnerability of the banking sector to systemic risk spillovers. Utilizing this idea, Hahm et al. (2012) show supporting evidence that the normalized size of non-core bank liabilities has significant predictive power for currency and credit crises. Particularly for emerging economies, borrowings from the foreign sector, the main source of non-core liabilities, contains most of the predictive power.

In this chapter we further investigate this issue in order to derive implications for Asia. This study differs from Hahm et al. (2012) in two aspects. First, it focuses on the role of capital market openness in shaping the relation between non-core bank liabilities and financial crises. As most Asian countries have not completely opened their capital markets, examining how capital market openness affects the extent to which non-core liabilities increase the likelihood of currency and credit crises should yield important policy implications.

Second, we explore how global financial conditions exert impact on the vulnerability to currency and credit crises. As experienced in two crisis episodes in 1997 and 2008, Asian countries suffer from financial crises not only when their economic fundamentals deteriorate but also when global financial conditions are aggravated. We employ two measures of global financial conditions, namely, the net interoffice assets of foreign banks in the US and the VIX index of implied volatility, and analyze their relationship with the likelihood of a crisis.

The remainder of the chapter is organized as follows. In the next section, we explain the formulation of empirical specification. We then follow with our empirical results in section 3. The final section concludes with some policy implications for Asia.

2 EMPIRICAL SPECIFICATION

The empirical specification mainly follows Hahm et al. (2012) and we add some more explanatory variables. We first define two types of crises: currency and credit crises. Currency crises occur when the value of the local currency decreases substantially. Following Frankel and Rose (1996), currency crises are defined as episodes where the local currency depreciates more than 25 percent in one year. In order to eliminate cases where the currency is steadily but rapidly depreciating, we add another condition that the depreciation is at least 10 percent more than the depreciation in the previous year. That is,

$$\ln e_t - \ln e_{t-12} \geq 0.25$$
Global shock, risks, and Asian financial reform

\[(\ln e_t - \ln e_{t-12}) - (\ln e_{t-12} - \ln e_{t-24}) \geq 0.10\]

where \(e_t\) is the monthly exchange rate at time \(t\).

The credit crisis is similarly defined as episodes of sharply rising market interest rates. More specifically, we define a credit crisis when the money market interest rate reaches a level that belongs to the top 3 percent tail of the pooled in-sample distribution. While it would be desirable to define credit crises based on the spread between the local risk-free rate and the local rate on private liabilities, due to data limitations, the use of this more standard measure is precluded.

Once the crisis month is identified, we define a crisis dummy that takes the value of 1 for the ±6 month-period centered on the month of a crisis. In other words, if the crisis happens at month \(t\), the crisis dummy equals 1 at months:

\[t - 6, t - 5, \ldots, t, t + 1, \ldots, t + 6\]

In addition, we drop data for the six months before and after the crisis period, as those dates are associated with the transition between crisis and non-crisis episodes that are not likely to be clearly marked as either 1 or 0.

The data are collected primarily from the IMF’s International Financial Statistics (IFS) database. The sample period covers from January 2000 to December 2010. Focusing on the banking sector indicators at the country level, we define two measures of non-core liabilities as suggested by Hahm et al. (2012). The first measure, non-core 1, is the sum of liabilities of banks to non-bank financial sectors and liabilities of banks to the foreign sector. An alternative measure of non-core liabilities, non-core 2, uses the difference \(M3 - M2\) between two measures of broad money in place of liabilities of banks to non-bank financial sectors. Both (1) liabilities of banks to non-bank financial sectors and (2) the difference \(M3 - M2\) between two measures of broad money are supposed to capture some aspects of wholesale bank funding.

Non-core 1 = Liability of banks to the foreign sector + Liability of banks to the non-bank financial sector
Non-core 2 = Liability of banks to the foreign sector + (M3 – M2)

Note that both measures of non-core liabilities of banks include bank liabilities to the foreign sector, which constitutes an important source of non-deposit wholesale funding for banks particularly in emerging economies.

Core liabilities are measured as the sum of demand deposits, time, savings and foreign currency deposits, and restricted deposits. We also use
monetary aggregates M1 and M2 as alternative measures of core liabilities. In actual estimations of the probit models introduced below, we use various ratios of non-core to core liabilities based on the above definitions as explanatory variables.

Finally the monthly exchange rate is also obtained from the IFS database, and refers to the exchange rate of the local currency vis-à-vis the US dollar.

We set up a panel probit model as follows:

$$\Pr(Crisis_{it} = 1|X_{it}) = \Phi(\beta_0 + \beta X_{it})$$

(3.1)

where $Crisis_{it}$ is the crisis dummy variable and $X_{it}$ is a vector of explanatory variables for country $i$ at time $t$. We run separate panel probit regressions with random effects for currency and credit crises. While a logit model with fixed effects has the advantage of eliminating unobserved country-specific variables, we lose sample observations of countries that did not have a crisis. Hahm et al. (2012) explored both the random effects probit and the fixed effects logit models and found that the results were quite robust. Hence in the next section we report only the results from the random effects probit model.

The full list of countries and years that experienced a currency or a credit crisis identified by the above methodology is reported in the appendix of Hahm et al. (2012). Note that since Eurozone countries are excluded because they do not report separate monetary aggregates, our sample mostly includes emerging market economies. Asian countries that experience either a currency or a credit crisis during the sample period from January 2000 to December 2010 are Indonesia, Mongolia, and Pakistan. The Republic of Korea also qualifies a currency crisis during the global financial crisis, but it is not included in the sample because it does not report M3 within IFS.\(^1\)

As noted above, one of the main objectives of the chapter is to explore the importance of capital market openness in shaping the relation between non-core bank liabilities and financial crises. We measure capital market openness in two ways. First, we use a *de jure* measure of capital market openness based on an updated version of the Chinn and Ito (2006) index. The Chinn–Ito index measures a country’s degree of capital account openness constructed by using the binary dummy variables that codify the categorical enumeration of restrictions on cross-border financial transactions reported in the IMF’s ‘Annual Report on Exchange Arrangements and Exchange Restrictions’ (various issues). Second, we use a *de facto* measure of capital market openness based on an updated version of Lane and Milesi-Ferretti (2007) data. The database has information on each country’s stocks of total external assets and liabilities. We divide the sum
of each country’s total external assets and liabilities by its GDP, and use this as a *de facto* measure of capital market openness.

Each measure has its own advantages and disadvantages. The *de jure* measure has the advantage that it reflects the institutional development. However, many countries may have very strict capital controls on paper but which are ineffective in practice. On the other hand, many other countries are quite open to foreign capital on a *de jure* basis, but actual transactions of capital are not active. In these cases the *de jure* measure does not reflect the actual degree of capital market openness. On the other hand, the *de facto* measure has the advantage that it reflects the actual transactions of capitals but suffers from various measurement errors. Hence both measures should be used to complement each other.

In order to examine the importance of capital market openness, the regression equation is modified as follows:

\[
\Pr(Crisis_{it} = 1|X_{it}) = \mathcal{O}(\beta_0 + \beta_1 X_{it} + \beta_2 z_{it} + \beta_3 z_{it} \cdot X_{it})
\]  

(3.2)

where \( z_{it} \) is either the *de jure* or the *de facto* measure of capital market openness for country \( i \) at time \( t \). A higher value of \( z_{it} \) indicates that the country’s capital market is more open. The estimated coefficient of the interaction term, \( \beta_3 \), will illustrate the extent to which capital openness affects the impact of \( X_{it} \) on the likelihood of the crisis. For example, if \( \beta_3 \) is positive, the impact of \( X_{it} \) on the likelihood of the crisis is fortified. On the other hand, if \( \beta_3 \) is negative, the opposite holds.

Finally we investigate how global financial conditions influence the vulnerability to currency and credit crises. We employ two measures of global financial conditions, namely, the cross-border interoffice loans and the VIX index of implied volatility. The cross-border interoffice loans is the series on net interoffice assets of foreign banks in the US published by the Federal Reserve in its H8 data on commercial banks, for the specific category of foreign-related institutions. As discussed in Shin (2012), European global banks that borrow in US dollars from money market funds in the US play an important role in the supply of cross-border bank funding, which is captured by the series. On the other hand the VIX is supposed to measure the price of risk of market volatility and hence reflects aggregate financial market volatility.

Thus the final regression is as follows:

\[
\Pr(Crisis_{it} = 1|X_{it}) = \mathcal{O}(\beta_0 + \beta_1 X_{it} + \gamma G_i)
\]  

(3.3)

where \( G_i \) includes the two global financial conditions, the cross-border interoffice loans and the VIX index. Equation (3.3) allows us to estimate
the impact of global financial conditions on the likelihood of crises as well as that of the main explanatory variables such as non-core liabilities.

3 EMPIRICAL RESULTS

The rapid build-up of non-core liabilities only to collapse with the onset of the financial crisis is clearly visible in a number of countries. For example, Figure 3.1(a), taken from Shin and Shin (2011), shows non-core liabilities as fraction of M2 in the Republic of Korea, where more detailed information on the liabilities of banks is used to construct the non-core liabilities. Note that the first peak in non-core liabilities coincides with the run-up to the 1997 crisis. After a collapse of non-core liabilities, they increase rapidly again reaching the second peak before the global financial crisis in 2008. The plot of non-core liabilities as a fraction of M2 highlights the highly procyclical nature of non-core liabilities and thus can be used to characterize the financial cycle.

Figure 3.1(b) illustrates non-core 1 as a fraction of M2 that is constructed by using IFS for some other Asian countries. Although it is not as vivid as in the Republic of Korea, it shows a similar pattern of cyclicality around the crisis. For example, in Malaysia, the normalized non-core 1 increased significantly before the 2008 crisis and collapsed. We can also observe a similar, but weaker, movement of the normalized non-core 1 in Indonesia. Interestingly, however, there is no such a movement over the recent global crisis in Thailand.

In order to investigate the role of capital market openness in the linkage between our crisis measures and the non-core bank liabilities constructed above, we estimate a panel probit model (equation 3.2). For each crisis, we run separate probit regressions with random effects that allow for country differences that persist over time. The non-core liabilities are detrended before entering as explanatory variables and the panels are estimated by maximum likelihood. The data are monthly and all the regressors are lagged by six months to avoid an endogeneity issue and to show the validity as an early warning signal.

Table 3.1(a) presents the random effects panel probit regression results for currency crises, where the de jure measure of capital market openness is used. As explained above, we have constructed two measures of non-core liabilities – non-core 1 and non-core 2, and three proxies for core liabilities – M1, M2, and core deposits. Hence we have six combinations in constructing the non-core to core ratio. Table 3.1(a) reports all the six cases where each non-core to core ratio is interacted with the de jure measure of capital market openness.
Global shock, risks, and Asian financial reform

Note: Non-core bank liabilities are defined as the sum of liability of banks to the foreign sector and liability of banks to the non-bank financial sector.


Figure 3.1 Non-core liabilities as fractions of M2
Table 3.1  Impact of capital market openness in the relation between non-core liabilities and currency crisis: de jure measure

(a) Monthly data for non-core sum

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-core1/M1</td>
<td>4.08***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.37)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core1/M1)*</td>
<td>−0.93***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/M2</td>
<td>5.38***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core1/M2)*</td>
<td>−0.77**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.36)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/Core</td>
<td></td>
<td>8.77***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.07)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core1/Core)*</td>
<td></td>
<td>−2.78***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.54)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M1</td>
<td></td>
<td></td>
<td>1.09***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core2/M1)*</td>
<td></td>
<td></td>
<td>−0.20***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td>(0.08)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M2</td>
<td></td>
<td></td>
<td>1.61***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.19)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core2/M2)*</td>
<td></td>
<td></td>
<td>−0.32**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td>(0.14)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/Core</td>
<td></td>
<td></td>
<td></td>
<td>2.90***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core2/Core)*</td>
<td></td>
<td></td>
<td></td>
<td>−1.32***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td>(0.31)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinn–Ito</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.18**</td>
<td>0.16**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.08)</td>
<td>(0.08)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>−0.13*</td>
<td>0.38***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.46***</td>
<td>0.57***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.10)</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.17</td>
<td>0.10</td>
<td>0.05</td>
<td>0.08</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>−626.98</td>
<td>−677.83</td>
<td>−752.24</td>
<td>−921.68</td>
<td>−937.45</td>
<td>−919.74</td>
</tr>
<tr>
<td>Observations</td>
<td>3304</td>
<td>3310</td>
<td>3552</td>
<td>3482</td>
<td>3586</td>
<td>3581</td>
</tr>
<tr>
<td>Countries</td>
<td>38.00</td>
<td>38.00</td>
<td>40.00</td>
<td>41.00</td>
<td>42.00</td>
<td>42.00</td>
</tr>
</tbody>
</table>

Note: The dependent variable is the currency crisis dummy that takes a binary value. Regressors are six month-lagged values of the non-core–core ratios, one year-lagged value of Chinn–Ito index and interactions of the two variables. Standard errors are in parentheses. Statistical significance at 10 percent, 5 percent, and 1 percent level is denoted by *, **, and *** respectively.

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign/M1</td>
<td>6.86***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.52)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M1)*</td>
<td>−1.91***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.27)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.1  (continued)

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-bank/M1</td>
<td>0.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M1)*</td>
<td>(0.78)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>11.24***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>(1.07)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/M2</td>
<td>1.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M2)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>14.51***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>(1.25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>2.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M1</td>
<td>3.81***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M1)*</td>
<td>(0.34)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M1</td>
<td>−0.29*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M1)*</td>
<td>−0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>6.81***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>(0.75)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M2</td>
<td>−1.11***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M2)*</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>3.26***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>(0.71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>1.33*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.72)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>−2.14***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.44)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.1 confirms Hahm et al.’s (2012) finding that an increase in the non-core bank liability ratio is strongly associated with an increase in the predicted probability of having a currency crisis. Namely, for both non-core 1 and non-core 2 measures, and regardless of using any form of core liabilities, all the non-core liability ratios have a positive and statistically significant coefficient at the 1 percent level. This strongly suggests that fluctuations in the non-core liability ratio can be used to detect the changing degree of financial vulnerability to a currency crisis.

Somewhat surprisingly, the interaction term has a negative and significant coefficient at the 1 percent or 5 percent level, suggesting that the more the capital market is liberalized, the lower the impact of an increase in the non-core bank liability ratio on the predicted probability of having a currency crisis. In other words, the same level of the non-core bank liability is more alarming in a more closed capital market economy in the de jure basis. This may reflect the fact that countries with more open capital markets also have more sound economic policies and institutions and hence the same level of the non-core bank liability is less likely to cause a currency crisis. Actually Glick et al. (2006) find that after controlling for this sample selection bias, countries with liberalized capital accounts have a lower likelihood of experiencing a currency crisis.

The level of capital market openness as an independent explanatory variable generates mixed evidence. In the first three columns where we use non-core 1 in constructing the non-core bank liability ratios, the coefficients of the level of capital market openness have a negative and statistically significant coefficient at the 5 percent or 10 percent level, suggesting that economies with liberalized capital markets are less vulnerable
to a currency crisis. However, in the last three columns, where we use non-core 2, the same coefficients are positive and statistically significant at the 1 percent level, suggesting that economies with liberalized capital markets are more vulnerable to a currency crisis.

In Table 3.1(b), we present the panel probit regression results when we include the two separate components of non-core bank liability variables and their interaction terms with the de jure measure of capital market openness. As before, the two non-core components are normalized by the three measures of core liabilities. The results also confirm Hahm et al.’s (2012) finding that foreign liabilities play a more robust role as a predictor of a currency crisis. In all the six columns, the coefficients of the foreign liability term are positive and statistically significant at the 1 percent level. The coefficients of the non-bank liability term are positive but not statistically significant. The coefficients on M3 – M2 have even the ‘wrong’ sign, suggesting that the broad monetary aggregate may not effectively capture the wholesale funding of banks.

Note also that the interaction terms between non-core liability ratio and the capital market openness variable have a significantly negative coefficient when foreign liabilities are used as a non-core liability. The coefficients of the level of capital market openness as an independent control variable are also negative and statistically significant in the first three columns, whereas they are positive and statistically significant in the last three columns.

Table 3.2(a) and (b) present the same regression results except that we replace the de jure measure of capital market openness with the de facto measure. Consistent with the results based on the de jure measure, all the non-core liability ratios have a positive and generally statistically significant coefficient. We also find that foreign liabilities play a more robust role as a predictor of a currency crisis. Again, the interaction term between non-core ratio and capital market openness has a negative and significant coefficient in many cases, suggesting that the more the capital market is liberalized in the de facto sense, the lower the impact of an increase in the non-core bank liability ratio on the predicted probability of having a currency crisis. One difference is that the capital market openness itself has always a positive and statistically significant coefficient at the 1 percent level. Hence for the de facto measure, the capital market openness tends to raise vulnerability to a currency crisis.

We now turn to the results for credit crises. In emerging economies, credit crises are often accompanied by currency crises, but since credit crises have occurred independently of currency crises, we need to run the panel probit model separately. The dependent variable is a dummy variable constructed by using our definition of credit crisis that the money market interest rate belongs to the 3 percent tail of the in-sample distribution.
Table 3.2  Impact of capital market openness in the relation between non-core liabilities and currency crisis: de facto measure

(a) Monthly data for non-core sum

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-core1/M1</td>
<td>5.64***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(1.02)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/M2</td>
<td></td>
<td>26.72***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td></td>
<td>(3.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/Core</td>
<td></td>
<td>43.75***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td></td>
<td>(4.49)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M1</td>
<td>0.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M2</td>
<td></td>
<td>1.70***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td></td>
<td>(0.56)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/Core</td>
<td>4.26***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.93)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane–MF</td>
<td>0.74***</td>
<td>0.61***</td>
<td>0.67***</td>
<td>0.56***</td>
<td>0.70***</td>
<td>0.63***</td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.15)</td>
<td>(0.16)</td>
<td>(0.16)</td>
<td>(0.11)</td>
<td>(0.10)</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.23</td>
<td>0.26</td>
<td>0.26</td>
<td>0.11</td>
<td>0.11</td>
<td>0.12</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>−265.31</td>
<td>−255.42</td>
<td>−256.06</td>
<td>−420.33</td>
<td>−420.44</td>
<td>−413.17</td>
</tr>
<tr>
<td>Observations</td>
<td>2615</td>
<td>2620</td>
<td>2815</td>
<td>2807</td>
<td>2890</td>
<td>2885</td>
</tr>
<tr>
<td>Countries</td>
<td>37.00</td>
<td>37.00</td>
<td>39.00</td>
<td>41.00</td>
<td>42.00</td>
<td>42.00</td>
</tr>
</tbody>
</table>

Note: The dependent variable is the currency crisis dummy that takes a binary value. Regressors are six month-lagged values of the non-core–core ratios, one year-lagged value of Chinn–Ito index and interactions of the two variables. Standard errors are in parentheses. Statistical significance at 10 percent, 5 percent, and 1 percent level is denoted by *, **, and *** respectively.

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign/M1</td>
<td>10.55***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(1.69)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>−2.82***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.2 (continued)

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-bank/M1</td>
<td>−5.50*</td>
<td>(3.34)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M1)*</td>
<td>1.82</td>
<td>(1.93)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>52.09***</td>
<td>(5.27)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>−19.79***</td>
<td>(2.18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/M2</td>
<td>−18.21</td>
<td>(11.53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M2)*</td>
<td>6.99</td>
<td>(7.68)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>48.00***</td>
<td>(4.74)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>−17.09***</td>
<td>(2.28)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>−38.73**</td>
<td>(19.62)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td>17.35</td>
<td>(10.81)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M1</td>
<td>5.15***</td>
<td>(0.66)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M1)*</td>
<td>−0.32***</td>
<td>(0.08)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M1</td>
<td>−0.76*</td>
<td>(0.44)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M1)*</td>
<td>0.10</td>
<td>(0.25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>14.36***</td>
<td>(1.67)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>−1.17***</td>
<td>(0.19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M2</td>
<td>−0.40</td>
<td>(1.12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M2)*</td>
<td>−0.24</td>
<td>(0.63)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>14.79***</td>
<td>(1.88)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>−1.34***</td>
<td>(0.25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>−1.56</td>
<td>(1.57)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td>0.45</td>
<td>(0.60)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.2 (continued)

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lane–MF</td>
<td>0.65***</td>
<td>0.29*</td>
<td>0.63***</td>
<td>0.74***</td>
<td>0.89***</td>
<td>0.92***</td>
</tr>
<tr>
<td></td>
<td>(0.16)</td>
<td>(0.17)</td>
<td>(0.18)</td>
<td>(0.10)</td>
<td>(0.10)</td>
<td>(0.11)</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.34</td>
<td>0.39</td>
<td>0.35</td>
<td>0.21</td>
<td>0.19</td>
<td>0.17</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>−228.44</td>
<td>−211.35</td>
<td>−224.77</td>
<td>−370.23</td>
<td>−381.52</td>
<td>−389.46</td>
</tr>
<tr>
<td>Observations</td>
<td>2615</td>
<td>2620</td>
<td>2815</td>
<td>2807</td>
<td>2812</td>
<td>2885</td>
</tr>
<tr>
<td>Countries</td>
<td>37.00</td>
<td>37.00</td>
<td>39.00</td>
<td>41.00</td>
<td>41.00</td>
<td>42.00</td>
</tr>
</tbody>
</table>

Note: The dependent variable is the currency crisis dummy that takes a binary value. Regressors are six month-lagged values of the two components of the non-core–core ratio, one year-lagged value of Chinn–Ito index and interaction terms. Standard errors are in parentheses. Statistical significance at 10 percent, 5 percent and 1 percent level is denoted by *, **, and *** respectively.

Table 3.3 reports the random effects panel probit estimation results for credit crises, where the \( de jure \) measure of capital market openness is used. Table 3.3(a) reports all the regressions for the six combinations of the non-core to core ratio where each non-core to core ratio is interacted with the \( de jure \) measure of capital market openness. Note again that Table 3.3(a) confirms Hahm et al.’s (2012) finding that the non-core bank liability ratio has a considerable explanatory power for credit crises. All the six non-core measures have positive coefficients and five of them are statistically significant at the 1 percent or 10 percent level.

Now the interaction terms have mostly a positive coefficient and four of them are statistically significant at the 1 percent level. This suggests that the more the capital market is liberalized, the higher the impact of an increase in the non-core bank liability ratio on the predicted probability of having a credit crisis. On the other hand, the level of capital market openness itself has negative coefficients that are statistically significant at the 1 percent level in all the six cases, suggesting that economies with liberalized capital markets are less vulnerable to a credit crisis.

In Table 3.3(b), as we did for the currency crisis regression, we break out the non-core liability aggregates into their respective components and each is interacted with the \( de jure \) measure of capital market openness. Again, as shown in the currency crisis case, we find that liabilities to the foreign sector are an important explanatory variable for a credit crisis. All the coefficients of the foreign liability ratio are positive and five of them are statistically significant at the 1 percent or 10 percent level. In contrast, the other component of the non-core liability aggregates often has coefficients of the wrong sign.
Table 3.3  Impact of capital market openness in the relation between non-core liabilities and credit crisis: de jure measure

(a) Monthly data for non-core sum

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-core1/M1</td>
<td>0.53*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.28)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/M2</td>
<td></td>
<td>5.76***</td>
<td>(0.88)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td>(−1.84***</td>
<td>(0.37)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/Core</td>
<td></td>
<td>9.24***</td>
<td>(0.98)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td>2.86***</td>
<td>(0.61)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M1</td>
<td></td>
<td>0.16</td>
<td>(0.11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td>0.51***</td>
<td>(0.10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M2</td>
<td></td>
<td>0.49**</td>
<td>(0.21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td>1.06***</td>
<td>(0.18)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/Core</td>
<td></td>
<td>0.46***</td>
<td>(0.10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td></td>
<td>0.75***</td>
<td>(0.10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinn–Ito</td>
<td>−1.36***</td>
<td>−1.22***</td>
<td>−1.42***</td>
<td>−0.59***</td>
<td>−0.59***</td>
<td>−0.73***</td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
<td>(0.15)</td>
<td>(0.16)</td>
<td>(0.13)</td>
<td>(0.14)</td>
<td>(0.15)</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.15</td>
<td>0.17</td>
<td>0.27</td>
<td>0.07</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>−450.26</td>
<td>−482.58</td>
<td>−430.27</td>
<td>−379.47</td>
<td>−416.45</td>
<td>−408.39</td>
</tr>
<tr>
<td>Observations</td>
<td>2389</td>
<td>2365</td>
<td>2679</td>
<td>2634</td>
<td>2703</td>
<td>2678</td>
</tr>
<tr>
<td>Countries</td>
<td>26.00</td>
<td>26.00</td>
<td>29.00</td>
<td>29.00</td>
<td>30.00</td>
<td>30.00</td>
</tr>
</tbody>
</table>

Note: The dependent variable is the credit crisis dummy that takes a binary value. Regressors are six month-lagged values of the non-core–core ratios, one year-lagged value of Chinn–Ito index and interactions of the two variables. Standard errors are in parentheses. Statistical significance at 10 percent, 5 percent, and 1 percent level is denoted by *, **, and *** respectively.

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign/M1</td>
<td>1.50***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Chinn–Ito)</td>
<td>(0.35)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M1)*</td>
<td>−0.36**</td>
<td>(0.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 3.3 (continued)

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-bank/M1</td>
<td>(-3.50^{***})</td>
<td>(0.79)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M1)*</td>
<td>(3.67^{***})</td>
<td>(0.59)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>(9.88^{***})</td>
<td>(1.16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>(-3.60^{***})</td>
<td>(0.48)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/M2</td>
<td>(-15.62^{***})</td>
<td>(2.94)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M2)*</td>
<td>(11.77^{***})</td>
<td>(1.64)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>(10.81^{***})</td>
<td>(1.09)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>(2.56^{***})</td>
<td>(0.68)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>(-19.43^{***})</td>
<td>(3.53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td>(14.49^{***})</td>
<td>(1.97)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M1</td>
<td>(1.91^{***})</td>
<td>(0.33)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M1)*</td>
<td>(1.69^{***})</td>
<td>(0.26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M1</td>
<td>(-1.52^{***})</td>
<td>(0.32)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M1)*</td>
<td>(0.73^{**})</td>
<td>(0.32)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>(3.18^{***})</td>
<td>(0.55)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>(2.60^{***})</td>
<td>(0.37)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M2</td>
<td>(-3.58^{***})</td>
<td>(0.91)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M2)*</td>
<td>(2.54^{***})</td>
<td>(0.79)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>(2.67^{***})</td>
<td>(0.40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>(0.49^{*})</td>
<td>(0.29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>(-10.22^{***})</td>
<td>(1.99)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td>(5.23^{***})</td>
<td>(1.64)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When we focus on the interaction term of the foreign liability ratio with the \textit{de jure} measure of capital market openness, the coefficients are mostly positive and statistically significant at the 1 percent level. This indicates that the same level of the non-core bank liability leads to a higher likelihood of experiencing a credit crisis in a more liberalized capital market economy on the \textit{de jure} basis. However, the level of capital market openness itself has negative coefficients that are statistically significant at the 1 percent level, suggesting that economies with liberalized capital markets are less vulnerable to a credit crisis.

Table 3.4 reports the results on the same regression for credit crises, where the \textit{de facto} measure of capital market openness is used. The evidence in the results is pretty much mixed. In the first three columns where we use non-core 1 as the non-core bank liability ratios, we have consistent results as in Table 3.3. However when we use non-core 2 as the non-core bank liability ratios in the last three columns, the estimated coefficients have the opposite sign. We believe that the results from non-core 1 are more reliable, as explained above.

So far we have not considered global financial conditions as one of the factors influencing the likelihood of crises. In this chapter, we include two measures of global financial conditions, namely, the cross-border interoffice loans from the US and the VIX index of implied volatility, and one measure of global real economic condition, the world real GDP growth. The cross-border interoffice loans are normalized by nominal US GDP before entering as an explanatory variable.

Table 3.5(a) presents the regression results for currency crises based on equation (3.3). Again all the non-core liability ratios have a positive and
Table 3.4  Impact of capital market openness in the relation between non-core liabilities and credit crisis: de facto measure

(a) Monthly data for non-core sum

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-core1/M1</td>
<td>−5.03***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.69)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core1/M1)*</td>
<td>4.19***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.52)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/M2</td>
<td>−6.36***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.27)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core1/M2)*</td>
<td>6.02***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.99)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/Core</td>
<td>1.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core1/Core)*</td>
<td>10.36***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(2.60)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M1</td>
<td>0.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.34)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core2/M1)*</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M2</td>
<td>5.26***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core2/M2)*</td>
<td>−1.59***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/Core</td>
<td>13.44***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-core2/Core)*</td>
<td>−1.14***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane–MF</td>
<td>2.51***</td>
<td>1.34***</td>
<td>1.57***</td>
<td>−0.44**</td>
<td>−1.36***</td>
<td>−0.12</td>
</tr>
<tr>
<td></td>
<td>(0.32)</td>
<td>(0.25)</td>
<td>(0.27)</td>
<td>(0.20)</td>
<td>(0.26)</td>
<td>(0.27)</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.21</td>
<td>0.13</td>
<td>0.27</td>
<td>0.08</td>
<td>0.16</td>
<td>0.39</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>−338.39</td>
<td>−415.55</td>
<td>−356.29</td>
<td>−301.88</td>
<td>−318.42</td>
<td>−228.95</td>
</tr>
<tr>
<td>Observations</td>
<td>1974</td>
<td>1970</td>
<td>2224</td>
<td>2233</td>
<td>2302</td>
<td>2279</td>
</tr>
<tr>
<td>Countries</td>
<td>26.00</td>
<td>26.00</td>
<td>29.00</td>
<td>30.00</td>
<td>31.00</td>
<td>31.00</td>
</tr>
</tbody>
</table>

Note: The dependent variable is the currency crisis dummy that takes a binary value. Regressors are six month-lagged values of the non-core–core ratios, one year-lagged value of Chinn–Ito index and interactions of the two variables. Standard errors are in parentheses. Statistical significance at 10 percent, 5 percent, and 1 percent level is denoted by *, **, and *** respectively.

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign/M1</td>
<td>−6.19***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M1)*</td>
<td>4.82***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Lane–MF)</td>
<td>(0.63)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.4  (continued)

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-bank/M1</td>
<td>11.76***&lt;br&gt;(2.27)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M1)*</td>
<td>7.99***&lt;br&gt;(1.46)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>−5.92***&lt;br&gt;(1.29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>5.40***&lt;br&gt;(1.02)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/M2</td>
<td>−38.27***&lt;br&gt;(7.10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/M2)*</td>
<td>25.55***&lt;br&gt;(4.47)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>0.41&lt;br&gt;(3.48)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>11.39***&lt;br&gt;(2.80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>−61.75***&lt;br&gt;(10.94)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td>43.16***&lt;br&gt;(7.26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M1</td>
<td>3.03***&lt;br&gt;(0.48)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M1)*</td>
<td>−0.06&lt;br&gt;(0.22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M1</td>
<td>−1.02*&lt;br&gt;(0.57)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M1)*</td>
<td>0.19&lt;br&gt;(0.32)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>11.38***&lt;br&gt;(1.31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/M2)*</td>
<td>−0.90***&lt;br&gt;(0.31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M2</td>
<td>1.84&lt;br&gt;(1.45)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>((M3 – M2)/M2)*</td>
<td>−1.40**&lt;br&gt;(0.71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>7.33***&lt;br&gt;(1.14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Foreign/Core)*</td>
<td>−0.92*&lt;br&gt;(0.50)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>11.70***&lt;br&gt;(2.66)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Non-bank/Core)*</td>
<td>−0.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *** indicates significance at the 1% level. ** indicates significance at the 5% level. * indicates significance at the 10% level.
statistically significant coefficient at the 1 percent level, indicating that an increase in the non-core bank liability ratio is strongly associated with an increase in the predicted probability of having a currency crisis. Note that the coefficients of both global financial conditions are positive and statistically significant at the 1 percent level. This indicates that global conditions play a very important role in determining the likelihood of crises in emerging and developing economies. As expected, an increase in the supply of cross-border bank funding leads to higher vulnerability to a currency crisis. Also, an increase in global financial market volatility is strongly positively associated with an increase in the predicted probability of having a currency crisis. When we decompose the non-core liability into the two components in Table 3.5(b), we find quite consistent results as in Table 3.5(a).

Table 3.6 reports the impact of global financial conditions on the predicted probability of credit crises. As in the case of currency crises, our non-core liability measures remain robust in the presence of global financial condition variables. The global financial conditions also continue to play an important role in determining the likelihood of the credit crisis. As before, the implied volatility index is significantly positively related with the likelihood of a credit crisis. However, the coefficients of interoffice loans become negative in both Table 3.6(a) and 3.3(b), which report respectively the cases of the aggregate non-core bank liabilities and the decomposed non-core bank liabilities. The coefficients of the world real GDP growth are not statistically significant.

The reason why an increase in the interoffice loans is positively associated with a currency crisis but not with a credit crisis is potentially owing

### Table 3.4 (continued)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lane–MF</td>
<td>2.93***</td>
<td>1.43***</td>
<td>1.59***</td>
<td>−0.26</td>
<td>−0.30*</td>
<td>−0.33</td>
</tr>
<tr>
<td></td>
<td>(0.36)</td>
<td>(0.26)</td>
<td>(0.28)</td>
<td>(0.18)</td>
<td>(0.17)</td>
<td>(0.34)</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.26</td>
<td>0.17</td>
<td>0.29</td>
<td>0.24</td>
<td>0.28</td>
<td>0.27</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>−318.86</td>
<td>−398.55</td>
<td>−343.87</td>
<td>−249.88</td>
<td>−236.75</td>
<td>−275.55</td>
</tr>
<tr>
<td>Observations</td>
<td>1974</td>
<td>1970</td>
<td>2224</td>
<td>2233</td>
<td>2233</td>
<td>2279</td>
</tr>
<tr>
<td>Countries</td>
<td>26.00</td>
<td>26.00</td>
<td>29.00</td>
<td>30.00</td>
<td>30.00</td>
<td>31.00</td>
</tr>
</tbody>
</table>

Note: The dependent variable is the currency crisis dummy that takes a binary value. Regressors are six month-lagged values of the two components of the non-core–core ratio, one year-lagged value of Chinn–Ito index and interaction terms. Standard errors are in parentheses. Statistical significance at 10 percent, 5 percent and 1 percent level is denoted by *, **, and *** respectively.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-core1/M1</strong></td>
<td>1.71***</td>
<td>(0.22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-core1/M2</strong></td>
<td>2.51***</td>
<td>(0.40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-core1/Core</strong></td>
<td>1.63**</td>
<td>(0.68)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-core2/M1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.65***</td>
<td>(0.10)</td>
</tr>
<tr>
<td><strong>Non-core2/M2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.98***</td>
<td>(0.20)</td>
</tr>
<tr>
<td><strong>Non-core2/Core</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.98***</td>
<td>(0.21)</td>
</tr>
<tr>
<td><strong>Interoffice</strong></td>
<td>51.81***</td>
<td>(4.81)</td>
<td>54.03***</td>
<td>(4.75)</td>
<td>51.47***</td>
<td>(4.49)</td>
</tr>
<tr>
<td><strong>VIX</strong></td>
<td>1.56***</td>
<td>(0.17)</td>
<td>1.65***</td>
<td>(0.16)</td>
<td>1.74***</td>
<td>(0.14)</td>
</tr>
<tr>
<td><strong>World GDP</strong></td>
<td>−0.05*</td>
<td>(0.03)</td>
<td>−0.05*</td>
<td>(0.03)</td>
<td>−0.07****</td>
<td>(0.02)</td>
</tr>
<tr>
<td><strong>Pseudo R2</strong></td>
<td>0.37</td>
<td>(0.17)</td>
<td>0.35</td>
<td>(0.16)</td>
<td>0.33</td>
<td>(0.14)</td>
</tr>
<tr>
<td><strong>Log-likelihood</strong></td>
<td>−473.82</td>
<td>−488.00</td>
<td>−528.93</td>
<td>−675.69</td>
<td>−686.07</td>
<td>−681.33</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>3304</td>
<td>3310</td>
<td>3552</td>
<td>3482</td>
<td>3586</td>
<td>3581</td>
</tr>
<tr>
<td><strong>Countries</strong></td>
<td>38.00</td>
<td>38.00</td>
<td>40.00</td>
<td>41.00</td>
<td>42.00</td>
<td>42.00</td>
</tr>
</tbody>
</table>

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foreign/M1</strong></td>
<td>2.50***</td>
<td>(0.32)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-bank/M1</strong></td>
<td>−0.00</td>
<td>(0.57)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Foreign/M2</strong></td>
<td>3.49***</td>
<td>(0.53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-bank/M2</strong></td>
<td>−0.03</td>
<td>(2.50)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Foreign/Core</strong></td>
<td>3.46***</td>
<td>(0.69)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-bank/Core</strong></td>
<td>2.19</td>
<td>(2.92)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Foreign/M1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.09***</td>
<td>(0.24)</td>
</tr>
<tr>
<td><strong>(M3 – M2)/M1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>−0.48**</td>
<td>(0.20)</td>
</tr>
<tr>
<td><strong>Foreign/M2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.36***</td>
<td>(0.47)</td>
</tr>
</tbody>
</table>
While interoffice loans from the US had rapidly increased before the global financial crisis, once the crisis broke out, most countries lowered the policy rate. This makes it difficult for our definition (the top 3 percent tail of the pooled in-sample distribution) to label credit crises for these countries. Figure 3.2 shows the number of countries that take the crisis dummy variable equal to one for currency crisis and credit crisis respectively. For currency crises, there are two peaks: one small peak around late 2002 and a large peak around the global financial crisis in 2008. The credit crisis also has two peaks around the same time, but the peak around the global financial crisis is much smaller. Since, as shown in the graph, the cross-border interoffice loans had rapidly accumulated before the global crisis, they are much more strongly associated with the currency crisis.

4 CONCLUSION

In this chapter, we investigated the empirical validity of the hypothesis that the non-core liabilities of the banking sector can be regarded as a measure of the vulnerability to a financial crisis. Using an extended model of Hahm et al. (2012), we conducted a panel probit study on the susceptibility of emerging market countries to currency and credit crises, with a
Table 3.6  Impact of global market conditions on credit crisis

(a) Monthly data for non-core sum

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-core1/M1</td>
<td>0.58***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/M2</td>
<td>1.36***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core1/Core</td>
<td>7.85***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.01)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M1</td>
<td></td>
<td>0.33***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/M2</td>
<td></td>
<td>1.06***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-core2/Core</td>
<td></td>
<td>0.42***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interoffice</td>
<td>−36.18***</td>
<td>−39.71***</td>
<td>−34.88***</td>
<td>−40.70***</td>
<td>−45.30***</td>
<td>−47.59***</td>
</tr>
<tr>
<td></td>
<td>(5.07)</td>
<td>(5.07)</td>
<td>(5.00)</td>
<td>(5.21)</td>
<td>(5.19)</td>
<td>(5.31)</td>
</tr>
<tr>
<td>VIX</td>
<td>1.40***</td>
<td>1.55***</td>
<td>1.29***</td>
<td>1.02***</td>
<td>1.19***</td>
<td>1.11***</td>
</tr>
<tr>
<td></td>
<td>(0.18)</td>
<td>(0.17)</td>
<td>(0.18)</td>
<td>(0.19)</td>
<td>(0.18)</td>
<td>(0.18)</td>
</tr>
<tr>
<td>World GDP</td>
<td>0.02</td>
<td>0.03</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.22</td>
<td>0.25</td>
<td>0.29</td>
<td>0.17</td>
<td>0.23</td>
<td>0.21</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>−415.55</td>
<td>−435.95</td>
<td>−416.52</td>
<td>−366.66</td>
<td>−380.65</td>
<td>−388.21</td>
</tr>
<tr>
<td>Observations</td>
<td>2389</td>
<td>2365</td>
<td>2679</td>
<td>2684</td>
<td>2753</td>
<td>2728</td>
</tr>
<tr>
<td>Countries</td>
<td>26.00</td>
<td>26.00</td>
<td>29.00</td>
<td>30.00</td>
<td>31.00</td>
<td>31.00</td>
</tr>
</tbody>
</table>

(b) Monthly data for separate non-core to core ratios

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign/M1</td>
<td>0.57***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/M1</td>
<td>−0.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.36)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td>1.37***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.32)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/M2</td>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.25)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/Core</td>
<td>11.35***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>2.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.73)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M1</td>
<td></td>
<td>0.71***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(M3 – M2)/M1</td>
<td></td>
<td>−0.87***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign/M2</td>
<td></td>
<td>1.35***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
special focus on the role of non-core liabilities, capital market openness, and global financial conditions. Our main empirical findings can be summarized as follows.

First, consistent with Hahm et al. (2011), the non-core bank liability ratio has significant predictive power for both currency and credit crises. This result indicates that the changes in the composition of bank liabilities toward non-core funding signal a buildup of financial vulnerability in emerging market countries.

Second, capital market openness seems to exert significant impacts on the vulnerability to financial crises not only independently but also by interacting non-linearly with non-core bank liabilities.

Third, de jure and de facto capital market openness measures seem to have differential impacts on the vulnerability to a financial crisis, which suggests that actual openness could differ widely from the regulatory and institutional openness. However, both measures suggest that the same level of the non-core bank liability is more alarming in a more closed capital market economy. This may also reflect the fact that countries with more open capital markets have more sound economic policies and institutions, and hence are less subject to financial vulnerability.

The interaction effect between capital market openness and non-core liability ratio seems to materialize heterogeneously across currency and

<table>
<thead>
<tr>
<th>(M3 – M2)/M2</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign/Core</td>
<td>-0.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-bank/Core</td>
<td>0.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interoffice</td>
<td>-38.43***</td>
<td>-40.80***</td>
<td>-43.85***</td>
<td>-44.47***</td>
<td>-44.10***</td>
<td>-46.73***</td>
</tr>
<tr>
<td>VIX</td>
<td>1.37***</td>
<td>1.54***</td>
<td>1.15***</td>
<td>0.75***</td>
<td>0.87***</td>
<td>1.13***</td>
</tr>
<tr>
<td>World GDP</td>
<td>0.02</td>
<td>0.03</td>
<td>0.01</td>
<td>-0.02</td>
<td>-0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.22</td>
<td>0.25</td>
<td>0.33</td>
<td>0.21</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-417.13</td>
<td>-436.02</td>
<td>-393.23</td>
<td>-349.78</td>
<td>-353.34</td>
<td>-391.89</td>
</tr>
<tr>
<td>Observations</td>
<td>2389</td>
<td>2365</td>
<td>2679</td>
<td>2684</td>
<td>2684</td>
<td>2728</td>
</tr>
<tr>
<td>Countries</td>
<td>26.00</td>
<td>26.00</td>
<td>29.00</td>
<td>30.00</td>
<td>30.00</td>
<td>31.00</td>
</tr>
</tbody>
</table>
Note: Using the dummy variables defined in the main text for currency crisis and credit crisis, we calculate the number of countries that take the dummy variable equal to one in each month. We also plot the normalized interoffice loans multiplied by 1000. VIX is represented by the right axis.

Figure 3.2  Currency and credit crises, interoffice loans and VIX
credit crises. As for the credit crisis, the interaction term is positive in many cases, indicating that with more open capital markets, an increase in non-core liability ratio raises the likelihood of a credit crisis even more proportionately.

Fourth, global financial conditions exert significant impacts on the crisis incidence.

A higher VIX index of market risk raises significantly the crisis incidence of emerging market countries for both currency and credit crises. The US interoffice loans have heterogeneous impacts on the currency and credit crises. Namely, an increase in the cross-border bank capital flows from the US raises the likelihood of a currency crisis, while it reduces the likelihood of a credit crisis. However, we showed that this heterogeneous impact of cross-border interoffice loans across currency and credit crises may have resulted from our definition of a credit crisis and the policy response of the crisis ridden countries. That is, once the crisis broke out, most countries lowered the policy interest rate.

Overall our results suggest that the impact of non-core liability materializes highly non-linearly and heterogeneously across different crises episodes. The empirical evidence obtained in this study yields a set of important policy implications for Asian countries.

First, policymakers in Asian emerging market economies need to pay closer attention to the financial cycle as reflected in the changes in size and composition of bank liabilities. In this regard, policy makers need effective macro-prudential policy tools to monitor and identify stages of the financial cycle, and our findings suggest that non-core to core liability ratio can be employed as a useful early warning indicator of financial vulnerability to a crisis in emerging market countries.

Second, Asian countries must take complex interaction effects between bank liabilities and capital flows into consideration when they pursue capital market opening. Non-core bank liabilities such as external debts of banks tend to intensify both procyclicality of domestic financial cycles as well as systemic vulnerability to external shocks. Hence, policymakers must monitor and supervise foreign currency funding structure of domestic banks. For instance, even though Korean banks had been complying with prudential supervisory guidance before 2008, they were severely hit by the global financial crisis, and the vulnerability mainly resulted from the rapid expansion of non-core bank liabilities through various on and off-balance sheet foreign currency funding in the period leading to the global crisis. Our empirical results suggest that once non-core bank liabilities, particularly foreign liabilities, are accumulated, they may signal more likelihood of currency crises in an economy with relatively closed capital markets.

Third, as our study shows, fluctuations in global financial conditions
Global shock, risks, and Asian financial reform

have significant impacts on the crisis incidence of emerging market economies regardless of their economic fundamentals. In the aftermath of the global financial crisis, global liquidity has increased dramatically, and relatively sound Asian economies are attracting a substantial portion of the increased capital flows. As such, along with sound macroeconomic management, a carefully designed macro-prudential policy framework needs to be installed in conjunction with well-planned financial account liberalization policies in Asian countries in order to guard against disruptive swings in cross-border capital and global liquidity conditions.

ACKNOWLEDGMENTS

Prepared for the ADB project on Regulatory Reform in Asia. We thank Eli Remolona, Cyn-Young Park, and other participants for valuable comments at the interim ADB conference in Hong Kong, China on 28–29 January 2013. We also thank Ilsoo Hahn for his excellent research assistance.

NOTES

1. Hahm et al. (2012) also consider a stock market crisis and Asian countries that experience a stock market crisis include the PRC, Indonesia, Japan, Hong Kong, China, Malaysia, Pakistan, the Philippines, and Thailand.
2. See Bruno and Shin (2012) for further detailed explanation of the construction of the variable.

REFERENCES

Lane, P.R. and G.M. Milesi-Ferretti (2007), ‘The external wealth of nations mark


4. Monetary aggregates and global liquidity: evidence from individual firm data from Asia

Hyun Song Shin and Laura Yi Zhao

1 INTRODUCTION

Changing domestic financial conditions form the backdrop for the determination of asset prices and credit conditions. The earlier chapters in this volume have examined the impact of capital flows through the operation of banking systems that are open to various degrees to funding from the global banking system.

However, in some financial systems that are at an early stage of development or where the banking sector is restricted by regulation from having access to the global banking system, the impact of global financial conditions may show up in different ways from those economies with banking systems that are fully open to global conditions. In particular, the distinction between core and non-core liabilities of the banking system will look different, although the principles from the system-wide accounting framework described in earlier chapters in this volume will continue to apply.

For an economy with a large trade sector, nonfinancial exporting firms can be expected to play an important role in the transmission of financial conditions. In this chapter, we explore the transmission of global financial conditions to the domestic economy through the balance sheet management of nonfinancial firms. In particular, we examine firm-level data to investigate in some detail the way that nonfinancial firms manage their cash and debt positions. Using firm-level data allows us to piece together an important channel of the transmission of global financial conditions through the activity of nonfinancial firms.

As a prelude to the main discussion, we set the stage for our firm-level analysis by describing the general principles that underpin our analysis. We begin by reiterating some of the basic principles behind the role of financial intermediation and its link with monetary aggregates and other liability aggregates of the banking sector. When the domestic banking
sector is mostly closed from the global banking sector through regulation, deposits will constitute the major share of banking sector liabilities, and traditional monetary aggregates such as M2 take on the role of the liability counterpart to bank credit.

We explore the extent to which we may decompose M2 itself into its core and non-core components. The non-core component of deposits then may include the deposits of nonfinancial companies who end up recycling funding within the economy and hence become integrated into the intermediary sector itself. The PRC and India are two examples where this distinction between core and non-core liabilities may be usefully employed. As intermediaries who borrow in order to lend, banks must raise funding in order to lend to their borrowers. When credit is growing faster than the available pool of funds that are usually drawn on by the bank (‘core liabilities’), the bank will turn to other, ‘non-core’ sources of funding to support its credit growth. In this way, the ratio of non-core to core liabilities serves as a signal of the degree of risk-taking by the bank and hence of the stage of the financial cycle. We have seen from the earlier chapters in this volume that the ratio of non-core to core liabilities emerges as an informative aggregate ratio that may be consulted to ascertain the current state of the financial cycle.

As described in the overview (Chapter 1) on global liquidity, the importance of monetary analysis for the real economy rested on a stable money demand relationship that underpinned the link between money and macro variables. Money demand is seen as the result of a portfolio decision of economic agents choosing between liquid and illiquid claims, whether based on an inventory holding of money for transactions, or as part of a more general portfolio problem between liquid and illiquid assets, but where the transactions role of money plays a role. For this reason, the traditional classifications of monetary aggregates focus on the transactions role of money as a medium of exchange. The criterion for the classification is based on how close to cash – how ‘money-like’ – a particular financial claim is. Demand deposits are the archetypal money measure, since such liabilities of the banking sector can be quickly transferred from one person to another. Savings deposits are less money-like, and hence figure in broader notions of money, such as M2, but even for this they fall outside the M2 measure if the depositor faces restrictions on easy access to the funds. In this way, the traditional hierarchy of monetary aggregates goes from cash to the very liquid claims, such as demand deposits, going out to more illiquid claims on the banking sector, such as term savings deposits.

However, unlike commodity money, monetary aggregates are the liabilities of banks and hence have an asset-side counterpart. Recognizing the asset-side counterpart of money and the determinants of bank lending
focuses attention on the supply of money by banks. Indeed, rather than speaking of the demand for money by savers, we could turn the relationship on its head, and speak of the supply of funding by savers.

By speaking of the supply of money as the demand for funding, the shift in the language serves to focus attention on the banking sector and its balance sheet management over the cycle. To the extent that the banking sector is more susceptible to procyclical behavior, lending standards vary more over the cycle than would be justified by the economic fundamentals alone.

The link between monetary aggregates and financial stability serves to highlight the role of financial intermediaries. One way to illustrate the role of nonfinancial firms in financial intermediation is to draw on the experience of Japan in the 1980s during the liberalization of its financial sector. Japan’s 1980s experience was taken up by Hattori et al. (2009), who examined the role of the nonfinancial corporate sector in amplifying the financial cycle in Japan. Some themes that overlap with macro-prudential policy are worth revisiting here.

The focus of Hattori et al. (2009) is on corporate lending following the sectoral changes that took place in Japan after the liberalization of the securities markets and the accompanying liberalization of the rules governing bank deposits. As a result of the financial liberalization of the 1980s, securities markets enabled the opening up of new funding sources – both domestic and foreign – for companies that had traditionally relied on the banking sector. Of particular interest is the role played by the large manufacturing firms in Japan. Before the 1980s, manufacturing firms in Japan received most of their financing from the traditional banking sector, both for long-term investment as well as for short-term liquidity needs. However, with the liberalization of the securities market that began in the mid-1980s, nonfinancial companies were able to tap new sources of funding from outside the traditional banking sector. New issuance of equity, corporate bonds, warrants and commercial paper increasingly became important sources of funding for nonfinancial firms. The new funding was supplied both by domestic savers and other non-leveraged financial institutions such as life insurance companies who purchased the bonds and other securities issued by Japanese companies. Foreign investors also figured prominently among the new funding sources.

The changing financial structure can be illustrated schematically in Figure 4.1 (before financial liberalization) and Figure 4.2 (after financial liberalization).

The sequencing of financial liberalization reforms meant that the nonfinancial corporate funding was liberalized ahead of the liberalization of the banking sector. As new funding sources opened up to the major manu-
facturing firms with overseas operations, it became profitable for them to recycle liquidity and act as *de facto* financial intermediaries by raising funding in the capital markets through securities, and then depositing the funds in the banking system through time deposits. Through this channel, the financial assets of nonfinancial corporations increased dramatically together with their financial liabilities in the late 1980s (see Hattori 2009 for details). Figure 4.2 illustrates the change in financial structure entailed by the recycling of liquidity.

When nonfinancial firms play the role of *de facto* financial intermediaries, the stock of M2 will see rapid increases owing to the increasing deposit
claims on the banking sector. Meanwhile, the banking sector itself will be under increasing pressure to find new borrowers, since their traditional customers (the manufacturing firms) no longer need funding, and instead, have undergone a reversal of roles and are pushing deposits into the banks, rather than receiving loans from the banks.

Under such circumstances, the distinction between core and non-core banking sector liabilities does not coincide neatly with the distinction between deposit and non-deposit liabilities. In many developing countries that are at an earlier stage of financial development, or are more closed to the global banking system, the principle behind the distinction between core and non-core liabilities is better expressed as the distinction between:

- the retail deposits of the household sector, and
- the wholesale deposits of nonfinancial companies.

The new liquidity requirements on banks contemplated under the Basel III rules (the net stable funding ratio – NSFR – and the liquidity coverage ratio – LCR) recognize that retail deposits are much more ‘sticky’ and are less likely to run, while the wholesale deposits of corporates are more flighty (BCBS 2010).

Traditional monetary aggregates were defined around their legal form, and how liquid they are in transactions. For the reasons outlined above, these traditional aggregates will be less effective as a macro-prudential monitoring tool without further adaptation.

For countries with relatively closed financial systems, where domestic banks do not have ready access to funding provided by the global banking system, conventional monetary aggregates may convey useful information on financial conditions and hence on financial stability issues.

As an illustration of the possible use of monetary aggregates in monitoring financial conditions for countries such as the PRC, we can examine the procyclicality of monetary aggregates. Figure 4.3 plots the monthly growth rates of various banking sector liability aggregates for (a) the Republic of Korea and for (b) the PRC. The growth rates have been filtered through a Hodrick-Prescott filter at business cycle frequency. Note that the HP filter is used here with hindsight to highlight differences in time series patterns, not the real-time trend-finding exercise with the Basel III exercise.

In the Republic of Korea, banks have access to capital markets, either directly or through the branches of foreign banks operating in the Republic of Korea. For this reason, the most procyclical components of the bank liability aggregates are those associated with wholesale funding, especially the series for the foreign exchange denominated liabilities of the banking sector. Before the 1997 Asian financial crisis and the 2008 crisis,
Figure 4.3 Monthly growth rates of HP-filtered bank liability aggregates
non-core liabilities grew rapidly, only to crash with the onset of the crisis. In contrast, the growth of M2, reflecting household and corporate deposits, is much less variable over the cycle.

However, Figure 4.3(b) shows that in the PRC, the sub-components of M2 show considerable variation in their time series properties, with corporate deposits showing the tell-tale procyclical patterns as compared to household deposits. Although the banking sector in the PRC is less open to global capital markets than is the banking sector in countries such as the Republic of Korea, some thought is needed on how financial conditions are transmitted across the border into the PRC. Just as water finds cracks to flow through, even a closed financial system cannot be immune to global financial conditions entirely. This is true especially for a highly trade-dependent economy such as the PRC. If the banks are prevented from accessing international capital markets, then the nonfinancial firms will be the conduit for the transmission of financial conditions.

Figure 4.4 depicts the activities of a Chinese nonfinancial firm with operations outside the PRC, who borrows in US dollars from an international bank in Hong Kong, China and posts renminbi deposits as collateral. The transaction would be akin to a currency swap, except that the settlement price is not chosen at the outset. The transactions instead resemble the operation of the old London Eurodollar market in the 1960s and 1970s. For the Chinese corporate, the purpose of having US dollar

---

**Figure 4.4**  Structure of borrowing relationships for nonfinancial corporates in the PRC
liabilities and holding the proceeds in renminbi may be to hedge their export receivables, or simply to speculate on renminbi appreciation.

A variation of the relationship in Figure 4.4 is the case where the Hong Kong, China bank receives a guarantee from a bank in the People's Republic of China, and it is the latter that receives the renminbi (RMB) deposit from the Chinese nonfinancial company.

Figure 4.5 provides the evidence for the transactions depicted in Figure 4.4. Figure 4.5 plots the claims and liabilities of Hong Kong, China banks in foreign currency to customers in the PRC. Foreign currency, in this case, would be US dollars (mainly) for the assets and RMB (mainly) for the liabilities. Both have risen dramatically in recent years, reflecting the rapidly increasing US dollar funding of nonfinancial corporates.

The procyclical pattern in corporate deposits in the PRC panel in Figure 4.3 may be due to such activities of nonfinancial corporates. In addition, such activities of nonfinancial corporates may also explain why the PRC experienced dollar shortages in late 2011 with the deterioration of global funding markets due to the crisis in Europe. During this period the RMB was under pressure, depreciating against the US dollar.

Although the PRC's banking system is rightly regulated on their external activities, the global activities of its nonfinancial firms will be reflected in

![Figure 4.5](image-url)
the corporate deposits within M2 when those firms hold the proceeds of dollar liabilities in their accounts in the PRC.

Figure 4.6 illustrates the growth in the component of the money stock that is due to the deposits of corporates, rather than for households. Panel (a) shows the time trend in personal deposits and corporate deposits, while panel (b) shows the ratio of the corporate to personal deposits. We see the increase in proportion of corporate deposits in recent years, consistent with the operations of Chinese corporates as shown in Figure 4.2.

The excess liquidity generated by the activity of nonfinancial corporates in the PRC will be an important element of the lending boom in the PRC, and is reminiscent of the lending boom in Japan in the 1980s following financial liberalization that allowed Japanese companies to access global capital markets, as described above.

Both in Japan in the 1980s and in the PRC more recently, monetary aggregates, especially corporate deposits, played the role of non-core liabilities in the way that foreign exchange (FX) borrowing by Korean banks plays the role of non-core liabilities in the Republic of Korea. The point of contact between the FX liabilities in the Republic of Korea and the corporate deposits in the PRC is that both are liability components of banks. Provided we have the correct demarcation between core and non-core liabilities, we can apply the same method of tracking the ratio of non-core to core liabilities as an indicator that can serve as an early warning of financial vulnerability.

The objective of this chapter is to provide a firm-level analysis of the role of nonfinancial corporates acting as surrogate financial intermediaries. The initial focus of analysis is mainly on nonfinancial corporates in the PRC, but we also examine comparisons with nonfinancial corporates in other Asian economies.

The investigation centers on the key prediction that nonfinancial firms borrow from financial markets in order to hold financial assets, in particular deposits in the banking system. We explore this hypothesis by examining the correlation between financial liability and cash holdings of nonfinancial firms, which provides a test of the theory of Hattori et al. (2009).

We also draw on the work of Opler et al. (1999), who have shown that financial leverage is negatively correlated with US nonfinancial firms’ cash holdings. They further show that the results are robust to whether cash holdings are normalized by net assets or sales. The results are consistent with the financing hierarchy theory, which predicts that due to agency cost, external financing cost is higher than internal financing cost, and hence as a firm accumulates internal funds, its leverage falls. In contrast, the theory of Hattori et al. (2009) predicts a positive correlation between cash
Figure 4.6 Components of the PRC's monetary aggregates

Source: People's Bank of China.
holdings and financial liability of nonfinancial firms when they ‘arbitrage’ across markets.

In this chapter, we examine the variation of the correlation between financial liability and cash holdings across countries, industries and periods using firm level data in the Compustat Global datasets and study seven economies: the PRC, Japan, the Republic of Korea and top four economies in the ASEAN: Indonesia, Malaysia, the Philippines and Thailand.

To anticipate our main conclusions, the main findings can be summarized as follows.

First, for Chinese firms, financial liability and cash holdings are positively correlated when both are divided by sales. This finding for the PRC is in contrast to the finding for US firms as described in Opler (1999).

Second, firms in the manufacturing sector in several countries in Asia display a notably more extensive intermediary activity than for other countries. The finding is strongest for the PRC, Japan (in the 1980s) and Indonesia.

Third, for the PRC, when the sample period is divided into three sub-periods: 1991–2001, 2002–07, and 2008–11, and the sample period of Japan into two periods: 1987–90, and 1991–2011, the interaction between the manufacturing dummy and financial liability is positive and significant in the periods of 2002–07 and 2008–11 in the PRC, and in the period of 1987–90 in Japan, and insignificant in other periods. These findings are consistent with the theory of Hattori et al. (2009), and hard to reconcile with the financing hierarchy theory.

More broadly, our results point to the feature that nonfinancial firms have taken on attributes of financial firms, as they increase the size of their balance sheets relative to their activities in generating sales, and as a consequence contribute to the amplification of financial cycles. In this chapter, we investigate data at the individual firm level from the PRC, Japan, the Republic of Korea and ASEAN 5 countries excluding Viet Nam due to data limitations.

As monetary policy moves from the role of banks to the functioning of bond markets and the availability of credit to borrowers from the long investors, such as asset managers that act on behalf of pension funds and insurance companies, the role of nonfinancial firms will take on increased significance. The findings in this chapter should therefore contribute to a better understanding of the channels through which global liquidity conditions are transmitted to the domestic financial system.

Figure 4.7 plots the outstanding stock of foreign currency bonds issued by borrowers in the PRC obtained from the ADB’s Asia Bonds Online database, classified according to whether the borrower is the government sector, bank or other financial sector, or the nonfinancial corporate sector.
Monetary aggregates and global liquidity

We see from Figure 4.7 that the outstanding amounts of foreign currency borrowing by the nonfinancial corporate sector have increased rapidly in recent years. The absolute amounts are arguably still small, but the pace of increase is more noticeable. To the extent that the issuance of foreign currency bonds tracks other types of funding obtained by the nonfinancial corporate sector, we may expect external conditions to have played an increasingly important role in recent years.

2 EMPirical analysiS FOR THE PRC

We first examine the evidence from firm-level data on nonfinancial corporates in the PRC. The data used in the analysis come from Compustat Global and CSMAR which cover over 2000 firms’ balance and income statements from 1991 to 2011.

We first demonstrate several simple relationships between key variables. Figure 4.8 plots the scatter chart of the firm-level cash and short term investments for Chinese corporates versus their sales, in log scale. The two
years examined are 2000 and 2011. As expected, total sales are a good explanatory variable for the cash holding of firms, both since sales determine the overall size of the firm, but also since cash holdings would serve the role of transactions balances or precautionary balances related to the real activities of the firms.

We observe that there exists a linear relationship between nonfinancial firms’ sales and their cash holdings with a slope close to 1. The fact that the slope is close to 1 indicates that there is a proportional relationship between cash holdings and sales. The evidence is also consistent with the expectation that high external financing costs encourage corporates to accumulate cash through retained earnings.

Figure 4.9 shows what we will dub the ‘fish bone’ charts, which plot the cash to sales (revenue) ratio for each firm next to the financial liabilities to revenue ratio for that same firm. By then ranking firms by the size of the cash to revenue ratio, the fish bone charts plot the pairs of cash to revenue and financial liabilities to revenue for the top 50 firms by sector for two years – 2009 and 2010. The two sectors considered are the commerce sector and the conglomerate sectors.

From Figure 4.9, we see that for firms with larger liability to revenue ratios, their cash to revenue ratios also tend to be large. This pattern
Monetary aggregates and global liquidity

clearly suggests a positive correlation between cash holdings and financial liabilities.

It is worth emphasizing the divergence of the findings above from that predicted by the more conventional financial hierarchy theory of corporate financing decisions. The financial hierarchy theory predicts that a firm will draw on internal funds first, and only when internal funds are not available in sufficient quantity will it turn to external sources of financing. The financial hierarchy theory therefore predicts a negative correlation between firms’ cash holdings and liabilities.

Why is their relationship reversed for the PRC’s nonfinancial firms? One clue lies in the fact that many firms in the commerce and conglomerate industries are heavily involved in export, and would be consistent with the surrogate financial intermediation role of nonfinancial corporates described

Source: CSMAR.

Figure 4.9  Chinese nonfinancial corporates in the commerce and conglomerates, top 50 firms by cash/revenue ratio
Global shock, risks, and Asian financial reform

above. The positive relationship between cash holdings and financial liabilities suggests a more detailed investigation using firm-level data will be a promising direction to take in elucidating the underlying relationships.

Further suggestive evidence is provided by studying the correlation between cash holdings and financial liabilities for manufacturing firms in the PRC over time. Figure 4.10 is generated by the following procedure. First we run a simple linear regression of the cash to sales ratio on the financial liabilities to sales ratio. This simple linear regression allows us to gauge the slope of the relationship depicted in the ‘fish bone’ charts for each year from 1991 to 2011. Next, we plot the coefficient of the linear regression by year together with the error bands corresponding to the 95 percent confidence interval.

We see from Figure 4.10 that the troughs of the graph coincide with periods when financial conditions were tight. We see, for instance that 1998 (during the Asian financial crisis) and 2009 (the year in the immediate aftermath of the Lehman collapse) coincide with low points on the graphed series, indicating that the surrogate financial intermediation activity of Chinese corporates were more subdued during those years. Such a finding is consistent with the impact of the availability of credit to nonfinancial firms in the PRC through creditors whose lending behavior is dictated by global financial conditions.

Note: Error bars indicate the 95 percent confidence interval.

Figure 4.10 Relationship between cash and debt for manufacturing firms in the PRC
Furthermore, we see from Figure 4.10 that for most years in our sample, the slope coefficient of the simple regression is statistically significantly different from zero. It is only in those years when global financial conditions are tight that the slope coefficient is not statistically significant.

Such findings motivate a more rigorous statistical analysis. In what follows, we examine three hypotheses more rigorously using panel regression techniques. First, our hypothesis is that there exists a positive relationship between cash holding and financial liabilities in nonfinancial firms in the PRC. Second, the global liquidity condition affects firms’ cash holdings. Third, manufacturing firms, which are more likely to be exporting firms, will tend to see a higher positive correlation between cash holdings and financial liabilities.

We find strong empirical support for all three hypotheses. The results strongly suggest that in the PRC, nonfinancial corporates play the role of surrogate financial intermediaries in which they raise funding not only for the usual purpose of financing investment expenditure or to hold for precautionary motives, but also to engage in surrogate financial intermediation by depositing the proceeds of borrowings into the domestic banking system. To the extent that corporate deposits capture the activity of nonfinancial corporates as surrogate financial intermediaries, we may expect the money supply to furnish useful information on the state of the financial system in terms of the availability of credit to the nonfinancial corporate sector. In this respect, the state of the nonfinancial corporate sector and the domestic banking sector will be closely interlinked.

3 PANEL REGRESSION ANALYSIS

We first examine panel regressions in levels for Chinese nonfinancial corporates where the dependent variable is the natural logarithm of cash (including short term investments) and is designed to investigate the cross-section pattern in the data. The results are shown in Table 4.1.

Firm leverage is defined as total debt divided by the total assets. The key explanatory variable is ln(fin liab), which is the natural logarithm of the firm’s financial liabilities. Our hypothesis is that the coefficient on this variable is positive, implying that firms that borrow more are also those who hold more cash (and thereby lend more to the banking system). In other words, a positive sign on ln(fin liab) would indicate the kind of surrogate financial intermediation that we depicted in the transition from the balance sheet relationships in Figures 4.1 and 4.2 in which nonfinancial firms have a reversal of roles vis-à-vis the banks from being a borrower from banks to being lenders to banks.
### Table 4.1  Panel regression for PRC-based publicly traded firms, 1991–2011

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(fin liab)</td>
<td>0.0391***</td>
<td>0.388***</td>
<td>0.366***</td>
<td>0.514***</td>
<td>0.416***</td>
<td>0.242***</td>
</tr>
<tr>
<td>(7.778)</td>
<td>(54.27)</td>
<td>(45.14)</td>
<td>(27.96)</td>
<td>(30.54)</td>
<td>(20.54)</td>
<td></td>
</tr>
<tr>
<td>ln(sales)</td>
<td>0.782***</td>
<td>0.528***</td>
<td>0.528***</td>
<td>0.428***</td>
<td>0.472***</td>
<td>0.650***</td>
</tr>
<tr>
<td>(125.4)</td>
<td>(75.89)</td>
<td>(75.79)</td>
<td>(28.85)</td>
<td>(42.14)</td>
<td>(60.24)</td>
<td></td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−4.192***</td>
<td>−4.174***</td>
<td>−5.047***</td>
<td>−4.208***</td>
<td>−3.536***</td>
<td></td>
</tr>
<tr>
<td>(−63.61)</td>
<td>(−63.21)</td>
<td>(−38.74)</td>
<td>(−39.60)</td>
<td>(−32.65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US broker dealer</td>
<td>0.0547**</td>
<td>0.0554**</td>
<td>0.0950***</td>
<td>−0.0300***</td>
<td>−0.141***</td>
<td></td>
</tr>
<tr>
<td>leverage</td>
<td>(2.412)</td>
<td>(2.451)</td>
<td>(2.861)</td>
<td>(−7.456)</td>
<td>(−13.20)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing ×</td>
<td>−1.646***</td>
<td>−1.219*</td>
<td>−1.049</td>
<td>−1.467*</td>
<td>1.509***</td>
<td>2.403***</td>
</tr>
<tr>
<td>ln(fin liab)</td>
<td>(−4.597)</td>
<td>(−1.879)</td>
<td>(−1.621)</td>
<td>(−1.770)</td>
<td>(12.63)</td>
<td>(14.22)</td>
</tr>
<tr>
<td>Constant</td>
<td>−1.219*</td>
<td>−1.049</td>
<td>−1.467*</td>
<td>1.509***</td>
<td>2.403***</td>
<td></td>
</tr>
<tr>
<td>(−1.879)</td>
<td>(−1.621)</td>
<td>(−1.770)</td>
<td>(12.63)</td>
<td>(14.22)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>20332</td>
<td>20332</td>
<td>20332</td>
<td>5979</td>
<td>7294</td>
<td>7059</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.683</td>
<td>0.735</td>
<td>0.737</td>
<td>0.634</td>
<td>0.699</td>
<td>0.759</td>
</tr>
</tbody>
</table>

**Notes:**

- T-statistics in parenthesis.
- *** p < 0.01, ** p < 0.05, * p < 0.1.
We see that the coefficient on ln(fin liab) is consistently positive throughout Table 4.1. Given the log-log specification of the panel regression, the coefficient on ln(fin liab) has the interpretation of the elasticity of the cash holding with respect to the size of the firm’s financial liabilities. So, for every 100 yuan of borrowing by the firm, there is roughly a 40 yuan increase in the cash holding of the firm in cross section.

We note also that the normalizing variable ln(sales) plays an important explanatory role, as suggested by the scatter charts displayed earlier. In column (1), when only ln(fin liab) and ln(sales) are included as explanatory variables, the coefficient on ln(sales) is 0.782.

Another key explanatory variable in the panel regression in levels is the leverage of the US broker dealer sector. This variable is introduced as a proxy for the credit availability conditions in global financial markets. The US broker dealer sector consists of financial intermediaries that operate in the capital markets and hold securities rather than extend loans as commercial banks do. However, as discussed in Shin (2012), the broker dealer subsidiaries of the European global banks that have played the pivotal role in international capital markets are subject the similar economic determinants as the broker dealers in US capital markets. In that sense, the leverage of the US broker dealer sector may expect to be a good proxy for the credit supply conditions in global banking markets. Bruno and Shin (2012) verify that capital flows to a panel of advanced and emerging economies are sensitively affected by the US broker dealer leverage.

Table 4.1 reveals that the US broker dealer leverage variable plays an important explanatory role in the panel regression. We see from columns (2) to (6) that the coefficient on this variable is generally positive and significant, except for the recent period, as indicated by columns (5) and (6). The final column is especially interesting, as it indicates that firms in the PRC have continued to increase their balance sheet positions even in the aftermath of the financial crisis.

Moreover, manufacturing firms show higher correlation between their financial liabilities and cash holdings compared to the other industries, as shown by column (3).

Next, we examine panel regressions defined on the growth rates, rather than the levels. We examine panel regressions with firm fixed effects, and where the focus is on the relationship between growth of financial liabilities and growth of cash holding. The dependent variable is the log difference of cash between t and t−1. The results are shown in Table 4.2.

The panel regression in log differences is intended as a check on the time series property of the relationship between cash and financial liabilities. By using firm fixed effects, the panel regression in log differences can overcome the reliance on cross-section relations.
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δln(fin liab)</td>
<td>0.0702***</td>
<td>0.120***</td>
<td>0.1000***</td>
<td>0.151***</td>
<td>0.126***</td>
<td>0.0669**</td>
</tr>
<tr>
<td>Δln(sales)</td>
<td>0.959***</td>
<td>0.909***</td>
<td>0.910***</td>
<td>0.890***</td>
<td>0.797***</td>
<td>0.837***</td>
</tr>
<tr>
<td>(57.89)</td>
<td>(56.12)</td>
<td>(56.30)</td>
<td>(30.80)</td>
<td>(24.84)</td>
<td>(19.24)</td>
<td></td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−1.584***</td>
<td>−1.583***</td>
<td>−2.856***</td>
<td>−1.663***</td>
<td>−2.252***</td>
<td></td>
</tr>
<tr>
<td>(−23.13)</td>
<td>(−23.11)</td>
<td>(−15.15)</td>
<td>(−9.506)</td>
<td>(−11.95)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>−0.00723***</td>
<td>−0.00718***</td>
<td>0.0308***</td>
<td>0.0151***</td>
<td>0.0806***</td>
<td></td>
</tr>
<tr>
<td>(−6.144)</td>
<td>(−6.100)</td>
<td>(5.138)</td>
<td>(5.361)</td>
<td>(−7.340)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing × Δln(fin liab)</td>
<td>0.0314*</td>
<td>0.0691**</td>
<td>0.0560</td>
<td>0.0585</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1.826)</td>
<td>(2.488)</td>
<td>(1.601)</td>
<td>(−1.507)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.00927***</td>
<td>0.517***</td>
<td>0.516***</td>
<td>0.146</td>
<td>−0.0615</td>
<td>1.680***</td>
</tr>
<tr>
<td>(49.54)</td>
<td>(18.79)</td>
<td>(18.75)</td>
<td>(1.138)</td>
<td>(−0.766)</td>
<td>(10.65)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>19,499</td>
<td>19,499</td>
<td>19,499</td>
<td>5,755</td>
<td>7,009</td>
<td>6,735</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.458</td>
<td>0.474</td>
<td>0.475</td>
<td>0.582</td>
<td>0.378</td>
<td>0.243</td>
</tr>
<tr>
<td>Number of firms</td>
<td>2,230</td>
<td>2,230</td>
<td>2,230</td>
<td>1,039</td>
<td>1,710</td>
<td>2,069</td>
</tr>
</tbody>
</table>

**Table 4.2**  Panel regression for PRC-based publicly traded firms, 1991–2011, with firm fixed effects

**Dependent variable:** Δln(cash)

**Notes:**
Robust t-statistics in parenthesis.
*** p < 0.01, ** p < 0.05, * p < 0.1.
In Table 4.2, we see from all columns that the coefficient on Dln(sales) is close to 1, suggesting a proportional relationship between the growth of cash holdings and the growth of sales. However, crucially, even controlling for sales growth, growth in cash holding is positively correlated with growth in financial liabilities, and is consistently so across all the columns in Table 4.2. We see that the coefficient on the Dln(fin liab) variable (the log difference of the firm’s financial liabilities from the previous period) is strongly positive and highly significant. This is the key prediction of the surrogate intermediary view of cash holding by firms. When a firm increases its borrowing from one year to the next, there is a corresponding increase in the cash holdings, even controlling for sales.

In the panel regression in growth rates given in Table 4.2, the leverage of the US broker dealer sector enters with a positive coefficient over the period 1991–2001 (column 4) and for the period 2002–07 (column 5).

In the growth rate panel regression, we also include an interaction dummy between manufacturing firms and the growth of financial liabilities. From columns (3) and (4), we see that the interaction dummy is positive and (marginally) significant, indicating that manufacturing firms show a more positive correlation between cash growth and financial liability growth compared to other industries.

In sum, firm-level time series evidence from the panel regression in growth rates with firm fixed effects corroborates the results of the panel regression in levels given in Table 4.1, and lends weight to our main hypothesis that nonfinancial corporates in the PRC have been playing a de facto financial intermediary in the financial system. To the extent that such nonfinancial firms also have access to the bond market, the impact of bond market financial conditions will translate into the supply of deposit funding to the banking sector. In short, our empirical results add weight to the hypothesis that nonfinancial firms engage in surrogate intermediation.

4 CROSS-COUNTRY ANALYSIS FOR OTHER ASIAN COUNTRIES

Building on the insights from our panel regressions for nonfinancial firms in the PRC, we extend our analysis to other firms in Asia. Our sample is drawn from the Compustat database, and we examine firms in Japan, the Republic of Korea, Indonesia, Malaysia, the Philippines and Thailand, with the focus of the relationship between financial liabilities and cash holding. Of the Big Five ASEAN countries, we do not have data for Vietnam, given the lack of data availability.
Our examination of the data will follow the sequence we have followed for the firms in the PRC. We start by presenting the scatter plots of the cash and short-term investments against total sales for the six countries listed above. The scatter charts are presented in Figure 4.11, and are in log scale. The two snapshots are for 2000 and for 2011. As we would expect, the scatter charts follow a clear linear relationship with the slope being close to 1, strongly suggesting a proportional relationship between cash holding and sales.

There are, however, some differences across countries, even at this preliminary stage of the data analysis. The scatter chart for firms in Japan reveal a closely clustered relationship that is evenly distributed at all points of the size distribution. In contrast, the firms in the Republic of Korea show a pattern where there are fewer firms at the top of the distribution, while the firms at the bottom of the size distribution are more dispersed.

Figure 4.11 also reveals that the Compustat sample is much thinner for the Philippines and for Indonesia. The fact that the Compustat Global database consists exclusively of traded listed firms means that our sample can only capture a small proportion of the total universe of firms in those countries.

Figure 4.12 is the product of the simple regressions where, for each year, we run the cross-section regression of the financial liabilities to sales ratio on the cash to sales ratio. Having obtained the coefficient for each country for each year, we then plot the coefficients over time for each country. Figure 4.12 is that plot.

Figure 4.12 presents two plots. In the first plot, we use the regression coefficients from the unweighted regression. In the lower plot, we use the coefficients from the weighted regression where each observation is weighted by the relative revenue of firms in the sample.

We see from Figure 4.12 that the coefficient beta is generally positive for most years in all of the countries examined in our study. There are some large movements in the beta estimates, especially for those countries such as Indonesia and the Philippines where the sample size is small.

The solid black line is the plot of the coefficients for the whole sample. The weighted revenue chart reveals that the beta coefficient falls during the period of the Asian crisis and its immediate aftermath in 1999 and 2000. Thereafter, the beta coefficient increases until the 2008 financial crisis. At the end of the sample period, there is a turn-up in 2010 and 2011. The pattern is somewhat different from that for nonfinancial firms in the PRC, and we will examine some of the differences below.
Figure 4.11 Scatter plots for cash and short-term investments versus sales in Japan, the Republic of Korea, Indonesia, Malaysia, the Philippines, and Thailand
Figure 4.11  (continued)
Figure 4.12   Beta over time for different countries
5 PANEL REGRESSIONS IN LEVELS FOR OTHER ASIAN COUNTRIES

Building on the analysis for the case of the PRC, we now turn to other countries in Asia. We run panel regressions in levels for Japan, the Republic of Korea, and the ASEAN 5 countries excluding Viet Nam. The dependent variable is the natural logarithm of cash and short-term investments, and the explanatory variables are those examined for the panel regressions for the PRC seen above. The results are organized by country.

Table 4.3 shows the results for Japan. The panel regression results for the other countries in our sample are presented in sequence thereafter. For Japan, our main hypothesis that the regression coefficient of financial liabilities is significantly positive is borne out clearly in the data. We see that the coefficient on the ln(fin liab) term is positive for most of the sub-periods, and the coefficient is especially large for the period in the late 1980s as shown in column (4). The late 1980s was the bubble period examined in Hattori et al. (2009). Thus, we see strong evidence that 1980s Japan and the PRC in recent years bears a strong resemblance.

In Table 4.3, the interaction term between the manufacturing dummy and financial liabilities is significantly positive, suggesting that manufacturing firms played a more important role than other types of firms in playing the surrogate financial intermediary role.

In Tables 4.4 to 4.8, we examine the panel regression in levels for the Republic of Korea, Indonesia, Malaysia, the Philippines and Thailand. For all of these countries, we see positive and significant coefficients on financial liabilities after controlling for firm leverage. Moreover, the coefficients are less consistently positive and they vary more over time, especially between the period before and after the Asian financial crisis.

For the Republic of Korea, column (4) shows that the period between 1993 and 1997 has the highest positive coefficient on ln(fin liab). On the other hand, the coefficient on the interaction dummy between manufacturing and log financial liabilities changes sign for that period, and the sign of the coefficient is negative. Generally, the evidence for Korean firms playing the role of financial intermediaries is less strong compared to firms in Japan in the 1980s or in the PRC over the whole sample period.

Drawing together our results for the Asian countries other than the PRC, we see much less consistent evidence toward the surrogate financial intermediary hypothesis. Although there is evidence for some sub-periods for the surrogate financial intermediary hypothesis, the general impression from the body of the firm-level evidence is that the PRC stands out as being a special case. Delving into the reasons for the cross-country differences would be important in ascertaining the financial stability consequences of
Table 4.3  Japan: panel regressions for publicly traded firms, 1987–2011

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(fin liab)</td>
<td>−0.0464***</td>
<td>0.157***</td>
<td>0.135***</td>
<td>0.492***</td>
<td>0.133***</td>
</tr>
<tr>
<td></td>
<td>(−16.78)</td>
<td>(36.02)</td>
<td>(27.16)</td>
<td>(21.55)</td>
<td>(26.38)</td>
</tr>
<tr>
<td>ln(sales)</td>
<td>0.933***</td>
<td>0.741***</td>
<td>0.749***</td>
<td>0.440***</td>
<td>0.751***</td>
</tr>
<tr>
<td></td>
<td>(255.2)</td>
<td>(153.2)</td>
<td>(153.8)</td>
<td>(20.43)</td>
<td>(152.9)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−2.147***</td>
<td>−2.059***</td>
<td>−2.836***</td>
<td>−2.054***</td>
<td>−2.054***</td>
</tr>
<tr>
<td></td>
<td>(−61.00)</td>
<td>(−57.60)</td>
<td>(−21.71)</td>
<td>(−56.88)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>0.00347</td>
<td>0.00371</td>
<td>NA</td>
<td>0.00376</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.331)</td>
<td>(1.426)</td>
<td>NA</td>
<td>(1.435)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing ×</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(fin liab)</td>
<td>−0.477***</td>
<td>−0.441***</td>
<td>−0.429***</td>
<td>0.616***</td>
<td>−0.133**</td>
</tr>
<tr>
<td></td>
<td>(−12.53)</td>
<td>(−5.420)</td>
<td>(−5.089)</td>
<td>(3.994)</td>
<td>(−2.193)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.787</td>
<td>0.804</td>
<td>0.805</td>
<td>0.861</td>
<td>0.804</td>
</tr>
<tr>
<td>Observations</td>
<td>39628</td>
<td>36014</td>
<td>36014</td>
<td>2476</td>
<td>35196</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.787</td>
<td>0.804</td>
<td>0.805</td>
<td>0.861</td>
<td>0.804</td>
</tr>
</tbody>
</table>

Notes:
T-statistics in parenthesis.
*** p < 0.01, ** p < 0.05, * p < 0.1.
Table 4.4  The Republic of Korea: panel regressions for publicly traded firms, 1993–2011

Dependent variable: ln(cash)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993–2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(fin liab)</td>
<td>$-0.0768^{***}$</td>
<td>$0.255^{***}$</td>
<td>$0.189^{***}$</td>
<td>$0.801^{***}$</td>
<td>$0.183^{***}$</td>
</tr>
<tr>
<td></td>
<td>($-7.716$)</td>
<td>($17.32$)</td>
<td>($10.99$)</td>
<td>($10.09$)</td>
<td>($10.30$)</td>
</tr>
<tr>
<td>ln(sales)</td>
<td>$0.996^{***}$</td>
<td>$0.691^{***}$</td>
<td>$0.687^{***}$</td>
<td>$0.143^{**}$</td>
<td>$0.696^{***}$</td>
</tr>
<tr>
<td></td>
<td>($83.54$)</td>
<td>($45.19$)</td>
<td>($45.02$)</td>
<td>($2.266$)</td>
<td>($43.75$)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>$-3.097^{***}$</td>
<td>$-3.097^{***}$</td>
<td>$-3.011^{***}$</td>
<td>$-3.139^{***}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>($-29.05$)</td>
<td>($-29.16$)</td>
<td>($-9.743$)</td>
<td>($-27.97$)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>0.0207</td>
<td>0.0236</td>
<td>0.0950</td>
<td>0.0202</td>
<td></td>
</tr>
<tr>
<td></td>
<td>($0.683$)</td>
<td>($0.784$)</td>
<td>($0.743$)</td>
<td>($0.651$)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing $\times$ ln(fin liab)</td>
<td>0.0886***</td>
<td>$-0.0866^*$</td>
<td>$-0.0866^*$</td>
<td>0.0870***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>($7.338$)</td>
<td>($-1.805$)</td>
<td>($-1.805$)</td>
<td>($6.943$)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>$-1.378^{***}$</td>
<td>$-0.506$</td>
<td>$0.333$</td>
<td>$-1.563$</td>
<td>$-0.150$</td>
</tr>
<tr>
<td></td>
<td>($-11.22$)</td>
<td>($-0.953$)</td>
<td>($0.618$)</td>
<td>($-0.697$)</td>
<td>($-0.167$)</td>
</tr>
<tr>
<td>Observations</td>
<td>5582</td>
<td>5582</td>
<td>5582</td>
<td>528</td>
<td>5054</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.777</td>
<td>0.807</td>
<td>0.809</td>
<td>0.793</td>
<td>0.813</td>
</tr>
</tbody>
</table>

Notes:
T-statistics in parenthesis.
$^{***}$ p < 0.01, $^{**}$ p < 0.05, $^*$ p < 0.1.
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable:</strong> ln(cash)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1991–2011</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(fin liab)</td>
<td>0.102***</td>
<td>0.332***</td>
<td>0.367***</td>
<td>0.713***</td>
<td>0.341***</td>
</tr>
<tr>
<td></td>
<td>(6.766)</td>
<td>(15.88)</td>
<td>(15.89)</td>
<td>(7.032)</td>
<td>(14.49)</td>
</tr>
<tr>
<td>ln(sales)</td>
<td>1.006***</td>
<td>0.806***</td>
<td>0.841***</td>
<td>0.354***</td>
<td>0.879***</td>
</tr>
<tr>
<td></td>
<td>(48.86)</td>
<td>(33.96)</td>
<td>(36.02)</td>
<td>(4.176)</td>
<td>(36.61)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−2.189***</td>
<td>−2.017***</td>
<td>−2.329***</td>
<td>−2.002***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−15.21)</td>
<td>(−14.28)</td>
<td>(−4.867)</td>
<td>(−13.70)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>−0.0383*</td>
<td>−0.0508**</td>
<td>0.0828</td>
<td>−0.0152**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−1.842)</td>
<td>(−2.506)</td>
<td>(1.480)</td>
<td>(−2.065)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × ln(fin liab)</td>
<td>−0.0911***</td>
<td>−0.0963</td>
<td>−0.0964***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−4.484)</td>
<td>(−0.760)</td>
<td>(−4.617)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−3.663***</td>
<td>−2.547***</td>
<td>−2.841***</td>
<td>−2.890**</td>
<td>−4.049***</td>
</tr>
<tr>
<td>Observations</td>
<td>2669</td>
<td>2669</td>
<td>2669</td>
<td>340</td>
<td>2329</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.689</td>
<td>0.714</td>
<td>0.728</td>
<td>0.612</td>
<td>0.746</td>
</tr>
</tbody>
</table>

**Notes:**
- T-statistics in parenthesis.
- *** p < 0.01, ** p < 0.05, * p < 0.1.
Table 4.6  Malaysia: panel regressions for publicly traded firms, 1990–2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(fin liab)</td>
<td>−0.103***</td>
<td>0.159***</td>
<td>0.155***</td>
<td>0.246***</td>
<td>0.150***</td>
</tr>
<tr>
<td></td>
<td>(−9.644)</td>
<td>(10.32)</td>
<td>(9.066)</td>
<td>(3.847)</td>
<td>(8.416)</td>
</tr>
<tr>
<td>ln(sales)</td>
<td>1.064***</td>
<td>0.878***</td>
<td>0.878***</td>
<td>0.967***</td>
<td>0.873***</td>
</tr>
<tr>
<td></td>
<td>(66.65)</td>
<td>(51.15)</td>
<td>(51.97)</td>
<td>(15.09)</td>
<td>(49.71)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−3.680***</td>
<td>−3.563***</td>
<td>−3.727***</td>
<td>−3.512***</td>
<td>−3.512***</td>
</tr>
<tr>
<td></td>
<td>(−22.57)</td>
<td>(−22.08)</td>
<td>(−5.894)</td>
<td>(−21.07)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>0.0191</td>
<td>0.0170</td>
<td>−0.0116</td>
<td>−0.0205***</td>
<td>−0.0205***</td>
</tr>
<tr>
<td></td>
<td>(1.248)</td>
<td>(1.125)</td>
<td>(−0.296)</td>
<td>(−4.072)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × ln(fin liab)</td>
<td>0.000667</td>
<td>−0.0915</td>
<td>0.00396</td>
<td>0.00396</td>
<td>0.00396</td>
</tr>
<tr>
<td></td>
<td>(0.0445)</td>
<td>(−1.382)</td>
<td>(0.258)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−2.476***</td>
<td>−1.979***</td>
<td>−1.641***</td>
<td>−2.279***</td>
<td>−0.524***</td>
</tr>
<tr>
<td></td>
<td>(−9.095)</td>
<td>(−4.529)</td>
<td>(−3.799)</td>
<td>(−2.695)</td>
<td>(−3.823)</td>
</tr>
<tr>
<td>Observations</td>
<td>4246</td>
<td>4246</td>
<td>4246</td>
<td>370</td>
<td>3876</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.626</td>
<td>0.666</td>
<td>0.677</td>
<td>0.670</td>
<td>0.679</td>
</tr>
</tbody>
</table>

Notes:
T-statistics in parenthesis.
*** p < 0.01, ** p < 0.05, * p < 0.1.
our findings. The fact that the PRC has the combination of a heavy reliance on exports in manufacturing with a restricted banking sector seems to be a possible avenue to explaining the features we observe in the data.

6 PANEL REGRESSIONS IN GROWTH RATES FOR OTHER ASIAN COUNTRIES

We now turn to the panel regressions in growth rates with firm fixed effects. We first examine separate panel regressions for Japan, the Republic of Korea, and the ASEAN 5 countries excluding Viet Nam. The dependent variable is the log difference of cash and short-term investments in time $t$ and $t-1$, and the explanatory variables are the log difference of financial liabilities, log difference of sales (as the normalizing variable). In addition, we include US broker dealer leverage, as a proxy for credit conditions in international capital markets, and the interaction dummy where the manufacturing dummy is interacted with the log difference of financial liabilities.

Table 4.7 The Philippines: panel regressions for publicly traded firms, 1997–2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(fin liab)</td>
<td>0.0968***</td>
<td>0.225***</td>
<td>0.201***</td>
</tr>
<tr>
<td></td>
<td>(3.739)</td>
<td>(6.807)</td>
<td>(5.780)</td>
</tr>
<tr>
<td>ln(sales)</td>
<td>0.827***</td>
<td>0.756***</td>
<td>0.755***</td>
</tr>
<tr>
<td></td>
<td>(28.24)</td>
<td>(24.33)</td>
<td>(24.39)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−1.881***</td>
<td>−1.918***</td>
<td>−1.918***</td>
</tr>
<tr>
<td></td>
<td>(−6.067)</td>
<td>(−6.206)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>0.0261</td>
<td>0.0243</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.976)</td>
<td>(0.913)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × ln(fin liab)</td>
<td></td>
<td>0.0766**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.394)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−1.593***</td>
<td>−1.950***</td>
<td>−1.642**</td>
</tr>
<tr>
<td></td>
<td>(−6.917)</td>
<td>(−2.800)</td>
<td>(−2.344)</td>
</tr>
<tr>
<td>Observations</td>
<td>999</td>
<td>999</td>
<td>999</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.739</td>
<td>0.748</td>
<td>0.751</td>
</tr>
</tbody>
</table>

Notes:
T-statistics in parenthesis.
*** p < 0.01, ** p < 0.05, * p < 0.1.
Table 4.8  Thailand: panel regressions for publicly traded firms, 1991–2011

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(fin liab)</td>
<td>−0.132***</td>
<td>0.112***</td>
<td>0.104***</td>
<td>0.390***</td>
<td>0.0955***</td>
</tr>
<tr>
<td></td>
<td>(−10.48)</td>
<td>(6.303)</td>
<td>(5.524)</td>
<td>(4.431)</td>
<td>(4.967)</td>
</tr>
<tr>
<td>ln(sales)</td>
<td>1.093***</td>
<td>0.901***</td>
<td>0.940***</td>
<td>0.608***</td>
<td>0.954***</td>
</tr>
<tr>
<td></td>
<td>(55.10)</td>
<td>(41.73)</td>
<td>(44.76)</td>
<td>(7.213)</td>
<td>(44.27)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−2.808***</td>
<td>−2.455***</td>
<td>−2.810***</td>
<td>−2.523***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−18.65)</td>
<td>(−16.66)</td>
<td>(−4.876)</td>
<td>(−16.62)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer</td>
<td>0.0231</td>
<td>0.0217</td>
<td>0.0751</td>
<td>−0.00414</td>
<td></td>
</tr>
<tr>
<td>leverage</td>
<td>(1.315)</td>
<td>(1.278)</td>
<td>(1.461)</td>
<td>(−0.636)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing ×</td>
<td>−0.0628***</td>
<td>0.0206</td>
<td>−0.0727***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(fin liab)</td>
<td>(−3.670)</td>
<td>(0.294)</td>
<td>(−4.159)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−3.423***</td>
<td>−2.952***</td>
<td>−2.847***</td>
<td>−2.883***</td>
<td>−2.127***</td>
</tr>
<tr>
<td></td>
<td>(−12.50)</td>
<td>(−5.964)</td>
<td>(−5.910)</td>
<td>(−2.666)</td>
<td>(−10.64)</td>
</tr>
<tr>
<td>Observations</td>
<td>3916</td>
<td>3916</td>
<td>3916</td>
<td>440</td>
<td>3476</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.535</td>
<td>0.573</td>
<td>0.601</td>
<td>0.453</td>
<td>0.620</td>
</tr>
</tbody>
</table>

Notes:
T-statistics in parenthesis.
*** p < 0.01, ** p < 0.05, * p < 0.1.
Table 4.9 shows the results for Japan. Overall, the results are broadly supportive of the surrogate financial intermediary hypothesis, although the results are much less conclusive than they are for the PRC. Column (1) of Table 4.9 for the full sample period of 1987 to 2011 shows that the log difference of financial liabilities enters with a positive sign and is significant statistically. Thus, for the full sample, the main hypothesis appears to be supported.

However, when looking across the columns of Table 4.9, we see some mixed results. Columns (2) and (3) show that when US broker dealer leverage is included in the regression, the sign is negative. In particular, column (3) shows that when the interaction dummy with manufacturing included the log difference of financial liabilities it ceases to become significant, even though the interaction dummy is highly significant. This suggests that the surrogate financial intermediary hypothesis for Japan operates mainly through the manufacturing sector. This finding is consistent with the arguments in Hattori et al. (2009).

When we go on to examine the other countries in Asia in our sample, we see that the results are somewhat more mixed and perhaps less consistently supportive of the surrogate financial intermediary hypothesis. In Tables 4.10 to 4.14, we examine in sequence, the panel regressions in growth rates for the Republic of Korea, Indonesia, Malaysia, the Philippines, and Thailand.

For the Republic of Korea, although the main Δln(fin liab) variable enters with a positive sign and is highly significant, the main departure from the results for the PRC is the fact that US broker dealer leverage either enters with a negative sign or is not significant. These results suggest that the hypothesis that nonfinancial firms borrow more when external credit conditions are more favorable is not borne out. Also, the period 1993–97 performs less well than other sub-samples of the data, when none of the variables (except the scaling variable given by the log difference of sales) turns out to be significant.

The results for Indonesia are broadly similar to that of the Republic of Korea. Although the sample size is smaller (we have 267 firms), the main Δln(fin liab) variable enters with a positive sign and is generally highly significant. However, the US broker dealer leverage either enters with a negative sign or is not significant. Also, the period 1991–97 performs less well than other sub-samples of the data, similar to the results for the Republic of Korea.

The results for Thailand, Malaysia, and the Philippines are much less supportive of the surrogate financial intermediary hypothesis, and are in contrast to results from the PRC, Japan, the Republic of Korea, and Indonesia. Thailand is especially notable in that the main explanatory
Table 4.9  Japan: regression on growth rates, with firm fixed effects

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δln(fin liab)</td>
<td>0.0232***</td>
<td>0.0167**</td>
<td>−0.00208</td>
<td>−0.0178</td>
<td>−0.00262</td>
</tr>
<tr>
<td></td>
<td>(3.598)</td>
<td>(2.384)</td>
<td>(−0.187)</td>
<td>(−0.522)</td>
<td>(−0.233)</td>
</tr>
<tr>
<td>Δln(sales)</td>
<td>0.689***</td>
<td>0.723***</td>
<td>0.726***</td>
<td>0.597***</td>
<td>0.727***</td>
</tr>
<tr>
<td></td>
<td>(50.29)</td>
<td>(46.38)</td>
<td>(46.63)</td>
<td>(19.83)</td>
<td>(45.90)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−0.0585**</td>
<td>−0.0590**</td>
<td>1.208***</td>
<td>−0.0650**</td>
<td>−0.0650**</td>
</tr>
<tr>
<td></td>
<td>(−2.018)</td>
<td>(−2.034)</td>
<td>(2.967)</td>
<td>(−2.207)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer</td>
<td>−0.00789***</td>
<td>−0.00786***</td>
<td>NA</td>
<td>−0.00767***</td>
<td></td>
</tr>
<tr>
<td>leverage</td>
<td>(−19.18)</td>
<td>(−19.13)</td>
<td>NA</td>
<td>(−18.20)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × Δln(fin liab)</td>
<td>0.0350**</td>
<td>0.0838**</td>
<td>0.0330**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.494)</td>
<td>(2.120)</td>
<td>(2.338)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−0.000278***</td>
<td>0.160***</td>
<td>0.159***</td>
<td>−0.228**</td>
<td>0.157***</td>
</tr>
<tr>
<td></td>
<td>(−3.396)</td>
<td>(14.58)</td>
<td>(14.56)</td>
<td>(−1.976)</td>
<td>(14.06)</td>
</tr>
<tr>
<td>Observations</td>
<td>39012</td>
<td>35473</td>
<td>35473</td>
<td>2418</td>
<td>34666</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.335</td>
<td>0.331</td>
<td>0.332</td>
<td>0.398</td>
<td>0.331</td>
</tr>
<tr>
<td>Number of firms</td>
<td>2752</td>
<td>2723</td>
<td>2723</td>
<td>868</td>
<td>2720</td>
</tr>
</tbody>
</table>
Table 4.10  The Republic of Korea: regression on growth rates, with firm fixed effects

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δln(fin liab)</td>
<td>0.0543***</td>
<td>0.0638***</td>
<td>0.0549*</td>
<td>0.0920</td>
<td>0.0536*</td>
</tr>
<tr>
<td></td>
<td>(2.839)</td>
<td>(3.220)</td>
<td>(1.776)</td>
<td>(0.697)</td>
<td>(1.683)</td>
</tr>
<tr>
<td>Δln(sales)</td>
<td>0.742***</td>
<td>0.732***</td>
<td>0.733***</td>
<td>0.961***</td>
<td>0.691***</td>
</tr>
<tr>
<td></td>
<td>(28.32)</td>
<td>(27.89)</td>
<td>(27.90)</td>
<td>(13.41)</td>
<td>(23.83)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−0.315***</td>
<td>−0.316***</td>
<td>0.313</td>
<td>−0.363***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−3.549)</td>
<td>(−3.556)</td>
<td>(0.462)</td>
<td>(−3.351)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>−0.00394**</td>
<td>−0.00393**</td>
<td>0.0168</td>
<td>−0.00491***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−2.270)</td>
<td>(−2.264)</td>
<td>(0.920)</td>
<td>(−2.800)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × Δln(fin liab)</td>
<td>0.0111</td>
<td>−0.0924</td>
<td>0.0168</td>
<td>(0.469)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.324)</td>
<td>(−0.731)</td>
<td>(−1.303)</td>
<td>(4.383)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−0.00258***</td>
<td>0.168***</td>
<td>0.168***</td>
<td>−0.439</td>
<td>0.201***</td>
</tr>
<tr>
<td></td>
<td>(−39.34)</td>
<td>(3.813)</td>
<td>(3.817)</td>
<td>(−1.303)</td>
<td>(4.383)</td>
</tr>
<tr>
<td>Observations</td>
<td>5524</td>
<td>5524</td>
<td>5524</td>
<td>525</td>
<td>4999</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.418</td>
<td>0.419</td>
<td>0.419</td>
<td>0.655</td>
<td>0.372</td>
</tr>
<tr>
<td>Number of firms</td>
<td>703</td>
<td>703</td>
<td>703</td>
<td>167</td>
<td>703</td>
</tr>
</tbody>
</table>
### Table 4.11 Indonesia: regression on growth rates, with firm fixed effects

Dependent variable: Δln(cash)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δln(fin liab)</td>
<td>0.0881***</td>
<td>0.106***</td>
<td>0.116**</td>
<td>0.102</td>
<td>0.101*</td>
</tr>
<tr>
<td></td>
<td>(2.724)</td>
<td>(3.082)</td>
<td>(2.160)</td>
<td>(0.606)</td>
<td>(1.964)</td>
</tr>
<tr>
<td>Δln(sales)</td>
<td>0.865***</td>
<td>0.852***</td>
<td>0.852***</td>
<td>0.737***</td>
<td>0.923***</td>
</tr>
<tr>
<td></td>
<td>(18.31)</td>
<td>(17.89)</td>
<td>(17.87)</td>
<td>(5.545)</td>
<td>(17.35)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−0.431***</td>
<td>−0.432***</td>
<td>−1.085</td>
<td>−0.440***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−3.508)</td>
<td>(−3.509)</td>
<td>(−1.061)</td>
<td>(−3.827)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer</td>
<td>−0.00866**</td>
<td>−0.00862**</td>
<td>−0.0825</td>
<td>−0.00684*</td>
<td></td>
</tr>
<tr>
<td>leverage</td>
<td>(−2.185)</td>
<td>(−2.184)</td>
<td>(−1.467)</td>
<td>(−1.770)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × Δln(fin liab)</td>
<td>−0.0175</td>
<td>0.251*</td>
<td>−0.0812</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−0.290)</td>
<td>(1.704)</td>
<td>(−1.332)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.00129**</td>
<td>0.332***</td>
<td>0.331***</td>
<td>2.156**</td>
<td>0.257***</td>
</tr>
<tr>
<td></td>
<td>(2.362)</td>
<td>(4.087)</td>
<td>(4.098)</td>
<td>(2.345)</td>
<td>(3.363)</td>
</tr>
<tr>
<td>Observations</td>
<td>2,595</td>
<td>2,595</td>
<td>2,595</td>
<td>328</td>
<td>2,267</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.436</td>
<td>0.440</td>
<td>0.440</td>
<td>0.508</td>
<td>0.407</td>
</tr>
<tr>
<td>Number of firms</td>
<td>267</td>
<td>267</td>
<td>267</td>
<td>114</td>
<td>264</td>
</tr>
</tbody>
</table>
Table 4.12  Malaysia: regression on growth rates, with firm fixed effects

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Δln(fin liab)</td>
<td>.0436**</td>
<td>−0.0478**</td>
<td>−0.0403</td>
<td>0.0407</td>
<td>−0.0326</td>
</tr>
<tr>
<td></td>
<td>(−2.306)</td>
<td>(−2.518)</td>
<td>(−1.327)</td>
<td>(0.383)</td>
<td>(−1.071)</td>
</tr>
<tr>
<td>Δln(sales)</td>
<td>0.897***</td>
<td>0.899***</td>
<td>0.899***</td>
<td>1.133***</td>
<td>0.761***</td>
</tr>
<tr>
<td></td>
<td>(19.27)</td>
<td>(19.45)</td>
<td>(19.43)</td>
<td>(8.742)</td>
<td>(15.44)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>0.171</td>
<td>0.172</td>
<td>0.150</td>
<td>0.128</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.194)</td>
<td>(1.199)</td>
<td>(0.174)</td>
<td>(0.884)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>0.00247</td>
<td>0.00247</td>
<td>0.116***</td>
<td>0.00109</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.237)</td>
<td>(1.236)</td>
<td>(3.391)</td>
<td>(0.547)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × Δln(fin liab)</td>
<td>−0.0116</td>
<td>−0.0109</td>
<td>−0.0346</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−0.314)</td>
<td>(−1.029)</td>
<td>(−0.912)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−0.00190***</td>
<td>−0.0881*</td>
<td>−0.0882*</td>
<td>−2.388***</td>
<td>−0.0180</td>
</tr>
<tr>
<td></td>
<td>(−5.553)</td>
<td>(−1.820)</td>
<td>(−1.823)</td>
<td>(−4.038)</td>
<td>(−0.372)</td>
</tr>
<tr>
<td>Observations</td>
<td>4118</td>
<td>4118</td>
<td>4118</td>
<td>352</td>
<td>3766</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.304</td>
<td>0.305</td>
<td>0.305</td>
<td>0.593</td>
<td>0.213</td>
</tr>
<tr>
<td>Number of firms</td>
<td>434</td>
<td>434</td>
<td>434</td>
<td>134</td>
<td>432</td>
</tr>
</tbody>
</table>
Global shock, risks, and Asian financial reform

variable (log difference of financial liabilities) enters with a negative sign and is highly significant. For Thailand, the results are supportive of the financial hierarchy hypothesis where more debt is associated with lower cash holding.

7 PANEL REGRESSIONS BY COUNTRY AND BY SECTOR

The country-level panel regressions reveal a considerable diversity of the pattern to balance sheet management of firms in Asia.

One potential issue when the panel regressions are organized in terms of nationality of the firms is the different sectoral composition of firms across countries. If one country has a preponderance of firms in one sector but another country has a preponderance of firms in another sector, the differing results in the panel regressions may simply reflect the sectoral differences in the behavior of firms, rather than an inherently national component of their behavior that reflect underlying structural differences across countries.

Table 4.13 The Philippines: regression on growth rates, with firm fixed effects

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Δln(fin liab)</td>
<td>−0.00583</td>
<td>0.0248</td>
<td>0.0354</td>
</tr>
<tr>
<td></td>
<td>(−0.104)</td>
<td>(0.438)</td>
<td>(0.687)</td>
</tr>
<tr>
<td>Δln(sales)</td>
<td>0.817***</td>
<td>0.796***</td>
<td>0.794***</td>
</tr>
<tr>
<td></td>
<td>(8.792)</td>
<td>(8.657)</td>
<td>(8.648)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−0.882**</td>
<td>−0.875**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−2.362)</td>
<td>(−2.349)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>−0.00290</td>
<td>−0.00289</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−0.444)</td>
<td>(−0.442)</td>
<td></td>
</tr>
<tr>
<td>Manufacturing × Δln(fin liab)</td>
<td>−0.0292</td>
<td>−0.0292</td>
<td>−0.228</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0108**</td>
<td>0.302*</td>
<td>0.300*</td>
</tr>
<tr>
<td></td>
<td>(2.252)</td>
<td>(1.866)</td>
<td>(1.893)</td>
</tr>
<tr>
<td>Observations</td>
<td>947</td>
<td>947</td>
<td>947</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.341</td>
<td>0.346</td>
<td>0.346</td>
</tr>
<tr>
<td>Number of firms</td>
<td>105</td>
<td>105</td>
<td>105</td>
</tr>
</tbody>
</table>
Table 4.14  Thailand: regression on growth rates, with firm fixed effects

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δln(fin liab)</td>
<td>−0.0901***</td>
<td>−0.0779***</td>
<td>−0.0996***</td>
<td>−0.00629</td>
<td>−0.100***</td>
</tr>
<tr>
<td></td>
<td>(−4.201)</td>
<td>(−3.570)</td>
<td>(−3.272)</td>
<td>(−0.0547)</td>
<td>(−3.086)</td>
</tr>
<tr>
<td>Δln(sales)</td>
<td>0.920***</td>
<td>0.908***</td>
<td>0.910***</td>
<td>0.837***</td>
<td>0.877***</td>
</tr>
<tr>
<td></td>
<td>(17.04)</td>
<td>(16.95)</td>
<td>(17.07)</td>
<td>(5.084)</td>
<td>(14.03)</td>
</tr>
<tr>
<td>Firm leverage</td>
<td>−0.445***</td>
<td>−0.447***</td>
<td>−1.728*</td>
<td>−0.454***</td>
<td>−0.00718***</td>
</tr>
<tr>
<td></td>
<td>(−3.374)</td>
<td>(−3.382)</td>
<td>(−1.769)</td>
<td>(−3.059)</td>
<td></td>
</tr>
<tr>
<td>US broker dealer leverage</td>
<td>−0.00655**</td>
<td>−0.00657**</td>
<td>0.0518</td>
<td>−0.00718***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−2.442)</td>
<td>(−2.447)</td>
<td>(1.191)</td>
<td></td>
<td>(−2.720)</td>
</tr>
<tr>
<td>Manufacturing × Δln(fin liab)</td>
<td>0.0387</td>
<td>0.156</td>
<td>0.00495</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.955)</td>
<td>(1.082)</td>
<td>(0.116)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.00641***</td>
<td>0.275***</td>
<td>0.275***</td>
<td>−0.314</td>
<td>0.285***</td>
</tr>
<tr>
<td></td>
<td>(6.197)</td>
<td>(4.158)</td>
<td>(4.172)</td>
<td>(−0.401)</td>
<td>(4.215)</td>
</tr>
<tr>
<td>Observations</td>
<td>3798</td>
<td>3798</td>
<td>3798</td>
<td>414</td>
<td>3384</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.244</td>
<td>0.247</td>
<td>0.248</td>
<td>0.289</td>
<td>0.213</td>
</tr>
<tr>
<td>Number of firms</td>
<td>381</td>
<td>381</td>
<td>381</td>
<td>137</td>
<td>381</td>
</tr>
</tbody>
</table>
In order to separate out the impact of the sector from the impact of the financial system in a country, we can investigate the panel regressions run separately for each sector for each country. Such a procedure entails a large number of panel regressions. Therefore, we will dispense with the usual tabular reporting form for the panel regressions and report only the coefficient on the main regression variable organized into a two-dimensional array distinguishing the country and the sector.

Furthermore, we conduct the above procedure for both the panel regression in levels, as well as the panel regression for growth rates. The results are reported in Table 4.15 and Table 4.16.

Table 4.15 presents panel regression in levels, where the dependent variable is the log of cash and the explanatory variables are log financial liabilities, log of sales, US broker dealer leverage and year fixed effects. Analogously, Table 4.16 presents panel regression in growth rates, where the dependent variable is the log difference of cash and short-term investments and explanatory variables are log difference of financial liabilities, log difference in sales, US broker dealer leverage, and firm fixed effects.

In Table 4.15, we report the coefficient on log financial liabilities, with its level of significance. In Table 4.16, we report the coefficient on the log difference of financial liabilities, with its level of significance.

The panel regression in levels reported in Table 4.15 shows that the log of financial liabilities enters with a positive sign for all the sectors in the PRC and Japan. The coefficients are also highly significant, verifying the country-level panel regressions reported earlier.

For the Republic of Korea, there are only two exceptions to the positive and significant coefficient on log financial liabilities – namely, the ‘Food and staples retailing’ sector, which shows an insignificant coefficient, and the ‘Household and personal products’ sector, which has a negative and significant coefficient. Other than these two exceptions, the Republic of Korea shows very consistently positive results compared to the results for the PRC and Japan.

Two sectors emerge with consistently positive and significant coefficients – namely, capital goods and transportation. However, for all other countries in the sample, the levels of regression show much less consistent evidence toward the surrogate financial intermediary hypothesis. The evidence in Thailand and the Philippines shows greatest divergence from the hypothesis.

The panel regressions for growth rates given in Table 4.16 display a broadly similar message concerning the country sectors for which the surrogate financial intermediary hypothesis holds most closely. The PRC again emerges as the country whose sectors most closely conform to the
<table>
<thead>
<tr>
<th>Regression in levels</th>
<th>The PRC</th>
<th>Japan</th>
<th>The Republic of Korea</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>The Philippines</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>0.406***</td>
<td>0.151***</td>
<td>0.221*</td>
<td>0.352***</td>
<td>0.216***</td>
<td>0.0234</td>
<td>0.269***</td>
</tr>
<tr>
<td>Materials</td>
<td>0.415***</td>
<td>0.146***</td>
<td>0.353***</td>
<td>0.181***</td>
<td>0.0903***</td>
<td>0.104**</td>
<td>0.0107</td>
</tr>
<tr>
<td>Capital goods</td>
<td>0.389***</td>
<td>0.135***</td>
<td>0.317***</td>
<td>0.307***</td>
<td>0.202***</td>
<td>0.231***</td>
<td>0.103***</td>
</tr>
<tr>
<td>Commercial &amp; professional Services</td>
<td>0.492***</td>
<td>0.111***</td>
<td>0.231**</td>
<td>-0.307***</td>
<td>-0.139***</td>
<td>0.739</td>
<td>-0.145***</td>
</tr>
<tr>
<td>Transportation</td>
<td>0.326***</td>
<td>0.204***</td>
<td>0.392***</td>
<td>0.525***</td>
<td>0.285***</td>
<td>0.302***</td>
<td>0.280***</td>
</tr>
<tr>
<td>Automobiles &amp; components</td>
<td>0.421***</td>
<td>0.169***</td>
<td>0.326***</td>
<td>0.294***</td>
<td>0.178***</td>
<td>N/A</td>
<td>0.0553</td>
</tr>
<tr>
<td>Consumer durables &amp; apparel</td>
<td>0.355***</td>
<td>0.122***</td>
<td>0.250***</td>
<td>0.110***</td>
<td>0.0659</td>
<td>0.651</td>
<td>0.0463</td>
</tr>
<tr>
<td>Consumer services</td>
<td>0.293***</td>
<td>0.156***</td>
<td>0.256***</td>
<td>0.351***</td>
<td>0.255***</td>
<td>-0.00913</td>
<td>0.0630</td>
</tr>
<tr>
<td>Media</td>
<td>0.432***</td>
<td>0.147***</td>
<td>0.109***</td>
<td>0.636***</td>
<td>0.121**</td>
<td>0.767***</td>
<td>-0.0801**</td>
</tr>
<tr>
<td>Retailing</td>
<td>0.381***</td>
<td>0.108***</td>
<td>0.120***</td>
<td>0.221***</td>
<td>0.0363</td>
<td>-0.520***</td>
<td>0.119*</td>
</tr>
<tr>
<td>Food &amp; staples retailing</td>
<td>0.398***</td>
<td>0.115***</td>
<td>-0.0539</td>
<td>0.0436</td>
<td>N/A</td>
<td>0.142</td>
<td>-0.0840</td>
</tr>
<tr>
<td>Food, beverage &amp; tobacco</td>
<td>0.335***</td>
<td>0.120***</td>
<td>0.201***</td>
<td>0.229***</td>
<td>0.0554**</td>
<td>0.221***</td>
<td>0.0333</td>
</tr>
<tr>
<td>Household &amp; personal products</td>
<td>0.426***</td>
<td>0.0566***</td>
<td>-0.152**</td>
<td>-0.946***</td>
<td>0.0872</td>
<td>3.650*</td>
<td>-0.319***</td>
</tr>
<tr>
<td>Regression in levels</td>
<td>The PRC</td>
<td>Japan</td>
<td>The Republic of Korea</td>
<td>Indonesia</td>
<td>Malaysia</td>
<td>The Philippines</td>
<td>Thailand</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>----------------------</td>
<td>-----------</td>
<td>----------</td>
<td>----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Health care equipment &amp; services</td>
<td>0.360***</td>
<td>0.125***</td>
<td>0.179*</td>
<td>0.533***</td>
<td>0.0497</td>
<td>N/A</td>
<td>0.174***</td>
</tr>
<tr>
<td>Pharmaceuticals, biotechnology &amp; life sciences</td>
<td>0.301***</td>
<td>0.0477***</td>
<td>0.239***</td>
<td>0.614***</td>
<td>0.340</td>
<td>0.458**</td>
<td>N/A</td>
</tr>
<tr>
<td>Software &amp; services</td>
<td>0.302***</td>
<td>0.0906***</td>
<td>0.208***</td>
<td>0.0488</td>
<td>0.0637**</td>
<td>−0.0727</td>
<td>−0.121*</td>
</tr>
<tr>
<td>Technology hardware &amp; equipment</td>
<td>0.373***</td>
<td>0.143***</td>
<td>0.229***</td>
<td>0.395***</td>
<td>0.0780</td>
<td>−2.627</td>
<td>0.136***</td>
</tr>
<tr>
<td>Semiconductors &amp; semiconductor equipment</td>
<td>0.362***</td>
<td>0.135***</td>
<td>0.365***</td>
<td>N/A</td>
<td>0.0503</td>
<td>0.282</td>
<td>0.162</td>
</tr>
<tr>
<td>Telecommunication services</td>
<td>0.388***</td>
<td>0.149***</td>
<td>0.271***</td>
<td>0.00437</td>
<td>0.187***</td>
<td>0.178**</td>
<td>0.160**</td>
</tr>
<tr>
<td>Utilities</td>
<td>0.442***</td>
<td>0.154***</td>
<td>0.252***</td>
<td>0.334***</td>
<td>0.328***</td>
<td>0.0830</td>
<td>0.472***</td>
</tr>
</tbody>
</table>

*Notes:*
Dependent variable is the difference of the natural logarithm of cash and short-term investments in time t and t−1.

*** p < 0.01, ** p < 0.05, * p < 0.1.

Light grey color indicates positive and significant coefficients; dark grey color indicates negative and significant coefficients.
### Table 4.16  Panel regression in growth rates for country sectors

<table>
<thead>
<tr>
<th>Regression in growth rates</th>
<th>The PRC</th>
<th>Japan</th>
<th>The Republic of Korea</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>The Philippines</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>0.105**</td>
<td>0.119</td>
<td>0.0660</td>
<td>0.240**</td>
<td>0.0339</td>
<td>0.0476*</td>
<td>−0.0328</td>
</tr>
<tr>
<td>Materials</td>
<td>0.177***</td>
<td>0.0533**</td>
<td>0.0979**</td>
<td>0.0348</td>
<td>−0.0608</td>
<td>−0.161</td>
<td>−0.116*</td>
</tr>
<tr>
<td>Capital goods</td>
<td>0.112***</td>
<td>0.0319**</td>
<td>0.124***</td>
<td>0.134</td>
<td>−0.0393</td>
<td>0.0772</td>
<td>−0.105*</td>
</tr>
<tr>
<td>Commercial &amp; professional services</td>
<td>0.238***</td>
<td>0.0343</td>
<td>0.0818</td>
<td>−0.0834</td>
<td>−0.0868</td>
<td>−1.191***</td>
<td>−0.0628</td>
</tr>
<tr>
<td>Transportation</td>
<td>0.0456</td>
<td>−0.0359</td>
<td>0.0560</td>
<td>0.150</td>
<td>0.373***</td>
<td>−0.253</td>
<td>−0.295</td>
</tr>
<tr>
<td>Automobiles &amp; components</td>
<td>0.137***</td>
<td>0.00146</td>
<td>0.0695</td>
<td>0.197***</td>
<td>−0.196**</td>
<td>#/N/A</td>
<td>−0.178***</td>
</tr>
<tr>
<td>Consumer durables &amp; apparel</td>
<td>0.0943***</td>
<td>0.0372*</td>
<td>0.0725</td>
<td>0.0917</td>
<td>−0.0921</td>
<td>0.434***</td>
<td>0.110</td>
</tr>
<tr>
<td>Consumer services</td>
<td>−0.00765</td>
<td>0.0452</td>
<td>−0.0833</td>
<td>0.0388</td>
<td>−0.182***</td>
<td>0.0513</td>
<td>−0.0693</td>
</tr>
<tr>
<td>Media</td>
<td>0.108</td>
<td>0.0158</td>
<td>0.0294</td>
<td>0.435**</td>
<td>0.320</td>
<td>0.0461</td>
<td>−0.183***</td>
</tr>
<tr>
<td>Retailing</td>
<td>0.171***</td>
<td>−0.00688</td>
<td>−0.0284</td>
<td>−0.00655</td>
<td>−0.156**</td>
<td>−0.287</td>
<td>−0.0445</td>
</tr>
<tr>
<td>Food &amp; staples retailing</td>
<td>0.231**</td>
<td>−0.0106</td>
<td>0.483***</td>
<td>−0.0217</td>
<td>#/N/A</td>
<td>0.378***</td>
<td>−0.187</td>
</tr>
<tr>
<td>Food, beverage &amp; tobacco</td>
<td>0.112***</td>
<td>0.0550</td>
<td>−0.0221</td>
<td>0.129***</td>
<td>0.0183</td>
<td>−0.0493</td>
<td>−0.0566</td>
</tr>
<tr>
<td>Household &amp; personal products</td>
<td>0.181*</td>
<td>−0.0151</td>
<td>0.249***</td>
<td>0.180</td>
<td>0.113</td>
<td>2.934***</td>
<td>0.0352</td>
</tr>
</tbody>
</table>
Table 4.16 (continued)

<table>
<thead>
<tr>
<th>Regression in growth rates</th>
<th>The PRC</th>
<th>Japan</th>
<th>The Republic of Korea</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>The Philippines</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care equipment &amp; services</td>
<td>0.146**</td>
<td>0.00584</td>
<td>0.0263</td>
<td>0.469***</td>
<td>0.0256</td>
<td>#N/A</td>
<td>−0.184</td>
</tr>
<tr>
<td>Pharmaceuticals, biotechnology &amp; life sciences</td>
<td>0.0924***</td>
<td>−0.0333</td>
<td>0.254*</td>
<td>0.186*</td>
<td>−0.127**</td>
<td>0.587***</td>
<td>#N/A</td>
</tr>
<tr>
<td>Software &amp; services</td>
<td>0.0508</td>
<td>−0.0214</td>
<td>0.0365</td>
<td>−0.222</td>
<td>−0.132***</td>
<td>−0.171*</td>
<td>−0.108</td>
</tr>
<tr>
<td>Technology hardware &amp; equipment</td>
<td>0.111***</td>
<td>0.00909</td>
<td>0.0224</td>
<td>0.0596</td>
<td>−0.188***</td>
<td>0.785***</td>
<td>−0.112</td>
</tr>
<tr>
<td>Semiconductors &amp; semiconductor equipment</td>
<td>0.120</td>
<td>0.0535</td>
<td>0.0301</td>
<td>#N/A</td>
<td>−0.00378</td>
<td>0.245***</td>
<td>0.258***</td>
</tr>
<tr>
<td>Telecommunication services</td>
<td>0.157</td>
<td>−0.0608</td>
<td>0.104</td>
<td>0.0473</td>
<td>0.0515</td>
<td>0.0228</td>
<td>0.240</td>
</tr>
<tr>
<td>Utilities</td>
<td>0.117***</td>
<td>−0.0767</td>
<td>9.34e−05</td>
<td>0.387**</td>
<td>0.173***</td>
<td>0.272***</td>
<td>0.449***</td>
</tr>
</tbody>
</table>

Notes:
Dependent variable is the difference of the natural logarithm of cash and short-term investments in time t and t−1.
*** p<0.01, ** p<0.05, * p<0.1.
Light grey color indicates positive and significant coefficients; dark grey color indicates negative and significant coefficients.
prediction that the log difference of financial liabilities enters with a positive sign.

It is noticeable that the panel regressions in growth rates show much less consistent positive and significant coefficients overall across country sectors, reflecting the more stringent evidence that is required at the firm-level growth rates over time.

8 POOLED SAMPLE OF NONFINANCIAL CORPORATES IN ASIA

We now turn to the graphical representation of the data by pooling the firm level data and examining the shifts in the composition of the large firms in the region. One way to illustrate the shift in the composition of the set of large firms in Asia is to pool the sample of firms and then to rank the top 100 firms by revenue or by assets for each year. Then, by identifying the nationality of the firms, we can plot the bar charts over time on the country composition of large firms. We plot the series in Figure 4.13, where the top panel gives the country composition of firms when their size is measured by revenue, and the bottom panel gives the country composition of firms when their size is measured by total assets, converted at prevailing market exchange rates at the end of the year. We leave out Japan, and consider the six countries consisting of the PRC, Indonesia, the Republic of Korea, Malaysia, the Philippines and Thailand.

As we see from the top panel of Figure 4.13, the PRC has become more important over time, where its share of large firms by revenue has increased from just 10 percent of the top 100 to over 60 percent of the top 100. In contrast, when the size of firms is measured by total assets, over 50 percent of the top 100 firms are from the PRC.

In relative terms, firms from the Republic of Korea have declined in number in the top 100 firms in Asia. Just as the proportion of Korean firms becomes squeezed by the increasing weight of firms from the PRC, the weight taken up by the other countries’ firms have similarly been declining over the period. Thus, when we examine the bars corresponding to 2011, we see that the vast majority of the top 100 firms in the sample is either from the PRC or from the Republic of Korea.

With the pooled sample of firms, we may now examine the time series of the regression coefficient of the simple two variable regression where the dependent variable is the normalized cash ratio (that is, the cash to revenue ratio) and the explanatory variable is the normalized financial liabilities (the financial liabilities to revenue ratio). One cross-section regression is run for each year on the pooled sample of all firms weighted by revenue.
Then, the time series of the coefficient is plotted over time, together with the 95 percent error band.

Figure 4.14 is the plot thus generated. We plot two separate series, both being the time series of the revenue-weighted simple regressions but one for the PRC and the second for the pooled sample of all firms.

We note that the pattern for the two sets of firms has broadly similar magnitudes and patterns over time, although the plot for the PRC is quite
noticeably more procyclical. The dips occur during the Asian crisis (1998) and during Lehman (2009), although the plot for the pooled sample shows a markedly less severe dip in 2009. Moreover, the beta coefficient for the pooled sample is significantly positive for all years except for 2000, and the earlier period in the sample where the observations are more sparse. On the other hand, the pooled sample shows more subdued values of the regression coefficient during the aftermath of the Asian crisis in 2000 to 2002.

9 CONCLUSIONS AND LESSONS

In this chapter, we have seen evidence that nonfinancial firms may play the role of surrogate financial intermediaries by channeling external funding into the banking system. Firms who borrow tend to be those who hold more deposits in the banks, so that firms who borrow are those who tend to lend.

We have conducted both summary analyses using the time series of the regression coefficients and have examined the results from panel regressions at the firm level, both for levels and in growth rates. The consistent message that emerges from our analysis is that nonfinancial firms may play an important subsidiary role in transmitting external financial conditions into the domestic economy through their impact on the broad financial conditions and, in particular, through the impact on the availability of credit.
In this way, nonfinancial corporates may play an important role in the transmission of global liquidity conditions through their financial transactions. The extent of financial activity moves with global liquidity conditions, indicating fluctuations in availability of credit. But there are differences across countries, with the PRC being the most visible example where the surrogate financial intermediary hypothesis receives empirical support.

The channeling of cash into the domestic banking system through increased corporate deposits may potentially bring two financial stability problems, the first being the excess liquidity driving bank lending to the property sector, as happened in Japan in the 1980s. The second potential problem is the currency mismatch that may contribute to periods of acute dollar shortages that coincide with the contraction of cross-border lending by the global banks. Such episodes were observed recently in 2001 in Asia, as the European financial crisis gathered momentum. The dollar shortages were especially keenly felt in the PRC and led to a depreciation of the renminbi.

Our findings suggest that the impact of nonfinancial firms on domestic credit conditions and financial stability should be an essential component of any macro-prudential and financial stability framework for policy makers.

ACKNOWLEDGMENTS

This chapter is a paper for volume II of the ADB technical assistance project on Regulatory Reform in Asia. We thank Se Hee Lim for his work as coordinator of the project, and participants at the ADB/HKMA interim conference in Hong Kong, China and the ADB/FSS joint conference in Seoul in July 2013.

NOTES

1. The other non-core liabilities are bank debentures, repos and other non-deposit items such as promissory notes. See Shin and Shin (2010).
2. Indonesia, Malaysia, the Philippines, and Thailand.
3. Manufacturing firms are defined as consisting of the following 4-digit Global Industry Classification Standard (GISC) industry group codes: 1510, 2010, 2510, 2520, 3020, 3030, 3510, 4520 and 4530.
BIBLIOGRAPHY


5. Economy-wide vulnerability in Asia: flow-of-fund analysis

Iwan J. Azis and Damaris Yarcia

1 INTRODUCTION

There has been a dramatic change in the Asian economy in recent decades: excess investment has turned into excess savings. The turning point was the 1997–98 Asian financial crisis (AFC) (Figure 5.1). From the flow-of-funds data, a change in agents’ behavior has been observed, with a new preference to invest in financial assets. Asymmetry in the incentive system and the growing opportunities of financial investment (‘financialization’) – thanks to financial liberalization and innovation – contributed to such a trend. With expectations and uncertainty playing a determining role in firms’ behavior, the corporate sector’s savings are particularly high.

Asia’s liquidity condition since the AFC has been further complicated by increased inflows of capital. With loose monetary policies and growing risks in advanced economies, capital flocked to emerging markets. The size of the flows to Asia surged, and the volatility of these flows increased during the 2008–09 global financial crisis (GFC).

While growing demand for financial assets and rising capital flows have boosted financial sector development and stimulated growth, the risks of financial instability also increased. Debt and bank-led flows shifted dramatically from negative to positive positions in the early 2000s. Debt-led flows, in particular, significantly expanded during the post-GFC (Azis and Shin 2013). Volatile debt flows can undermine long-term financing in the capital market, especially the bond market, while volatile bank-led flows can exacerbate the procyclicality that can undermine the credit market. This is on top of the risks associated with growing pressures on exchange rates that led policymakers to respond with sterilized interventions or other forms of capital controls, lowering the effectiveness of standard monetary policy. At the same time, the socioeconomic risks associated with growing income inequality and falling employment elasticity have increased.

After discussing the trend and nature of excess savings and capital flows in Asia, we analyze the consequences of such a trend on agents’ preferences
Economy-wide vulnerability in Asia

151

Notes: Gross domestic savings = GDP less final consumption expenditure (total consumption); Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Eurozone consists of Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain. Emerging East Asia = China, People’s Republic of; Hong Kong, China; Indonesia; Korea, Rep of; Malaysia; Philippines; Taipei, China; Thailand; and Vietnam.


Figure 5.1 Saving and Investment (percentage of GDP)

and the economy-wide impacts. In particular, we highlight the potential vulnerabilities associated with macro-financial and socioeconomic risks.

2 EXCESS SAVINGS

We use five Asian economies to illustrate the changing trends and characteristics of excess savings: Indonesia, Republic of Korea, the Philippines, Taipei, China, and Thailand. The period under review is divided into pre-GFC (2000–07) and GFC (2008–11). A graphical presentation is used to match assets and liabilities by instrument for each of the three economic agents (financial institutions, households, corporations – non-financial). For clarity, only five key instruments are shown, the rest are lumped under the grouping ‘others’.

Some Asian economies experienced sharp increases in excess savings in
the second half of 2000s (Figure 5.2). This was most evident in the case of the Philippines and Thailand. An exception was Indonesia which had increased its deficit during the same period.

Even at the aggregate level, a change in the composition of excess saving is evident. For example, prior to the GFC, currency and deposits, loans and securities equally contributed to the Philippines’ outflows. Post-GFC, outflows from the Philippines were largely in the form of securities. In terms of net inflows, loans increased for Indonesia, the Philippines, and Thailand during the GFC while net outflow of loans and equities increased for the Republic of Korea and Taipei, China. Suffice to say at this point that there has been a significant change in the level and in the composition of excess savings over the period (Figure 5.3).

Except for Taipei, China, household loans rose significantly during the GFC. In the case of Indonesia, the Philippines, and Thailand, it more than doubled relative to the pre-GFC period. Together with the rise in loans, households became conservative during the crisis as they shifted their assets from securities to greater cash, deposits and insurance funds. Owing to this stronger household preference for liquidity during the GFC, banks generally benefited through a bigger deposit base as reflected in the rise of liabilities in currency and deposits and non-bank financial institutions through the increase in pension reserves. Aside from the increase in cash, there were observed increases in non-core sources of funds in the financial

Source: Flow of Funds data of individual countries, various years.

Figure 5.2 Excess saving, index (2004 = 100)
Economy-wide vulnerability in Asia

These particular components capture capital flows as intermediated by financial institutions as evidenced by their increasing share of non-core liabilities, which also reflects changes in the wholesale funding market. In the case of the Philippines and Thailand, the contribution of other

Note: Others comprise of monetary gold and SDRs, insurance technical reserves and unclassified items.

Source: BSP. Flow of Fund data. Various years.

Note: Others comprise of monetary gold and SDRs and insurance technical reserves.

Source: NESDB. Flow of Fund Data. Various years.

Figure 5.3 Excess saving, by instrument
Global shock, risks, and Asian financial reform

accounts payable and securities has increased since the GFC. The Republic of Korea experienced an increase in share of equities, while Indonesia saw a rise in the share of loans and equities. Taipei, China stayed traditional as non-core liabilities remained fixed as core sources of funds rose. The trend
Economy-wide vulnerability in Asia

and changes in the composition of assets and liabilities of the financial institutions in each economy are shown in Appendix 5A.1 to this chapter. Easy money inevitably also affects how assets are held. Apart from ensuring greater liquidity, financial institutions in the Republic of Korea, the Philippines, and Taipei, China raised their holdings of securities. Those in Indonesia and Thailand increased issuance of loans and accounts receivable.

The impact of easy money extended to the corporate sector. Securities market serves as the main conduit in the Republic of Korea as funds from securities rose significantly between the two periods. Funds from securities and equities increased in Indonesia, the Philippines, Taipei, China and Thailand, but bank loans in these economies rose by an even larger proportion. Corporate assets also showed some changes. Apart from the higher allotment for liquidity that was the common stance across economic agents during the crisis, corporate portfolios also showed an increase in relative share of equities across all economies during the GFC. In addition, accounts receivable and loans rose in the Philippines, accounts receivable rose in the Republic of Korea, and other items such as official foreign exchange reserves, insurance and pension reserves and miscellaneous accounts rose in Indonesia. The trend and composition of financial assets and liabilities of the corporate sector in each economy are displayed in Appendix 5A.2.

Note: Others comprise of life insurance and pension reserves, reserves assets and net other assets and liabilities.

3 AGENTS’ PREFERENCES AND RISING CORPORATE SAVINGS

Given the trend of excess savings, to what extent has the behavior of households, financial sector and firms changed, particularly after the GFC? By using 2000–06 to reflect the pre-GFC period (depicted by squares) and 2007–11 for the GFC and post-GFC period (depicted by triangles), we matched the flow of different components of liabilities and assets of each agent based on FOF data and estimated the trendline in both periods for each economy under review. We compared (1) the correlation of liabilities with total assets across different types of liabilities, and (2) the correlation of assets with non-core liabilities (or core liabilities in the case of households) across different types of assets. The former aims to capture what type of liabilities move in synchronization with changes in assets (source of funds), and the latter aims to capture in which type of assets agents invest their non-core liabilities (use of funds).

Loans are the dominant source of funds for households across all five economies for both periods. However, while the elasticity of loan liabilities with respect to assets declined over the period, that of non-core liabilities (non-loans) rose, that is, co-movement of assets with non-loan liabilities strengthened in 2007–11, for countries such as Indonesia and Thailand. Household debt is a particular issue for the Republic of Korea. Indeed, growing at 5 percent annually and having doubled in the past ten years, the Republic of Korea’s household debt reached more than 90 percent of GDP and 127 percent of disposable income in 2012. In 2000–06, household debt virtually rose in full proportion to every change in total assets, that is, elasticity is 0.99 (Figure 5.4).

The increase in the elasticity of non-core liabilities with respect to change in total assets is even more pronounced in financial institutions and firms. Except for the Philippines, financial institutions’ non-core liabilities generally move more in synchronization with changes in total assets than do its core liabilities, that is, currency and deposits. This is shown by the steeper slopes of non-currency and deposit liabilities compared with currency and deposit liabilities. And the elasticity of non-currency and deposit liabilities with respect to total assets increased during the GFC/post-GFC period for Indonesia, Republic of Korea, the Philippines, and Thailand (Figure 5.5).

In the corporate sector, elasticity of loan liabilities with respect to change in total assets turned negative during the GFC/post-GFC in Indonesia, the Philippines, Taipei, China and Thailand. On the other hand, the elasticity of non-loan liabilities remains higher than the elasticity of loans except in the Republic of Korea.
Economy-wide vulnerability in Asia

While there may be exceptions, it is clear from Figure 5.6 that movements in total assets became more correlated with movements in non-core liabilities during the GFC/post-GFC period across households, financial institutions and firms.

With non-core liabilities increasingly becoming a major driver of total asset holdings of economic agents, how much does it drive non-core assets in particular? Different patterns emerge across the three economic agents.

Households tend to hold traditional and liquid assets like currency and deposits and this intensified during the GFC/post-GFC. This is specifically true for the Republic of Korea and Thailand where households reduced investments on securities and equities as loan liabilities rose and, instead, raised their liquidity multifold. Elasticity of securities and equities, on the other hand, increased for households in Indonesia, the Philippines and Taipei, China.

Two opposite patterns emerged for the financial institutions, in terms of their response to increasing funds from non-traditional sources: higher lending, and higher investment in securities and equities. Rising non-currency and deposit liabilities of financial institutions is associated more

---

**Figure 5.4** Household liabilities, Republic of Korea, 2000–11 (in trillion won)

While there may be exceptions, it is clear from Figure 5.6 that movements in total assets became more correlated with movements in non-core liabilities during the GFC/post-GFC period across households, financial institutions and firms.

*Note:* In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).

Global shock, risks, and Asian financial reform

(a) Republic of Korea (2000–11, in trillion won)

\[ y = 1.1521x - 203489 \]
\[ R^2 = 0.861 \]
\[ y = 0.6669x - 16004 \]
\[ R^2 = 0.8429 \]
\[ y = -0.0645x + 164234 \]
\[ R^2 = 0.0178 \]
\[ y = 0.3205x + 12966 \]
\[ R^2 = 0.861 \]
\[ y = 0.6669x - 16004 \]
\[ R^2 = 0.8429 \]
\[ y = 0.6531x - 315829 \]
\[ R^2 = 0.9012 \]
\[ y = 0.359x + 106561 \]
\[ R^2 = 0.7676 \]
\[ y = 0.1576x + 284862 \]
\[ R^2 = 0.5856 \]
\[ y = 0.5226x - 119482 \]
\[ R^2 = 0.8794 \]

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).


(b) Thailand (2000–11, in billion bahts)

\[ y = 0.1576x + 284862 \]
\[ R^2 = 0.5856 \]
\[ y = 0.6531x - 315829 \]
\[ R^2 = 0.9012 \]
\[ y = 0.359x + 106561 \]
\[ R^2 = 0.7676 \]
\[ y = 0.1576x + 284862 \]
\[ R^2 = 0.5856 \]
\[ y = 0.359x + 106561 \]
\[ R^2 = 0.7676 \]

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).

Source: NESDB. Flow of Funds Data. Various years.

Figure 5.5 Financial institution liabilities
Economy-wide vulnerability in Asia

(c) Indonesia (1999–2011, in trillion rupiahs)

\[ y = 0.7114x - 55463 \quad R^2 = 0.7553 \]
\[ y = 0.2416x + 213582 \quad R^2 = 0.2674 \]
\[ y = 0.0721x + 72000 \quad R^2 = 0.7553 \]
\[ y = 0.7114x - 55463 \quad R^2 = 0.8173 \]

**Note:** In order to capture change in behavior the period is divided into two, 1999–2006 (squares) and 2007–11 (triangles).

**Source:** BPS-Statistics Indonesia, Flow of Fund data. Various years.

(d) Taipei, China (2001–11, in billion NT dollars)

\[ y = 0.7725x - 226338 \quad R^2 = 0.4386 \]
\[ y = 0.7022x - 729583 \quad R^2 = 0.4912 \]
\[ y = 0.173x + 1E+06 \quad R^2 = 0.4845 \]
\[ y = -0.0036x + 1E+06 \quad R^2 = 6E-05 \]

**Note:** In order to capture change in behavior the period is divided into two, 2001–06 (squares) and 2007–11 (triangles).

**Source:** Central Bank of Taipei, China. Flow of Funds data. Various years.

**Figure 5.5** (continued)
with higher investment in securities and equities in the Philippines and Taipei, China, which intensified during GFC/post-GFC. Bank loans are unresponsive to increases in non-core liabilities in these economies. In the case of Indonesia, the financial sector continues to prefer investing in securities rather than loans, though the degree of preference declined after the GFC. In contrast, higher bank lending accompanies increases in non-core liabilities in the Republic of Korea and Thailand, with elasticity remaining stable throughout the whole period at 0.5 and 0.9, respectively (Figure 5.7). Elasticity of non-core assets, particularly securities and equities, fell in 2007–11 in these two economies.

Firms in the Philippines and Thailand, faced with the same increase in funds from non-traditional sources, invested more in securities and equities, significantly raising the elasticity of these instruments with respect to changes in non-core liabilities. Korean firms increased their issuance of accounts receivables and held more currency (Figure 5.8). While no particular instrument drove changes in asset holdings of firms in Indonesia and Taipei, China, elasticity of total non-loan assets with respect to non-core corporate liabilities increased for the two economies. Non-loan assets include currency and deposits, securities, equities, accounts receivables and other miscellaneous instruments.
Economy-wide vulnerability in Asia

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).

Source: BSP. Flow of Funds data. Various years.

(b) Thailand (2000–11, in billion bahts)

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).

Source: NESDB. Flow of Funds Data. Various years.

Figure 5.6 Corporate liabilities
Global shock, risks, and Asian financial reform

(c) Indonesia (1999–2011, in trillion rupiahs)

\[ y = 1.1231x - 128846 \quad R^2 = 0.9897 \]
\[ y = -0.0719x + 376376 \quad R^2 = 0.4539 \]
\[ y = 1.1612x + 59284 \quad R^2 = 0.7599 \]
\[ y = 0.311x - 70195 \quad R^2 = 0.2266 \]

Note: In order to capture change in behavior the period is divided into two, 1999–06 (squares) and 2007–11 (triangles).

Source: BPS-Statistics Indonesia, Flow of Funds data. Various years.

(d) Taipei, China (2001–11, in billion NT dollars)

\[ y = 0.5928x + 448364 \quad R^2 = 0.8801 \]
\[ y = 0.6073x + 54205 \quad R^2 = 0.7251 \]
\[ y = -0.0845x + 531009 \quad R^2 = 0.0503 \]
\[ y = 0.1701x - 73119 \quad R^2 = 0.1897 \]

Note: In order to capture change in behavior the period is divided into two, 2001–06 (squares) and 2007–11 (triangles).


Figure 5.6 (continued)
It is therefore clear that the region’s abundant liquidity associated with excess savings and capital inflows have some impact on agents’ behavior. In general, as agents expand their balance sheets, enabled by funds raised at relatively low costs, they tend to diversify their asset holdings. The corporate sector’s preference toward financial assets such as securities and equities significantly rose for some economies. On the other hand, with growing non-core components on the liabilities side, the financial sector allocates most of the additional funds to either loans or other risky financial assets such as securities and equities. As discussed previously, there is a risk of procyclicality in such a scenario. Also, as a large portion of loans has been directed toward the property sector and other consumer credit, this might contribute to the buildup of bubbles. Although the magnitude of non-core liabilities in some countries is still small, if left unattended it can threaten macro and financial stability.

One of the interesting phenomena in Asia after the 1997–98 AFC has been the surge in corporate savings. This subject has attracted the attention of analysts because they see it as having contributed to excess savings and the ‘saving glut’ claimed to be the reason behind global imbalances. Looking at the examples of Indonesia, the Republic of Korea, and the Philippines, corporate savings surged after the AFC, and did so dramatically in Indonesia (savings trends of different agents in each economy are

Note: In order to capture change in behavior the period is divided into two, 2001–06 (squares) and 2007–11 (triangles).


Figure 5.6 (continued)
Global shock, risks, and Asian financial reform

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).

Source: BSP. Flow of Funds data. Various years.


Change in Assets

\[ y = 0.5483x + 59118 \]

\[ R^2 = 0.5185 \]

Change in Non-C&D Liabilities

\[ y = 0.0766x + 130155 \]

\[ R^2 = 0.018 \]

\[ y = -0.0955x + 332456 \]

\[ R^2 = 0.0054 \]

**(b) Taipei, China (2001–11, in billion NT dollars)**

Change in Assets

\[ y = 0.7959x + 202848 \]

\[ R^2 = 0.9902 \]

\[ y = 0.5784x + 262718 \]

\[ R^2 = 0.8295 \]

\[ y = -0.003x + 787651 \]

\[ R^2 = 6E-05 \]

\[ y = -0.3887x + 1E + 06 \]

\[ R^2 = 0.4959 \]

Change in Non-C&D Liabilities

**Figure 5.7 Financial sector assets**
Economy-wide vulnerability in Asia

(c) Indonesia (1999–2011, in trillion rupiahs)

\[ y = -0.1109x + 63808 \]
\[ R^2 = 0.0377 \]
\[ y = 0.2595x + 37254 \]
\[ R^2 = 0.0877 \]
\[ y = 0.1407x + 48930 \]
\[ R^2 = 0.4156 \]

SECURITIES AND EQUITIES

Note: In order to capture change in behavior the period is divided into two, 1999–06 (squares) and 2007–11 (triangles).

Source: BPS-Statistics Indonesia, Flow of Funds data. Various years.

(d) Republic of Korea (2000–11, in trillion won)

\[ y = 0.6243x + 12427 \]
\[ R^2 = 0.7105 \]
\[ y = 0.551x + 16513 \]
\[ R^2 = 0.5904 \]
\[ y = 0.5343x + 35710 \]
\[ R^2 = 0.3457 \]

SECURITIES AND EQUITIES

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).


Figure 5.7 (continued)
displayed in Appendix 5A.3). An IMF report raised this issue, arguing that at the same time Asia’s corporate investment stagnated, household savings did not provide enough of an offsetting trend such that national savings increased (Jain-Chandra et al. 2009).²

A careful look at more recent FOF data, however, gives a rather different picture. It is true that corporate savings rose, but corporate investment has also increased since the mid-2000s. Even during the GFC, corporate investment in Indonesia continued to rise, whereas in the Republic of Korea and the Philippines it fell in 2009 before rising again. As a result, the excess savings (or net savings) of the corporate sector actually went down. Furthermore, the fall in corporate excess savings has been compensated by relatively high – and in some economies increasing – household excess savings, especially after the GFC (again see Appendix 5A.3). Nonetheless, it remains important to understand the phenomenon of rising corporate savings in Asia, especially since the increase has been larger than in other regions (Cardarelli and Ueda 2006).

What determines corporate savings in Asia? Based on a multiple linear regression model, results in Table 5.1 show that the size of the economy exerts a positive influence, and so do favorable financial market conditions. As expected, a higher degree of monetary liquidity, better stock market performance, greater mobility of capital, and a bigger current account surplus are all associated with larger corporate savings. In con-

Figure 5.7 (continued)
Economy-wide vulnerability in Asia

**Figure 5.8 Corporate assets**

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).

Source: BSP. Flow of Funds data. Various years.

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).

Source: NESDB. Flow of Funds Data. Various years.
Global shock, risks, and Asian financial reform

(c) Taipei, China (2001–11, in billion NT dollars)

\[ y = 0.033x + 13165 \]
\[ R^2 = 0.1588 \]

\[ y = 0.0195x + 27531 \]
\[ R^2 = 0.0549 \]

\[ y = 1.4653x - 587716 \]
\[ R^2 = 0.8626 \]

\[ y = 1.161x + 279150 \]
\[ R^2 = 0.7443 \]

Note: In order to capture change in behavior the period is divided into two, 2001–06 (squares) and 2007–11 (triangles).


(d) Republic of Korea (2000–11, in trillion won)

\[ y = 0.0134x - 482.75 \]
\[ R^2 = 0.3102 \]

\[ y = 0.5005x - 5615.5 \]
\[ R^2 = 0.8993 \]

\[ y = 1.1695x - 67070 \]
\[ R^2 = 0.9077 \]

\[ y = -0.0501x + 6473.3 \]
\[ R^2 = 0.423 \]

Note: In order to capture change in behavior the period is divided into two, 2000–06 (squares) and 2007–11 (triangles).


Figure 5.8 (continued)
contrast, when consumer demand increases, firms tend to save less as they respond by raising investment and other capital expenditures. Greater financial inclusion and easier access to financial markets also causes firms to save less. With easy access to markets, the perceived need for savings is consequently smaller. It is also likely that lower interest rates – owing to increased bank deposits associated with greater inclusion – reduce firms’ incentive to save. These relationships hold across different specifications.

To the extent that the act of saving generally reflects anticipated risks, any conditions considered to reduce risks will lower the need for the corporate sector to save. This explains why higher levels of government savings, perceived as lowering risks to the economy, are also associated with lower levels of corporate savings. Government savings crowding out private savings is consistent with the Ricardian equivalence concept, although the extent of the relation depends on the fiscal policies taken (Corbo and Schmidt–Hebbel 1991). Through a series of tests, per capita GDP and the current account balance/GDP ratio are consistently found to be the most important variables explaining corporate savings.
Table 5.1  Regression analysis of corporate savings (dependent variable: corporate savings/GDP, percentage)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Full</th>
<th>Macro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of GDP per capita</td>
<td>19.52***</td>
<td>16.51***</td>
</tr>
<tr>
<td></td>
<td>(4.99)</td>
<td>(4.76)</td>
</tr>
<tr>
<td>Current account/GDP (%)</td>
<td>0.40**</td>
<td>0.42***</td>
</tr>
<tr>
<td></td>
<td>(2.62)</td>
<td>(2.84)</td>
</tr>
<tr>
<td>Deposit interest rate (%)</td>
<td>0.59^</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>(1.49)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>Lending interest rate (%)</td>
<td>−0.57</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>(−1.03)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>Government savings/GDP (%)</td>
<td>−0.26</td>
<td>−0.56***</td>
</tr>
<tr>
<td></td>
<td>(−1.28)</td>
<td>(−2.69)</td>
</tr>
<tr>
<td>Stock market index</td>
<td>0.001*</td>
<td>0.0002</td>
</tr>
<tr>
<td></td>
<td>(1.83)</td>
<td>(1.78)</td>
</tr>
<tr>
<td>M2/GDP (%)</td>
<td>0.06**</td>
<td>0.11***</td>
</tr>
<tr>
<td></td>
<td>(2.10)</td>
<td>(3.78)</td>
</tr>
<tr>
<td>Private external debt/GDP (%)</td>
<td>0.04</td>
<td>−0.05</td>
</tr>
<tr>
<td></td>
<td>(0.51)</td>
<td>(−0.60)</td>
</tr>
<tr>
<td>Log of household consumption per capita (1 lag)</td>
<td>−11.91***</td>
<td>−11.07***</td>
</tr>
<tr>
<td></td>
<td>(−3.93)</td>
<td>(−3.48)</td>
</tr>
<tr>
<td>Financial openness index</td>
<td>3.74***</td>
<td>6.20***</td>
</tr>
<tr>
<td></td>
<td>(3.89)</td>
<td>(7.85)</td>
</tr>
<tr>
<td>Government effectiveness index</td>
<td>−10.64***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−3.45)</td>
<td></td>
</tr>
<tr>
<td>Agricultural loans/total loans (%)</td>
<td>−0.58**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−2.55)</td>
<td></td>
</tr>
<tr>
<td>Price volatility</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−68.51**</td>
<td>−57.41***</td>
</tr>
<tr>
<td></td>
<td>(−3.78)</td>
<td>(−3.91)</td>
</tr>
<tr>
<td>F-statistic</td>
<td>23.62***</td>
<td>23.19***</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.8458</td>
<td>0.7972</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.8100</td>
<td>0.7628</td>
</tr>
<tr>
<td>No. of observations</td>
<td>70</td>
<td>70</td>
</tr>
</tbody>
</table>

Notes:
T-statistics are in parentheses.
***significant at 1 percent, **significant at 5 percent, *significant at 10 percent, ^significant at 15 percent.
4 CAPITAL FLOWS

In the midst of excess savings, emerging Asia’s macro-financial liquidity is further enhanced by rising capital inflows. The combination of low interest rates and quantitative easing (QE) policies in advanced economies has sparked capital flows to emerging Asia. At the same time, the latter has exhibited strong pull factors owing to its steady growth performance, stable economies, and higher investment returns. Of the roughly US$1 trillion in net private capital flows to emerging market economies each year, about half has gone to Asia. Since the AFC, flows outside short-term foreign debt have been dominant. Gross inflows increased significantly, but outflows have also been on the rise since the AFC. Outward FDI and equity investment increased too, providing foreign-asset buffers for the region when markets become volatile, as was shown to be the case in the Republic of Korea during the GFC.

After recovering from a sharp fall during the AFC in 1997–98, gross inflows fluctuated before beginning to grow steadily and significantly in 2002. These flows peaked in mid-2007 and started to fall as the recession in the US led to a liquidity crisis. The decision by BNP Paribas to terminate withdrawals from three hedge funds and the bursting of the US housing bubble, which saw the values of securities tied to US real estate plummet, damaged global financial institutions.4 A sharp drop during the GFC led gross inflows to hit a bottom lower than that reached during the AFC. Meanwhile, almost symmetrically, gross outflows also rose beginning in 2002 and peaking in mid-2007. The pattern of capital flows, however, changed after the GFC. The ultra-easy money policies and growing risks in advanced economies exerted a strong ‘push’ factor for capital to flow into emerging Asia. As a result, the size of gross inflows far exceeded that of gross outflows. The trend in other economies was very similar: it rose sharply during the mid-2000s, plunged during the GFC, before surging again in 2009 (see Figure 5.9).

To analyze the intensity of flow volatility, we use the term ‘surges’ when there is a sharp increase in inflows, and ‘stops’ when there is a sharp decrease in inflows. For gross outflows, the corresponding terms are ‘flight’ (sharp increase) and ‘retrenchment’ (sharp decrease). Furthermore, to distinguish the types of capital flows we use the following classifications: (1) ‘FDI’ consisting of direct investment, (2) ‘debt’ comprising debt securities and others including derivatives, (3) ‘bank’ flows, and (4) ‘equity’ for equity portfolio.5 Flows are FDI led, equity led, debt led, and bank led if the increase in flows is mainly driven by FDI, equity, debt, or banks, respectively.

Growing production networks, in line with a new supply-chain model,
Global shock, risks, and Asian financial reform

Global shock, risks, and Asian financial reform are among the most important pull factors for FDI in the region, with East and Southeast Asia alone accounting for more than one-fifth of all global FDI flows. However, a large portion of these FDI flows are absorbed by the PRC. The rebalancing process of moving toward more domestic-demand oriented growth also offers opportunities for investors to exploit growing domestic demand in the region. Flows through equity markets have also been strong owing to positive global sentiment toward reforms being carried out in many Asian countries. Foreign purchases of domestic stocks have surged, as have inflows through non-bank private creditors.

Amid a low-return and slow-growth environment in industrial countries, the steady growth of Asia’s bond markets offers a good opportunity for foreign investors. In some countries, the foreign-owned share of local currency (LCY) bond markets is now as high as one third. Increased bank deposits by non-residents have added to the size of inflows as interest rate differentials persist.

But to analyze the vulnerability and volatility of capital flows matters more than net flow amounts. Using one standard deviation of the change in the mean of capital flows as the limit (shown by dashed lines in Figure 5.10) beyond which the flows are labeled differently according to their waves, the following episodes were observed in ASEAN+3:6

---

**Figure 5.9**  Gross and net capital flows: selected Asian countries ($ billion)

Note: Based on a 4-quarter moving sum. For inflows, refers to bank flows from other investments in the liabilities side (assigned a positive value); for outflows, in the asset side (assigned a negative value). Comprised of Indonesia, Republic of Korea, the Philippines, and Thailand.

Source: ADB calculations using data from *Balance of Payments Statistics (both BPM5 and BPM6)*, International Monetary Fund.
Economy-wide vulnerability in Asia

Surge episodes
Equity led: 2009 Q4–2010 Q1
Debt led (excluding banking flows): 2002 Q1–Q3; 2007 Q2; 2007 Q4
Bank led: 1999 Q1–Q3; 2004 Q1; 2009 Q3; 2010 Q2; 2012 Q4

Stop episodes
Equity led: 2000 Q4; 2004 Q4; 2006 Q4–2007 Q1; 2008 Q1–Q3
Debt led (excluding banking flows): 1997 Q1–Q3; 2001 Q1–Q3

Flight episodes
Equity led: 2007 Q2–Q4

Note: * Computed as year-on-year change based on a 4-quarter moving sum. For inflows, refer to bank flows from other investment in the liabilities side (assigned a positive value); for outflows, in the asset side (assigned a negative value). Episodes based on 1 standard deviation (SD) band.


Figure 5.10 Gross capital inflows: selected Asian economies*
Debt led (excluding banking flows): 1999 Q2, 2005 Q4; 2009 Q4–2010 Q2
Bank led: 1999 Q2–Q3; 2002 Q4–2003 Q2; 2004 Q3; 2006 Q1–Q2

*Retrenchment episodes*
Debt led (excluding banking flows): 1998 Q1–Q2; 2008 Q1–Q2; 2012 Q2

For South Asia, the following pattern is observed (the figures are not shown here; available upon request):

*Surge episodes*
Equity led: 2003 Q4; 2007 Q2–Q4; 2009 Q4–2010 Q1
Debt led (excluding banking flows): 1999 Q1; 2000 Q4–2001 Q1; 2005 Q1–Q3; 2006 Q4–2007 Q1; 2010 Q2
Banking flows led: 1999 Q2; 2003 Q2–Q3

*Stop episodes*
Equity led: 1998 Q2; 2008 Q3–2009 Q1; 2012 Q1
Debt led (excluding banking flows): 2001 Q4–2002 Q2; 2006 Q2; 2009 Q2; 2012 Q2–Q3
Banking flows led: 2008 Q2

*Flight episodes*
Equity led: 2006 Q4; 2007 Q2; 2012 Q2–Q4
Debt led (excluding banking flows): 2000 Q4–2001 Q2; 2004 Q2; 2008 Q4
Banking flows led: 2000 Q3; 2003 Q3–2004 Q1; 2006 Q1; 2009 Q1

*Retrenchment episodes*
Equity led: 2011 Q1–Q4
Debt led (excluding banking flows): 1998 Q3; 2000 Q1; 2001 Q4–2002 Q2; 2005 Q2; 2007 Q3

Thus, the rising volatility of capital flows has not been uniform across Asia, but in most cases debt-led and bank-led flows occurred most frequently, implying that they are most volatile. Unlike bank-led flows, the debt-led flows are facilitated by asset managers, acting presumably on behalf of investors including pension funds and insurance companies. Their investment behavior is guided largely by risk returns and market conditions, not by the standard macro policy. The latter may only be able to affect a particular trend, for example to improve the overall macroeconomic fundamentals, but not necessarily altering the incentive structure and the overall market conditions. To ensure financial stability, such policy needs to be supplemented by macro-prudential policy.
The case of debt-led flows is largely explained by the growing status of emerging market bond assets as a safe haven when investors avoid risky holdings such as equities while at the same time seeking high-risk-returns (Azis and Shin, 2013). The yields on traditionally safer US Treasuries and the yields on emerging market debt had moved in the same direction during the period under review. The downgrade in global growth expectations pushed LCY bond yields in emerging Asia lower in tandem with those in advanced economies, implying that credit risks associated with LCY emerging market bonds were significantly lower than in the past. Emerging markets were seen as the only global growth story and offered a better safe haven than investing elsewhere. Yet, owing to their relatively small size and limited liquidity, Asia’s LCY bond markets have been prone to even small perturbations. The share of foreign ownership is relatively high in Indonesia and Malaysia (around one-third) and noteworthy in the Republic of Korea and Singapore (more than 10 percent). In these countries, sporadic and sudden outflows, as happened in June 2013 following the US Federal Reserve Chairman’s remarks on the possibility of QE tapering, could easily rattle markets and cause exchange rates to fluctuate. Without reforms and improvements in market infrastructure, the impact could be more serious when the QE tapering actually happens.

In the case of bank-led flows, deleveraging by European banks clearly contributed to the volatility. As the funding conditions in Europe deteriorated toward the end of 2011, bleak economic prospects and doubts over fiscal sustainability undermined the value of sovereign and other assets. Bond issuance by banks fell, especially uncollateralized issuance in fiscally challenged economies, outflows due to fund withdrawals surged, particularly in Italy and Spain, and exposures to a number of EU institutions dropped sharply.

At the same time, claims by US money market funds on European banks, especially French banks, fell significantly. The impact on emerging Asia was particularly felt in terms of a shrinking number of consolidated loans, new syndicated loans, and large bilateral loans from EU banking groups during 2011 Q3. The terms on new loans to corporations and households were also tightened. As a result, gross outflows from emerging Asia rose toward the end of 2011. As the world’s economic prospects remained dim, gross inflows also declined.

Beginning in 2012, signs emerged that financing from non-European banks and bond market investors was compensating for the pullback from European banks, especially in trade finance. Japanese banks seemed to fill in the gap, as shown in Figure 5.11. Their share of foreign claims has remained quite stable since the GFC. Cross-border lending
Global shock, risks, and Asian financial reform

176

1. Global shock, risks, and Asian financial reform

1.1 to Asia from banks based in Australia, the Republic of Korea, and Taipei, China also began to increase, as did lending from UK and US banks (Table 5.2). Combined with the decelerated speed of European deleveraging, this led to a reversal in net-flows by the end of 2012. Such a changing pattern resulted in increased volatility of bank-led flows during the GFC.

5 ECONOMY-WIDE VULNERABILITY

5.1 Macro-financial Risks

The difference between the recent episode of capital flows and the pre-AFC period is that this time the increased inflows occurred while the region had excess savings. Moreover, compared with the flows during the AFC, those following the GFC are larger in size and more volatile. It is well known that capital flows can be beneficial to recipient economies, but their vola-
Economy-wide vulnerability in Asia

177

tile pattern and procyclicality can also act as a channel for the buildup of financial risks and imbalances. A large increase in the highly volatile debt-led and bank-led flows described in the preceding section poses a difficult challenge for policymakers seeking to maintain macro-financial stability.

Bank-led flows can alter the size and composition of banks’ balance

Table 5.2 Exposure to European, Japanese, and US banks – Asia
(December 2012, percentage of borrower’s domestic credit)

<table>
<thead>
<tr>
<th>Borrower</th>
<th>United States banks</th>
<th>Japanese banks</th>
<th>European banks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>France</td>
<td>Germany</td>
</tr>
<tr>
<td>Asia</td>
<td>2.2</td>
<td>2.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Japan</td>
<td>1.8</td>
<td>na</td>
<td>1.8</td>
</tr>
<tr>
<td>Developing Asia</td>
<td>2.5</td>
<td>2.7</td>
<td>7.4</td>
</tr>
<tr>
<td>ASEAN-4 + Viet</td>
<td>3.6</td>
<td>4.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Nam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>4.3</td>
<td>5.3</td>
<td>11.5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>5.1</td>
<td>3.8</td>
<td>15.5</td>
</tr>
<tr>
<td>Philippines</td>
<td>7.1</td>
<td>3.8</td>
<td>13.0</td>
</tr>
<tr>
<td>Thailand</td>
<td>2.1</td>
<td>6.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1.1</td>
<td>2.4</td>
<td>7.1</td>
</tr>
<tr>
<td>NIEs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>8.9</td>
<td>11.7</td>
<td>28.8</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>7.9</td>
<td>4.4</td>
<td>12.4</td>
</tr>
<tr>
<td>Singapore</td>
<td>19.9</td>
<td>18.6</td>
<td>65.9</td>
</tr>
<tr>
<td>Taipei, China</td>
<td>5.5</td>
<td>6.5</td>
<td>9.8</td>
</tr>
<tr>
<td>People’s Republic of China</td>
<td>0.6</td>
<td>0.5</td>
<td>1.9</td>
</tr>
<tr>
<td>India</td>
<td>10.5</td>
<td>7.7</td>
<td>20.0</td>
</tr>
<tr>
<td>United States</td>
<td>na</td>
<td>3.6</td>
<td>9.8</td>
</tr>
<tr>
<td>Eurozone</td>
<td>3.6</td>
<td>2.5</td>
<td>26.4</td>
</tr>
</tbody>
</table>

= Unavailable; GIIPS = Greece, Ireland, Italy, Portugal, Spain; na = not applicable; NIE = newly-industrialized economy; UK = United Kingdom.

Note: Highlighted cells imply an increase in exposure compared with September 2008 in terms of domestic credit percentage value greater than $100 million. Domestic credit or domestic claims based on International Financial Statistics definition of International Monetary Fund.

sheets such that the risks of a banking crisis may increase. On the asset side, loan-to-value ratios can grow fast due to excessive credit expansion and other forms of risky investment, while on the liability side an increase in non-core liabilities through bank-led flows can heighten banks’ risky behavior and increase leverage. In times of external shock, as in the case of deleveraging by Eurozone banks, flows of bank credit can also be disrupted. With a stronger currency as a result of capital inflows, banks are willing to take even more risks by extending more credit as the balance sheet positions of its borrowers improve.

The seriousness of these risks is applicable to Asia, particularly in a region that is bank dependent, with a relatively open capital account, and where banks’ leverage tends to exceed the cyclical norms. Indeed, data show that the rate of growth of bank credit in emerging Asia since the GFC has exceeded the long-term trend. This rapid growth of credit has also coincided with growing demand for property that has led to a persistent increase in property prices, exposing the region to the risks associated with the bursting of a bubble.

Another type of vulnerability relates to long-term financing through bond markets. To avoid a repeat of the double mismatch that led to the disastrous AFC, long-term LCY financing has been sought by policymakers in the region. In addition to reducing an overreliance on banking sources, the development of LCY bond markets can also help economies establish benchmark pricing for other financial assets. Furthermore, the long-term nature of bond markets is favorable for infrastructure financing. This is particularly important in the context of Asia’s need to convert excess savings and capital inflows into productive activities including infrastructure development with respect to health, education, and the environment.

As discussed earlier, in some economies the size of the LCY bond market is small. When the share of foreign (especially non-regional) ownership is large, markets become vulnerable to foreign withdrawals. The volatility that may result can adversely impact market liquidity and reduce the attractiveness of the bond market – as it directly impacts investor perceptions of the collateral value of LCY bonds. Higher yields as a result of foreign withdrawals imply higher borrowing costs, which may cause the private sector to postpone using local markets to fund new investment. Meanwhile, competitiveness is also worsened by an appreciating exchange rate. To the extent that bond markets in most Asian economies are closely linked with banks (as the largest issuers and buyers), vulnerabilities in bond markets can easily translate into troubles in the banking sector and financial markets in general.
5.2 Socioeconomic Risks

While growing excess savings and increased capital flows have helped boost financial development and growth in Asia, these factors may have also contributed to worsening income inequality. This seems applicable to many Asian economies where financial inclusion is rather limited. To the extent that higher inequality can lower growth prospects, therefore, the long-term net effect on growth is not always positive.

Excess savings and capital inflows largely invested in financial assets will benefit only a very small percentage of the population. As shown in the FOF analysis, there are signs indicating that funds raised through capital markets are invested in financial assets, not for business expansion or investment. The relatively high returns on financial investment and myriad problems with investing in the real sector – such as land acquisition, licensing, labor regulations, taxes, and other bureaucratic constraints – give more incentive to invest in financial assets. The employment-generating capacity is also smaller in the latter. Moreover, in most cases only a tiny fraction of people have access to stocks, bonds, mutual funds, derivatives, and other sophisticated financial instruments. A much larger share of the population is left with either limited or no opportunity to directly benefit from the fast-growing financial sector. This exacerbates the already high levels of inequality in many economies. If the fast-growing financial sector is too leveraged and too speculative to serve the real sector, the financial system has lost its main purpose; it becomes the master of the real sector, not the other way around. While the problems are more serious in advanced economies owing to the size and sophistication of their financial markets, a similar predicament may develop in emerging Asia if these issues are not addressed.

The interlinking of capital flows, financial development driven by excess savings, and income inequality is conceptualized in Figure 5.12. The left-hand side of the diagram represents the dynamics in goods and factor markets (real sector), including exports and imports, and the right-hand side captures the working of financial markets. The interconnection of both parts determines the outcome of the financial sector–income inequality nexus.

In Figure 5.12, the real sector establishes income generation from output production (X), where a portion of it is for the domestic market (D) and the remaining portion is for exports (E). Together with imports (M), those sold in the domestic market generate the total supply of goods and services available (Q). In both allocations, the substitution is imperfect. The process to generate output X follows a standard input–output framework, where value added (VA) and intermediate inputs (INTM) jointly determine the level of X. The growing production network and supply chain, in which the location of production is different from the country where the interme-
Figure 5.12  Mechanism linking macro-financial liquidity affected by excess savings and capital flows with socioeconomic conditions: a framework
diate inputs are produced, suggests that one needs to distinguish between imported (FIN TM) and domestically produced (DIN TM). This distinction is important particularly for trade analysis in many emerging market economies where the import content of many export products is large.  

The income generation is derived from the VA, where returns on primary inputs of labor (L) and capital (K) are denoted by WF. In turn, WF generates factor incomes (YF), including those from abroad (YFROW). The total income level (INC), however, consists of more than just factor income; it includes transfers between agents and institutions (ITRAN). Tax payments that subtract income and subsidies that add income are examples of such transfers, the size of which depends on the prevailing fiscal policy. Thus, incomes of different agents, including households, are not only influenced by the level of economic activity but also by non-factor income.  

But for those who hold financial assets, these two sources can be far smaller than the incomes accrued from financial assets. These financial asset holders are typically rich and urban-based, with easy access to financial markets. With financial sector liberalization (FSL) and capital account liberalization (KAL), including free flows of capital, they are in a much better position to reap the benefits of a growing financial sector. During the bubble period following capital inflows (FSAV), they gain benefits from the increased value of their wealth in the form of financial assets (FIN ASSETS) as well as an income stream generated from those assets (RN), even when there is not much activity in the real sector of the economy. In many cases, this portion is larger than that from factor incomes. To the extent that in a booming economy the financial sector often grows much faster than the real sector, the impact on income distribution can be predicted: the rich earn more than the poor, and incomes of urban households grow faster than those of the rural population, both of which result in worsening income inequality.  

How significant are these impacts? Take the case of bank-led flows (CFLOW). Together with loans (BANKLOAN), these flows will directly augment the financial liabilities (FIN LIABS) of banks. This will change the rate of return on financial assets (RN) and hence the financial returns received by holders of those assets (see the arrow linking RN and INC). The RN also has a two-way relationship with the size and composition of assets of different agents. The fixed assets (FIXAS) will be used directly for investment in the real sector (INVEST) (for example, investment in building and machinery) while the rest, including financial assets (FIN ASSETS), may enter the real sector indirectly via financial markets (for example, a fund from equity issuance used for business investment). Along with government spending (GD), consumption expenditure (EXP or CD),
exports (E), and imports (M), in real terms this investment (ID) generates real gross domestic product (RGDP).\textsuperscript{15}

On the other hand, increased inflows either through FSAV or CFLOW (captured through foreign savings SAV[fr]) will have macro-financial impact: they put pressures on the exchange rate (EXR) to appreciate. The resulting trade account (TA) may therefore worsen due to falling exports (E) and increased imports (M). In reality, however, almost all emerging market economies experiencing capital inflows responded by imposing some sort of capital controls either directly (for example, through taxes or levy) or indirectly (for example, sterilized intervention). This explains why in some economies net exports continue to grow. When net exports shrink, the growth of consumption (CD) and investment (ID) offsets the decline.

The resulting higher RGDP fuels further growth of the financial sector either due to strong fundamentals or simply market expectations. This enhances the income and SAVING (WEALTH) of rich households further, providing them with an additional stream of income from financial returns.\textsuperscript{16} If, through portfolio allocation, the increased WEALTH is reinvested in financial instruments due to lucrative returns, the financial assets and earnings of rich households will further increase. In this way, the resulting magnitude of the growth–inequality nexus is amplified by the feedback cycle.\textsuperscript{17} Hence, rising inequality is not only due to standard factors such as technology, globalization, education, and domestic institutions, but it can also be driven by the non-inclusive nature of capital flows and excess savings.

6 CONCLUSIONS

In this chapter, we examine the trend and characteristics of excess savings in selected Asian economies by using FOF data. Excess savings have been regularly observed since the early 2000s, although the trend was interrupted in 2005 in Thailand. In Indonesia, the excess savings turned to excess investment after the 2008–09 GFC. The rapid increase of corporate savings after the 1997–98 AFC was first accompanied by stagnant investment. But beginning in the mid-2000s, corporate investment increased, and in some economies (for example, Indonesia), it rose steadily even during the GFC such that the excess savings disappeared and turned to deficit. Yet, corporate savings in Asia remain distinctively higher than in other regions. By applying a set of variables, per capita GDP and the current account balance/GDP ratio consistently appear to be the most important determinants of corporate savings.

Along with the excess savings, rising capital inflows since early 2000 also
added liquidity in the economy. While this has allowed the region to post steady and strong economic growth, agents in different economies exhibit different behavior as to what source of funds they prefer to raise from, and where they invest their excess savings. Greater disposable income, more choices of financial instruments, and steady growth performance are all contributing to changing preferences among agents. A bias toward investing in financial assets is clearly detected, including after the GFC. In the financial sector, increased non-core sources of funding lead to more diversified assets, but in some cases loans accelerated. As most of them presumably went to the property sector and some were allocated to consumer credit, the risks of procyclicality and the likelihood of bubble creation increased, threatening macro and financial stability. Supplementing this analysis with capital flow data revealed that the size of bank-led flows has indeed been increasing, especially amid QE in the US and ultra-easy money policies in other advanced economies. Such flows are also becoming more volatile. Although in some economies the size of bank-led flows is still relatively small, if unattended, the risk of procyclicality can be exacerbated.

These economy-wide risks can extend further to socioeconomic conditions. With the shift toward a greater preference for investing in financial assets, the already unfavorable condition of income inequality in Asia can be worsened, as only a very small percentage of the population have access to the fast-growing financial sector. The capacity of an economy to generate employment also decreases, as evidenced by declining employment elasticity, since the job-creating impact of investing in financial assets is lower than investing in the real sector. In the last section, we showed an example of mechanisms through which capital flows that exacerbate excess savings will generate socioeconomic impacts beyond macro and financial vulnerability.

NOTES

1. In this section, we needed to capture the change in behavior from pre-GFC to post-GFC, particularly the changes in slopes, so we had to include a normal year in the GFC and post-GFC period.
3. Inclusion is proxied by the ratio of agricultural loans to total loans, as most low-income households in Asia are associated with agricultural and farm activities.
4. In August 2007, a number of central banks in advanced economies were actively pumping liquidity into the financial system to calm nerves amid fears of a credit crunch. The trigger for the panic was the decision by BNP Paribas to block withdrawals from three hedge funds due to ‘a complete evaporation of liquidity’. The subsequent bank run included the first run on a leading UK bank since the mid-nineteenth century.
5. See Forbes et al. (2012). However, unlike in their analysis, we distinguish ‘debt’ from ‘bank’ because the latter is more prone to deleveraging and procyclicality, and therefore it has a more direct impact on the real sector.

6. A similar approach is taken for capital outflows (not shown here).

7. In contrast, lending by European banks to western Europe and other developed countries remained unchanged. At the time of writing, the amount of European bank lending to Asia was estimated at US$280 billion, compared with US$374 billion before the GFC.

8. An increasingly important part of bank financing, however, remains unidentified. This is likely due to the absence of key reporting economies, especially the PRC, Hong Kong, China, and Singapore.


10. The amplified effect of cross-border flows on the supply of credit due to the changing risk behavior of banks is shown in Bruno and Shin (2012).

11. In a standard computable general equilibrium (CGE) model, the allocation between D and M follows Armington’s constant elasticity of substitution (CES) function, while the allocation between D and E follows a constant elasticity of transformation (CET) function.

12. The dynamics of the use of imported inputs to produce goods that are exported, also known as vertical specialization (VS), has been analyzed by Hummels et al. (2001). Amador and Cabral (2009) show that VS in high-technology products has increased dramatically since the 1980s, especially in the emerging market economies of Asia. Some even label it as a new paradigm in the organization of world production, representing an important element of international trade.

13. The effect of income level on macro variables works through the expenditure side. Together with government expenditure (GD) and exports (E) minus imports (M), real consumption (CD) reflects the size of agents’ expenditure (EXP) out of their disposable income (YCON). The latter is determined by the income level (INC).

14. Note that the size of BANKLOAN is not only determined by the size of a bank’s loanable funds but also by changes in net worth and external finance premiums of both borrowers and lenders; this ‘credit channel’ hypothesis was elaborated by Bernanke et al. (1996, 1999), Stiglitz (2001), Stiglitz and Greenwald (2003), and Adrian and Shin (2009).

15. Other financial variables can also affect the aggregate economic activity by way of the money market. Along with the interest rate (AVGRN), which is the weighted average of financial returns RN, household income (INC) determines the size of money demand (MD), which in turn affects the liability of different agents. If, for example, demand deposits increase, the assets of some holders (firms, government, households) will increase and so will the liability of other agents (banks). The changing size and composition of assets affects investment (INVEST) the same way the earlier path is described, and changes in liability will influence the level of saving. In this context, monetary policy that affects money demand in the money market determines savings and investment, and the level of aggregate economic activity.

16. Changes in the exchange rate also cause some valuation effects: the local currency value of any asset denominated in foreign currency will increase (decrease) when the local currency appreciates (depreciates).

17. Aside from income inequality, the poverty level and unemployment (UEMPR) are two other social indicators that are endogenously determined in the model framework. While unemployment is simply derived from the difference between labor demand (L) and fixed labor supply, the main aggregate variables in the real sector (X, D, E, M, and Q) are all determined along with their respective prices, PX, PD, PE, PM, and PQ. It is PQ that sets the overall price index (PINDEX), based upon which the price of the poverty line (PL) can be derived. When this PL is matched with endogenously determined household incomes, the poverty level can be estimated.
REFERENCES


APPENDIX 5A.1

Figure 5A.1 Financial assets and liabilities, financial institutions
Note: Others comprise of gold and SDRs, insurance and pension reserves, foreign exchange reserves, call loans and money, and miscellaneous accounts.


Note: Others comprise of official foreign exchange reserves, life insurance and pension reserve and miscellaneous accounts.

Source: BPS-Statistics Indonesia, Flow of Funds Data.

Figure 5A.1  (continued)
Global shock, risks, and Asian financial reform

Figure 5A.1  (continued)

Note: Others comprise of life insurance and pension reserves, reserve assets and net other assets and liabilities.

Source: Central bank of Taipei, China. Flow of Funds data. Various years.
APPENDIX 5A.2

(a) Taipei, China (2001–11, in billion NT dollars)

Note: Others comprise of life insurance and pension reserves, reserve assets and net other assets and liabilities.


(b) Thailand (2000–11, in billion bahts)

Note: Others comprise of monetary gold and SDRs and insurance technical reserves.

Source: NESDB. Flows of Funds Data. Various years.

Figure 5A.2 Financial assets and liabilities, corporations
Global shock, risks, and Asian financial reform

Figure 5A.2 (continued)
Economy-wide vulnerability in Asia

Note: Others comprise of official foreign exchange reserves, life insurance and pension reserve and miscellaneous accounts.

Source: BPS-Statistics Indonesia, Flow of Funds Data.

Figure 5A.2 (continued)
APPENDIX 5A.3

(a) Gross saving by agent, Indonesia
(in trillion rupiah)

(b) Gross saving by agent, Republic of Korea
(in trillion won)

Note: FC=Financial institutions, GG=Government, HH=Households, NFC=Corporations (non-financial).


Figure 5A.3  Gross saving and excess saving, by agent
Economy-wide vulnerability in Asia

Figure 5A.3 (continued)

Note: FC = Financial institutions, GG = Government, HH = Households, NFC = Corporations (non-financial).

Source: BSP. Flow of Funds data. Various Years.

Note: FC = Financial institutions, GG = Government, HH = Households, NFC = Corporations (non-financial).

Global shock, risks, and Asian financial reform

Note: FC = Financial institutions, GG = Government, HH = Households, NFC = Corporations (non-financial).


Note: FC = Financial institutions, GG = Government, HH = Households, NFC = Corporations (non-financial).

Source: BSP. Flow of Funds data. Various Years.

Figure 5A.3 (continued)
PART III

Issues and Challenges on the Legal and Institutional Framework for Emerging Asia
Introduction

Fariborz Moshirian

Over the past 20 years, financial systems in East Asia have undergone a seismic period of liberalization, crisis and development (Liu et al. 2013). In the 1990s, prior to the Asian financial crisis of 1997–98, the emerging economies of East Asia rapidly liberalized their financial systems, aiming to integrate into the global financial system in order to support their continued development. This period of rapid liberalization ended with the Japanese and Asian financial crises of the 1990s. In the wake of the AFC, East Asian economies focused on reforming financial regulation, on building foreign exchange reserves, and on a range of regional initiatives to support regional financial stability, integration and development, all with the overall objective of enhancing economic growth in the region.

As a result of a decade of domestic and regional financial sector reform, East Asian economies faced the global financial crisis of 2008 and the Eurozone debt crisis of 2010 with well-regulated and robust financial systems. Nonetheless, while generally resilient, economies in East Asia have suffered some impact from these crises in terms of both trade and availability of finance. In the wake of the GFC, major economies have focused on reforming financial regulation globally through the Group of 20 (G20) and the Financial Stability Board (FSB), both organizations having significant representation of economies in the Asia-Pacific region. Global consensus through the G20 and the FSB today seeks to address four major objectives: fixing the problems which caused the crisis, promoting continuous financial market functioning, realizing the benefits of global finance, and supporting the real economy (FSB 2013a). In particular, the G20 and the FSB are coordinating reforms in ten areas, including addressing systemically important financial institutions, properly regulating ‘shadow banking’ and over-the-counter (OTC) derivatives, building macro-prudential systems, and strengthening implementation of international standards (FSB 2013b).

In East Asia, the overall objectives have remained the same: supporting financial stability and economic growth. However, following the GFC, East Asia – along with the rest of the world – has faced the need for a
range of financial reforms stemming from the experiences of the crisis. In the context of this volume, Part II focused on issues of macro-prudential supervision, looking particularly to develop new ideas and new approaches based on innovative research, especially relating to non-core monetary aggregates and procyclicality of the financial system; non-core bank liabilities and vulnerability to crisis, with a focus on Asia and issues associated with monetary aggregates and global liquidity. The following chapters turn to issues of micro-prudential regulation and implementation, particularly relating to legal and institutional issues.

Part III begins with the issue of financial regulatory design, with Weber et al. in Chapter 6 arguing that economies in East Asia must look to the overall design of their financial regulatory systems in the context of the actual realities present in individual financial systems, particularly relating to systemically important financial institutions and shadow banking. In light of G20 and FSB initiatives to develop international regulatory standards and guidance towards financial regulation and stability in reaction to the global, Eurozone and Asian financial crises, Chapter 6 explores issues of financial regulatory design, particularly its relation to SIFIs, shadow banking and financial conglomerates, focusing on East Asian countries, which are typically characterized by relatively large, domestically oriented banks. This phenomenon means that the focus on cross-border finance of international financial regulatory standards is not a priority for many countries in East Asia.

Chapter 6, section 2, examines, in depth, the issue of financial regulatory structure, most importantly highlighting that a regulatory structure must vary according to the nature and size of its financial sector, its domestic and international importance, and the skills and resources of regulators and the particular government. Weber et al. note that for East Asia, the level of financial development across countries is far from uniform and the financial regulatory structure for each jurisdiction must be looked at individually. Subsequently, the chapter analyzes five common financial regulatory models – the institutional structure, the sectoral structure, the single integrated structure, the functional structure and the Twin Peaks structure – through dissecting their theoretical definitions as well as providing examples of countries that adopt the respective financial regulatory structures. The chapter further surveys countries in East Asia and their main regulatory agencies, and concludes that while no single model dominates the region, sectoral and single integrated structures are the most common. The authors also consider in great detail the impact of the different regulatory structures upon SIFIs, financial conglomerates and shadow banking. However, this section of the chapter concludes that there is no single best regulatory structure universally, and that much depends on
the individual circumstances of the particular market, such as its stage of financial development, the nature of the large financial players, the level of internationalization, and so on.

Section 3 of Chapter 6 looks specifically into issues surrounding how to supervise SIFIs – categorized into domestic (D-SIFIs), regional (R-SIFIs) and global (G-SIFIs). This is a significant issue as the failing of a SIFI can result in severe financial instability impacting a nation's financial system and economy and further spreading into global and regional financial systems. Weber et al. note that in East Asia, most significant institutions are D-SIFIs, with only a handful of G-SIFIs. However, a growing number of D-SIFIs are increasingly transforming into R-SIFIs that will increase the cross-border operations in East Asia. The authors identify that to effectively manage the risks posed by SIFIs, there needs to be a system that addresses the issues of macro-prudential supervision, capital and liquidity requirements, resolution and insolvency. In particular, the authors analyze the detailed requirements of Basel III on capital and liquidity requirements for D-SIFIs and G-SIFIs, and note that in East Asia, G20 and FSB members (such as the PRC, Hong Kong, China, Japan, the Republic of Korea, and Singapore) as well as other more developed jurisdictions have strong capital positions to meet the higher capital requirements for Basel III, but that these higher requirements are a concern for other developing jurisdictions in the region.

The authors of this chapter also explore the topic of effective resolution of an SIFI if its collapse is imminent and supports the FSBs’ recommendation that a designated resolution authority should be appointed in all jurisdictions, with powers to take over the running of the SIFI in order to maintain the economic and financial viability of its core functions while looking to spin off saleable parts of its operations. Recovery and resolution plans of SIFIs aimed at reducing risk, conserving capital, restructuring disabilities, and divesting business lines are also explored. In designing the resolution system, it is important to remember that its principal objective is not to expose taxpayers to loss while protecting the SIFIs’ economic functions. Importantly, this chapter highlights that SIFIs should be subject to cooperation agreements with resolution authorities across all jurisdictions that it operates in, which clarify respective roles and responsibilities in planning and managing its resolution.

Chapter 6 goes on to note that the FSB and the Basel Committee’s focus on higher loss absorbency based upon capital adequacy has a strong balance sheet focus, which allows for potential balance sheet manipulation. These higher standards also encourage some SIFIs to divest non-bank business lines to reduce its systemic importance and, therefore, the level of prescribed capital adequacy or liquidity. This chapter also notes that
divesting certain non-banking businesses does not necessarily decrease the systemic risk of an institution. Thus, a ‘one-size-fits-all’ rigid supervisory approach is not recommended. The authors further consider that Basel III only partially addresses risk management for SIFIs, and a supervisor must proactively identify, assess, and mitigate any emerging systemic risks. Thus, the regulators should adopt both a micro-prudential and a macro-prudential approach simultaneously in order to more effectively evaluate the SIFIs systemic importance.

Section 4 of the chapter addresses shadow banking. It highlights the FSB’s two-step policy towards regulating shadow banking involving enhancing system-wide monitoring, looking at all non-bank credit intermediation and adhering strictly to the five policy measures of focus, proportionality, forward-looking and adaptable, effectiveness and assessment and review. Specifically, the authors noted that capital adequacy and liquidity requirements that apply to banks under Basel III will also apply to shadow banking institutions which undertake bank-like activities. The authors further suggest that the banking regulator which oversees the implementation of Basel III should also oversee the regulation of the shadow banking sector because many aspects of the risks that they pose are analogous. Furthermore, the proliferation of credit enhancement products such as CDS offered by shadow banks make these institutions susceptible to systemic disruptions, instability and heighten procyclicality within the financial system. This justifies regulation for shadow banking both on the national front and also from a cross-border perspective. For East Asia, where the shadow banking system is much less developed than in the western world, the authors see the primary need as having a full understanding of the types of financial activities and institutions available and design regulatory systems accordingly.

In Chapter 7, Buckley et al. highlight the need for financial innovation in light of the specific needs of economies in the region in order to support future growth, particularly in areas of trade finance, shadow banking, and mobile finance. This chapter examines the issue of financial liberalization and innovation in East Asia in light of the previous Asian financial crisis and global financial crisis, exploring the role of regulation and institutional infrastructure to facilitate financial development while limiting the ramifications of financial crises. This analysis is done against a backdrop of financial innovation no longer being seen as clearly desirable after the most recent global and Eurozone financial crises, where financial systems that were more heavily regulated (such as those of Australia and Canada) or arguably less innovative (such as that of East Asia) performed far better than the more innovative financial systems such as those in the UK and the US. More specifically, this chapter argues that instead of character-
izing East Asia as lacking in financial innovation, their approach toward innovation is better understood as a pragmatic and cautious strategy that focuses on supporting real economic activity. In particular, this chapter looks at specific types of financial innovation that have had significance in East Asia: mortgage markets, SME finance, non-bank finance, trade finance, and mobile financial services.

Section 2 of Chapter 7 looks at the history of financial innovation in East Asia and questions the characterization that East Asia lacks financial innovation and only copies innovations that were successful in the western world. The authors have a strong view against this label and point to numerous examples, such as microfinance by Bangladesh and the model of the development state by Japan, in support of their position. However, the authors caution that more innovation is not necessarily better in the world of finance – overdevelopment will pull resources away from other sectors, lower real growth, and shift resource allocation and distribution in a sub-optimal way.

Section 3 considers financial innovation for the future in East Asia. This section attributes financial innovation as part of the effect of financial liberalization in recent decades and highlights that not all innovation is good – though financial liberalization promotes more growth compared with a repressed economy, it also increases market uncertainty and the chances of severely damaging crises. This is particularly so if liberalization is done without adequate prudential regulatory structures that give adequate regulation and supervision. The authors regard East Asia’s pragmatic approach (as opposed to an overly market-focused theoretical approach), in addressing specific market conditions, effective in mitigating the losses from the GFC compared to the approach of the western world. However, the authors realize that East Asia’s financial systems span a range of development levels and there is no ‘one-size-fits-all’ mold that would suit the entire region.

Overall, using trade finance, mortgage markets, SMEs, non-bank finance, and mobile finance as examples, this chapter addresses key issues in financial liberalization and development in East Asia, and countered the idea that more financial innovation is always better. Furthermore, this chapter posed strong evidence of the success of Asia’s pragmatic approach towards financial liberalization, where its more cautious stance compared to that of western nations softened the adverse impacts of the global financial crisis. This is a trend away from the many mainstream commentators that suggest that East Asia was lacking in financial innovation or was merely following in the footsteps of western countries with a lag.

The final chapter of Part III, Chapter 8 by Moshirian, attempts to measure banks’ systemic risk in Asia, using the methodology that has been
Global shock, risks, and Asian financial reform

developed by his collaborators at New York University. In doing so, the
chapter first defines issues related to systemic risk. The author states that
‘Systemic risks originate from two primary causes – common exposures to
aggregate risks, such as common exposures to the real estate market built
up through the propagation of subprime mortgage related assets through
the US financial system in the years leading up to the 2007–08 financial
crisis, and/or the distress or failure of any large/complicated/highly inter-
connected financial institution that may lead to runs on other solvent
institutions, fire-sale liquidations and heightened counterparty risk. These
insights into systemic risk have underpinned global attempts to redress
regulatory failures that allowed them to build up in the first place’.

Moshirian then highlights issues that are important in analyzing factors
that contribute to regional and global financial stability. To this end, the
author discusses the relevance of G-SIFIs and D-SIBs, and the way the
global economy has to respond to these major financial institutions. It
appears that the author is keen to highlight the role of interconnectedness
and of global and regional supervision for large international banks around
the world. The college of supervisors and their future role in this process
may well be an important factor in enhancing the effectiveness of the
supervision of large banks. Moshirian discusses the conceptual framework
for measuring systemic risk. He argues that the financial sector imposes
real costs only when it is undercapitalized as a whole, and these costs are a
linear multiple of the extent of undercapitalization of the financial sector.
Then, each firm’s contribution to real-sector costs is related to its own
undercapitalization in those states of the world where the financial sector
is undercapitalized as a whole. Moshirian refers to a proxy called SRISK.
This proxy (SRISK) calculates the contribution of each bank to overall
global systemic risk in the system. Moshirian uses 40 percent as a proxy
to capture major shock to the global financial system. In this process, the
author is able to provide some measures of banks’ capital shortfall should
the stock market decline by 40 percent. This measure is calculated based
on an initial market shock of 2 percent that can then be extrapolated to a
large market decline in the wake of a major financial crisis. Using some
data from the Volatility Institute at New York University, the author is able
to provide some useful information on banks in Asia and why some of the
banks are doing better than others. The author is able to provide this infor-
mation for both single countries and countries forming ASEAN. The live
data used to measure systemic risk is able to shed some light on the factors
that may contribute to some signs of systemic risk build up in a number
of banks in Japan and China. It appears that Japanese banks, which have
been holding their government bonds on their balance sheet and at the
same time are facing less demand for credit in their domestic market,
should do more to ensure greater capitalization and also a more diversified business model. In the case of China, the state-owned enterprises (SOEs) appear to form a large part of the debt held by Chinese banks. Any signs of delay in repayment of the debt by Chinese SOEs could give a negative signal to the market. This chapter is able to provide the rankings of banks in major Asian countries, based on their contributions to overall regional systemic risk. Regional financial stability and a sound banking system are important aspects of creating a more resilient regional financial system. Any financial model or method that can shed more light on the way large global and regional banks contribute to the overall stability of the regional financial system is welcomed by market and policymakers. The author of this chapter argues that while large banks’ operations should be supervised more effectively, in the final analysis, banks are getting larger and so a more effective global and regional supervision of G-SIFS, D-SIBs will be important in the medium term.

REFERENCES

6. Addressing systemic risk in East Asia: financial regulatory design

Rolf H. Weber, Douglas W. Arner, Evan C. Gibson and Simone Baumann

1 INTRODUCTION

The global, Eurozone, and Asian financial crises have underlined the risks and the importance of appropriate regulatory design and coverage for financial stability (Cecchetti et al. 2009, p.2).\textsuperscript{1} In the wake of the global financial crisis (GFC), the G20 and the Financial Stability Board (FSB) and its constituents – such as the Basel Committee on Banking Supervision (BCBS), the International Organization of Securities Commissions (IOSCO), and the Joint Forum – have or are in the process of developing international regulatory standards and guidance in relation to financial regulation and financial stability. There is thus an emerging corpus of international best practices for financial regulation. At the same time, this corpus provides little guidance with respect to overall design of a financial regulatory system to meet the specific needs and risks of a given domestic financial system.

In East Asia, which is characterized in this chapter as ASEAN+3,\textsuperscript{2} domestic financial systems tend to be dominated by small numbers of financial institutions, particularly banks, which are large in the context of individual financial systems. At the same time these financial institutions tend to be primarily focused on domestic financial activities. While financial institutions from the more sophisticated jurisdictions in the region are generally well integrated into global wholesale markets, cross-border activities in the region are generally less developed than in Europe or North America, although these are growing rapidly. As a result, the focus on complex cross-border finance of international financial regulatory standards is often not the highest order priority. Rather, the focus is on prevention of domestic financial crises while at the same time supporting economic growth.

Given the context, this chapter discusses the range of international initiatives in the context of the overall design of systems of financial regulation
in East Asia. In section 2, the chapter analyzes financial regulatory structure in the context of financial regulatory design, particularly as it relates to SIFIs, shadow banking, and financial conglomerates. Section 3 focuses on issues relating specifically to SIFIs at the global, national, and regional levels. In addition to the traditional SIFIs characteristic of the region’s financial systems, non-bank finance has proven to be a major source of potential systemic risk, both globally and in the region. The G20 and the FSB are currently addressing this issue in the context of shadow banking, which is of increasing concern throughout the region, and is addressed in section 4. The chapter concludes with a synthesis of recommendations for regulatory design in the region.

2 FINANCIAL REGULATORY STRUCTURE

Financial regulatory structures embody regulatory approaches to broadly maintain the financial stability of the financial system through the agency or agencies that supervise financial institutions, financial activities, or both. Different approaches to regulatory structures are undertaken by jurisdictions based on their financial sector’s unique characteristics. Therefore, the selection of a regulatory structure by a jurisdiction needs to accommodate the nature and size of the financial sector and its domestic and international importance, with the skills and resources of regulators and the government. During the GFC, the effectiveness of different regulatory structures at mitigating systemic risks and maintaining financial stability was found to be inadequate. After careful and extensive review of the structures in conjunction with other regulatory deficiencies, certain jurisdictions, such as the UK decided to completely overhaul their regulatory structure to address these inadequacies. This section reviews the different regulatory structures in the context of the specific concerns of SIFIs, shadow banking, and financial conglomerates.

At the outset, it can be argued that financial regulatory structure is a second-order issue that should be addressed only when the primary elements of financial regulation are in place. This chapter argues, however, that this is not the case. Rather, to establish an appropriate system of financial regulation, the initial question is one of structure. In particular, in order to have in place appropriate regulation, at the outset, a jurisdiction must first address roles and responsibilities: Who has which roles and responsibilities? What are their specific objectives and powers? Is there an ideal level of independence? How should performance (and accountability) be optimally monitored? If these issues are not established as a foundation of the regulatory structure, problems in actual regulation will result.
The second question that emerges is whether there are jurisdictions that actually follow this methodology by taking a strategic approach to overall financial regulatory design? Significant examples include the US in the 1930s (as a result of the 1929 stock market crash); Australia, Canada, and the UK in the 1990s (all of which comprehensively reviewed and restructured financial regulation); and Japan and the Republic of Korea in the 2000s. In the wake of the global and Eurozone financial crises, the UK, Switzerland, the European Union (EU), and the Eurozone have all undertaken comprehensive reviews of the design and structure of their financial regulatory systems.3

In this context, Switzerland provides an illustrative example of a small country with a large financial system characterized by domestic and global SIFIs (UBS and Credit Suisse). Switzerland promptly responded to the GFC and hence was among the pioneer countries in adapting regulations. The Swiss Federal Council and the Parliament acted forcefully and implemented new laws, to a large extent within two years,4 and established a Commission of Experts. The Commission of Experts (2010, p. 3) was established to examine the question of limiting the economic risks posed by large companies on 4 November 2009 and hence the avoidance of future government bailouts. Following the publication of the Final Report of the Commission of Experts, the Swiss Federal Council (2011) presented a White Paper (Botschaft) that proposed significant amendments, predominantly to the Banking Act. ‘Too Big to Fail’ proposals were adopted on 20 April 2011, a bill to amend the Banking Act was passed by the Parliament on 30 September 2011, and the ‘Too Big to Fail’ provisions legally came into force on 1 March 2012 (Swiss Federal Council February 2012a, 2012b).

Likewise, the UK – as a result of problems with its previous regulatory approach and design – has undergone a comprehensive financial regulatory redesign as a direct response to the GFC.5

While the regulatory structure per se is not key to the effectiveness of a regulatory system, the structure is one important element of the overall design of a regulatory system. In the context of East Asia, which features divergent and varying degrees of financial development,6 it is important to begin with an understanding of the characteristics of a jurisdiction’s financial system and economy. Only from this basis can the appropriateness of existing arrangements be judged.

2.1 Financial Regulatory Structure: Models

Five common financial regulatory structures can be identified: (1) the traditional sectoral model (with separate regulators for each financial
sector – banking, securities, and insurance – often combined with strict separation or holding company structures for financial conglomerates; 
(2) the functional model (with separate regulators for each regulatory function – financial stability, prudential, market conduct, and competition regulation – catering to financial conglomerates and product innovation); (3) the institutional structure (with separate regulators for different types of financial institutions, most typically adopted in the context of banks with operations in multiple sectors such as securities and insurance); (4) the single integrated structure (with one or more sectors and/or functions combined in a single agency, often combined with a universal banking model for financial services provision); and (5) the Twin Peaks structure (with one regulator responsible for prudential regulation and another for conduct regulation).7

2.1.1 The institutional structure
The G30 defines the institutional structure as ‘one in which a firm’s legal status (for example, a bank, broker-dealer, or insurance company) determines which regulator is tasked with overseeing its activity from both a safety and soundness and a business conduct perspective’ (G30 2008, p. 13).

This ‘legal-entity-driven’ criterion is among the conventional approaches. The legally designated status of a financial entity sets the scope for the business activities that the firm may undertake. However, in practice this strict policy tends to be diluted, from both marketplaces becoming more integrated and the subsequent difficulty in separating and isolating distinct ‘institutional’ sectors. Hence, a clear assignment to a regulator of overseeing the activity of a particular company seems unfeasible (G30 2008, p. 24). Therefore it is uncommon for the institutional structure, in a pure form, to be employed. The institutional approach is usually employed as a component of a stand-alone agency within a financial regulatory structure or the approach will constitute an element of a functional agency. Most commonly, an institutional approach is adopted for banks within the context of an otherwise sectoral model, most frequently with the central bank as banking supervisor, for example, in East Asia in Hong Kong, China.

2.1.2 The sectoral structure
Under the sectoral regulation model, an economy has separate regulators for each financial sector (typically, banking, securities, and insurance). This model has been adopted in the majority of economies around the world, including the US.

Broadly speaking, US financial markets are supervised under the sectoral structure (Coffee and Sale 2008, p. 24). The banking sectoral supervisor
of federally chartered banks is the Office of the Comptroller of the Currency, and the federal securities sectoral supervisor is the Securities and Exchange Commission. These sectors are also subject to state-level supervision, creating a dual supervisory system. In comparison, the insurance sector is only supervised at the state level.

The sectoral model performs well with a financial system characterized by a strict sectoral separation of financial intermediary activities. Often the model is used in economies that have adopted the financial holding company or the parent–subsidiary business models. The sectoral model does not perform well with universal banking. Recent experience in the US highlighted that the sectoral model may not be ideal at effectively supervising financial holding companies due to potential difficulties with supervisory coordination and coverage. Furthermore, in financial sectors where cross-sectoral activities are allowed and traditional distinctions between markets, institutions, and products are blurred, such structures arguably provide impetus for significant regulatory arbitrage and gaps in supervisory coverage (FSB September 2013a, pp. 2, 7–8).

In East Asia, the purest example is the PRC with the following institutions:8 the People’s Bank of China (central bank), China Banking Regulatory Commission (responsible for banking regulation), China Securities Regulatory Commission (responsible for securities regulation), and the China Insurance Regulatory Commission (responsible for insurance regulation). Each regulator is established under and responsible for a separate statutory framework, with cross-sectoral activities generally prohibited, though increasingly being allowed, especially between banks and securities activities.

2.1.3 The single integrated structure

The G30 defines the single integrated structure as: ‘one in which a single universal regulator conducts both safety and soundness oversight and conduct-of-business regulation for all the sectors of financial services business’ (G30 2008, p. 13).

Since 1973 the EU has been debating integrated supervision, Weber et al. (2006, p. 21) assert that domestic legal, administrative, and regulatory disparities in the supervision structure stood in the way of economic integration. The development of the EU’s single market in the 1990s required harmonization of member states’ diverse domestic regulatory frameworks. Member states were not instructed by the EU on how to organize and design their supervisory structures. Nevertheless, the conclusions drawn from the Lamfalussy Report resulted in a number of member states (for example, the UK and Germany) establishing single integrated structures. In the aftermath of the GFC, the EU sought greater economic
and monetary integration between member states. Specific responsibilities were entrusted in the ECB under a single supervisory mechanism (SSM). The European Commission (2012, p. 1; see also De Larosière Group 2009, n. 183) states that the SSM assigns the ECB with the ultimate responsibility for specific supervisory tasks related to the financial stability of all Eurozone banks.

From 1998 to 2012, the UK operated under a single integrated structure, the Financial Services Authority (FSA), which undertook statutory objectives including: market confidence, financial stability, consumer protection, and the reduction of financial crime.9 Responsibilities of the FSA included, among others, the prudential supervision of banks, building societies, investment firms, insurance companies, securities firms, and clearing and settlement systems (Bank of England 2006). Monetary policy was undertaken by the Bank of England.

The Swiss Financial Market Supervisory Authority (FINMA) commenced operations on 1 January 2009. The regulatory ambit of the FINMA (2013) covers banks, securities firms, securities dealers, stock exchanges, insurance companies, insurance intermediaries, and collective investment schemes. The FINMA’s mandate encompasses the protection of investors, creditors, and policy holders and ensures the smooth functioning of financial markets as well as the sustenance of the reputation and competitiveness of the Swiss financial market.10 Monetary policy is conducted by the Swiss National Bank (SNB).

In East Asia, the oldest and arguably most successful single integrated regulator is the Monetary Authority of Singapore. Japan and the Republic of Korea also adopted single integrated regulator approaches at the beginning of the century, while Indonesia will adopt such a model from 2014.

2.1.4 The functional structure
Under the functional regulation model, an economy has separate regulators for separate functions, including: (1) financial stability regulation, (2) prudential regulation of financial intermediary safety and soundness, (3) financial market conduct, and (4) competition. This model has been adopted in Australia and Canada (with some variations), two of the developed countries whose financial regulatory systems performed very well during the GFC.11 Arguments in favor of this model suggest that clear objectives enhance regulatory performance and accountability.

As a variation, financial stability regulation and prudential regulation are often combined in a single agency, with a separate agency responsible for financial market conduct (for example, the Twin Peaks approach, for a detailed discussion see Taylor 1995, 2009).
2.1.5 The Twin Peaks structure
The G30 defines the Twin Peaks structure as: ‘a form of regulation by objective, is one in which there is a separation of regulatory functions between two regulators: one that performs the safety and soundness supervision function and the other that focuses on conduct-of-business regulation’ (G30 2008, p. 13).

This model can work with any model of financial intermediary activities and financial conglomerate structure. It has been adopted in the Netherlands and France. In the wake of the GFC, increasing attention is being placed on the Twin Peaks structure due to failures in the single regulator approach in, for example, the UK and the sectoral approach in the US. This structure has now been adopted in the UK (see US Department of the Treasury 2008) and is also being considered in Hong Kong, China and the PRC (see Arner et al. 2010).

The UK’s new Twin Peaks structure came into force on 1 April 2013.12 This structure is designed to supervise the financial system as a whole (macro-prudential) while being coordinated with the regulation of individual firms (micro-prudential). Under the new structure, the Financial Policy Committee (FPC) – the macro-prudential regulator – will be housed within the Bank of England (central bank), and a Prudential Regulatory Authority (PRA) – the micro-prudential regulator – will be a subsidiary of the Bank of England with a new Financial Conduct Authority – the consumer protection and market conduct regulator – being an independent agency.

In East Asia, while similar systems are under discussion in a number of jurisdictions, none has yet adopted this model.

2.2 Financial Regulatory Structure in East Asia

A financial regulatory structure is principally path dependent, or determined by each jurisdiction’s unique historical, legal, and financial characteristics, thereby making it unusual to neatly align with a generic structure. At the same time, relatively few jurisdictions have taken strategic approaches to overall financial regulatory structure.

Table 6.1 presents an overview of financial regulatory structure in East Asia as at October 2013, and shows that while no single model dominates in the region, two (sectoral and single integrated) are the most common.

2.3 Financial Regulatory Structure Design

Because of path dependence and variations in domestic financial and economic development, it cannot be taken for granted that a particular model
<table>
<thead>
<tr>
<th>Structure type</th>
<th>Regulatory agencies and market oversight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Central Bank</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>AMBD (Autoriti Monetari Brunei Darussalam)</td>
</tr>
<tr>
<td>Cambodia</td>
<td>NBC (National Bank of Cambodia)</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>HKMA (Hong Kong Monetary Authority)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Bank Indonesia (until 31 December 2013)</td>
</tr>
<tr>
<td></td>
<td>Bank Indonesia (from 1 January 2014)</td>
</tr>
<tr>
<td>Structure type</td>
<td>Regulatory agencies and market oversight</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td><strong>Central Bank</strong></td>
<td><strong>Banking</strong></td>
</tr>
<tr>
<td><strong>Japan</strong></td>
<td>Bank of Japan (BOJ)</td>
</tr>
<tr>
<td><strong>Lao PDR</strong></td>
<td>Bank of the Lao PDR</td>
</tr>
<tr>
<td><strong>Malaysia</strong></td>
<td>BNM (Bank Negara Malaysia)</td>
</tr>
<tr>
<td><strong>Myanmar</strong></td>
<td>CBM (Central Bank of Myanmar) (Not independent – part of Ministry of Finance and Revenue)</td>
</tr>
<tr>
<td>Country</td>
<td>Type</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Philippines</td>
<td>Sectoral</td>
</tr>
<tr>
<td>People’s Republic</td>
<td>Sectoral</td>
</tr>
<tr>
<td>of China</td>
<td></td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Single integrated</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>Single integrated</td>
</tr>
<tr>
<td>Thailand</td>
<td>Sectoral with</td>
</tr>
<tr>
<td></td>
<td>integrated elements</td>
</tr>
<tr>
<td></td>
<td>(MOF – banking,</td>
</tr>
<tr>
<td></td>
<td>securities, and</td>
</tr>
<tr>
<td></td>
<td>insurance)</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Sectoral</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
is better than any other; this depends on the particular circumstances of
the jurisdiction. At the same time, each model has certain characteristics
that can make it more effective in the context of financial systems of differ-
ing characteristics and regulatory designs.

In seeking to address the overall issue of regulatory design, the sectoral
structure focuses on distinct financial sectors except where an institutional
element is incorporated into the structure. This approach is undertaken by
jurisdictions whose financial sector is characterized by a high concentra-
tion of banking institutions. Jurisdictions imposing tough regulations in
excess of Basel III are finding that some systemically important banks
(SIBs) are shedding business lines to reduce their systemic importance and
therefore their capital adequacy and liquidity requirements above Basel
III. Such a business model among SIBs is becoming more analogous with
that of traditional banks and is therefore well suited to supervision under
the sectoral structure because the banking supervisor’s regulatory perim-
eter reflects the SIB’s business model.

In contrast, supervision of financial conglomerates, outside universal
banks supervised under a sectoral structure with an institutional element,
tend to fall into gaps between the sectoral regulators’ regulatory perimeters.
Accordingly, the sectoral structure per se cannot accurately reflect the sys-
temic importance of financial conglomerates. The rigidity of the sectoral
structure’s regulatory perimeter can be relieved if a cross-sectoral approach
is adopted. If an institutional element is incorporated into the sectoral
regulator’s regulatory perimeter, then this will provide a cross-sectoral
approach to the sectoral oversight of all activities that an institution
engages in, reducing the incidence of regulatory arbitrage and mitigating
the potential buildup of systemic risks. However, an institutional sectoral
structure will nevertheless experience difficulties when institutions and
products blur the boundaries between sectoral demarcations. In such cir-
cumstances coordination among regulators will be required. Regulatory
arbitrage may arise from gaps and underlap between the regulator’s regula-
tory perimeters, impeding systemic risk detection, which could undermine
financial stability.

A sectoral resolution authority is harmonized with the sectoral parts
of a SIFI or financial conglomerate, temporary bridge institutions, and
separate asset management vehicles within the regulatory perimeter. This
focus is an advantage of the structure. Gaps, overlaps, and coordination
issues between sectoral regulatory perimeters may impede the resolution
authority’s effectiveness at maintaining a SIFI’s continual performance
with essential economic functions. In jurisdictions that are characterized
by a high incident of SIBs, a resolution authority should reflect the secto-
ral banking regulator or the banking regulations to enhance systemic risk
detection within the banking sector. If a jurisdiction is characterized by a high incidence of SIFI financial conglomerates a collective resolution authority should be established which consists of all the sectoral regulators. This enables a more flexible and tailored supervisory approach to mitigate systemic risks emanating from any part of the SIFI financial conglomerate to more effectively maintain financial stability.

Strengthening SIFI supervision will only occur where a product or entity neatly falls within a distinct regulatory perimeter. In jurisdictions characterized by a concentration of banking institutions, the sectoral structure may not reflect the complexities and interconnectedness of non-bank institutions that issue bank-like products. Systemic risks sourced from such non-bank SIFIs will nonetheless impact on the stability of the banking sector and therefore the financial stability of the financial system as a whole. Problematically, the sectoral regulator’s regulatory perimeter usually focuses on micro-prudential oversight with the central bank charged with macro-prudential oversight. This impedes systemic risk detection and the ability to effectively maintain financial stability across the financial system as a whole. If a sectoral regulator is incorporated within the central bank, the macro-prudential oversight will be limited to the sector that the regulator oversees. This approach will provide an incomplete picture of systemic risks that threaten the financial system as a whole, thus inhibiting the ability to maintain macro-prudential financial stability.

The same above-mentioned argument pertaining to the sectoral structure can be raised for the shadow banking sector. A sectoral banking supervisor has an advantage over other models from its banking focus, creating a natural harmonization that facilitates an expanded Basel III regulatory scope over all bank-like activities, bank-like entities, and related entities. Therefore, a sectoral banking regulator is optimally harmonized to oversee the reinterpretation of the Basel III framework applied to the shadow banking sector because the risks, including systemic risks, are analogous to the banking sector. However, the heterogeneity of the shadow banking sector creates an impediment to this harmonization. To overcome this weakness, the FSB recommends calibrating tools to the sectoral characteristics of highly heterogeneous non-bank financial entities. If the sectoral characteristics are harmonized then the sectoral regulatory structure would better manage the heterogeneity of the shadow banking sector.

The transfer of credit risks to the shadow banking sector through securitization was in part incentivized by regulatory arbitrage. This arbitrage is facilitated by the sectoral structure. Ambiguous products such as credit default swaps (CDSs) fell between regulators prior to the GFC and overlap
the regulatory perimeters post-GFC, thereby undermining the structure’s principal advantage. To more effectively manage ambiguous products such as CDSs, it is recommended that a cross-sectoral approach to supervision should be undertaken to mitigate systemic risks. Therefore, the sectoral approach requires an institutional element to facilitate cross-sectoral supervision.

The single integrated structure addresses the ambiguous nature of the sectoral structure by being all encompassing and therefore more flexible. Loss absorption measures can be calibrated to better reflect the risks of the entity as a whole by capturing activities outside the banking sector. However, SIFI regulatory requirements beyond Basel III are incentivizing SIBs to divest business lines. In these circumstances it would be more appropriate to focus on sectoral supervision rather than the flexible supervision because the regulatory perimeter of the single integrated structure is not as fluently harmonized with the SIB’s business model.

Seamless supervision of financial conglomerates is an advantage of the functional and single integrated structures as they do not suffer from the heightened coordination requirements of the sectoral structure. From a group-wide perspective, monitoring the capital adequacy and liquidity measures of a financial conglomerate is more comprehensive and reflective of its systemic importance. The cross-sectoral nature of the functional and single integrated structures harmonizes with the blurred business model of the SIFI financial conglomerate, thereby mitigating the incident of regulatory arbitrage and the potential buildup of systemic risks. Furthermore, the functional and single integrated structures appear to be better suited than a sectoral structure with an institutional element because coordination among regulators will not be required. These approaches facilitate a more seamless systemic risk detection quality, thereby mitigating regulatory arbitrage arising from regulatory gaps between regulators.

The resolution authority also benefits from this advantage, but only when its regulatory perimeter mirrors that of the single integrated regulator. In such circumstances the resolution authority would be able to exercise its powers over any section of the SIFI or financial conglomerate. Where jurisdictions are characterized by a high concentration of SIBs, a functional or single integrated resolution authority would not be as focused as a sectoral resolution authority. Jurisdictions characterized by a high concentration of SIFI financial conglomerates would be better served by a collective resolution authority which could consist of sectoral regulators.

Theoretically this would strengthen supervision of SIFIs. However, business models, systemic risks, and monitoring the financial system as a whole may not be effectively supervised because of the structure’s broad
regulatory perimeter. The functional and single integrated structures can suffer from the same macro-prudential underlap analogous to sectoral regulators when the central bank is charged with macro-prudential oversight. Underlap impedes systemic risk detection and the ability to effectively maintain financial stability across the financial system as a whole. If a single integrated structure is incorporated within the central bank, frictions may arise between micro-prudential and macro-prudential oversight, inhibiting systemic risk detection across the financial system as a whole and therefore the ability to maintain financial stability. The functional structure would also be impeded by such frictions.

When supervising the shadow banking sector, which is characterized by heterogeneous bank-like entities and activities, the functional and single integrated structures have a distinct advantage because of their adaptability. In particular, ambiguous financial products that do not neatly fall into a distinct regulatory sector are more thoroughly supervised than the sectoral structure because the functional and single integrated structures are able to seamlessly adapt and do not require sectoral harmonization. This characteristic enables the functional and single integrated structures to better adapt to the heterogeneity of the shadow banking sector, including the oversight of ambiguous products such as CDSs. Systemic risk detection is enhanced and the ability to maintain financial stability bolstered from these structures’ seamless cross-sectoral approach.

The functional and Twin Peaks structures’ principal advantage over the single integrated structure is the facilitation of a system-wide perspective focusing on systemic risks and financial stability. In the context of the Twin Peaks structure, SIFI capital adequacy and liquidity measures are supervised from the perspective of mitigating systemic risks to maintain the financial stability of the economy as a whole. This advantage better reflects financial markets and the systemic risks posed by institutions that bridge financial sectors, namely financial conglomerates. The cross-sectoral nature of the Twin Peaks structure harmonizes with the blurred business model of the SIFI financial conglomerate. However, unlike the single integrated structure, the functional and Twin Peaks structures appear to be better suited at mitigating systemic risks because this is the focus and mandate of their structures. The potential incident of regulatory underlap between the macro-prudential supervisor and the micro-prudential single integrated regulator is negated. In Singapore the incident of this underlap is substantially reduced because the central bank is also the micro-prudential regulator. Negating underlap may not necessarily be the case with the functional structure as there are separate regulators for micro-prudential and macro-prudential supervision. The Twin Peaks structure’s approach generally offers a more effective yet seamless systemic
risk detection, mitigating regulatory gaps, regulatory arbitrage, and underlap, thus bolstering financial stability.

As with the single integrated structure, the functional and Twin Peaks structures’ advantage of managing risks across financial sectors would be substantially diluted if a resolution authority were structured sectorally. This mismatch would undermine the Twin Peaks’ structure’s advantage of mitigating systemic risks across the economy as a whole, especially when it came to the sale and/or restructuring of whole or part of the SIFI. The functional and Twin Peaks structures would suffer from the same regulatory deficiency as the single integrated structure when operating in jurisdictions that are characterized by a high concentration of SIBs – not being as focused as the sectoral resolution authority. Where the Twin Peaks structure would seem to be more advantageous over the sectoral and single integrated structures is in a jurisdiction characterized by a high concentration of SIFI financial conglomerates. If the resolution authority reflects the Twin Peaks structure’s mandate of safety and soundness across all financial sectors this would reduce the incident of macro-prudential underlap, providing for a more effective resolution than a single integrated resolution authority per se.

Systematically important financial institution supervision is bolstered from the Twin Peaks’ structure’s principal attribute of having a mandate focused on mitigating systemic risks thereby enhancing the reliance of the financial system. This attribute is less likely to suffer from gaps or coordination issues of a collective peak consisting of sectoral supervisors that are assigned generic financial stability mandates. However, a collective peak may provide more intensive supervision if a financial stability issue involving systemic risks neatly falls within a distinct financial sector. The Twin Peaks structure does not suffer from the macro-prudential underlap inherent to the sectoral and single integrated structures and the potential underlap of the functional structure. Systemic risk detection and the ability to maintain financial stability is enhanced by the Twin Peaks’ structure’s ability to focus on safety and soundness of the financial system as a whole as well as individual institutions.

Shadow banking is notorious for transmitting systemic risks to and from the banking sector, destabilizing the financial system as a whole. The Twin Peaks structure is designed to detect systemic vulnerabilities, is more proportionate to effectively manage systemic risks, and is forward looking and adaptable to emerging systemic risks arising anywhere in the financial system. In this regard the implementation of Basel III, to maintain financial stability from the threats of systemic risks transmitted from heterogenic non-bank entities and activities including securitization and CDSs, is a clear advantage. The structure can view entities and products
in the shadow banking sector from not only a micro-prudential perspective, but also a macro-prudential one. Systemic risk detection is thus more effective by placing the regulator in a position to mitigate transmissions and contagion between the banking and non-bank financial sectors with the shadow banking sector.

Overall, in the context of East Asia, the central focus in terms of regulatory structure must be adapting a model with clear roles and responsibilities that is effective in identifying the major risks in a given domestic financial system and addressing them in an appropriate manner. While no single model can be said to be universally superior, it is nonetheless always the case that each jurisdiction must have a clearly designed financial regulatory structure, which provides regulatory coverage of all major sources of systemic risk. Comprehensive regulation of SIFIs is perhaps the central aspect.

3 ADDRESSING SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS

Large financial institutions are of significant importance for national, regional, and global financial systems and economies. Arnold et al. (2012, pp.3125–32) observed that during the GFC a failing bank or other large and/or interconnected financial institution may place national, regional, and global financial stability at risk. Should a SIFI fail, Tarashev et al. (2009, p.76) argue that the repercussions can result in severe financial instability impacting an entire nation’s financial system and economy. Such financial instability can rapidly spread through the global and regional financial systems, destabilizing the regional and global economy. In response, governments around the world have prioritized all reasonable measures to reduce the likelihood of the failure of SIFIs. This section addresses this issue by focusing on the FSB’s SIFI supervisory recommendations.

Systematically important financial institutions can be classified as domestic (D-SIFIs), regional (R-SIFIs), and/or global (G-SIFIs). Systematically important financial institutions are described generically by the FSB as: ‘financial institutions whose distress or disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity’ (FSB 2011d, p.1).

Systematically important banks can also categorized as D-SIBs, R-SIBs and/or G-SIBs. As summarized in Table 6.1, East Asia’s financial systems are characterized by D-SIFIs, particularly D-SIBs. At the same time, a
small number of East Asian financial institutions have been identified by the FSB\textsuperscript{15} as G-SIFIs or G-SIBs: Mitsubishi UFJ, Bank of China, Mizuho, and Sumitomo Mitsui (FSB N 2012e, p. 3). In addition, all of the other FSB-designated G-SIBs have operations in the region, particularly emanating from Japan, Hong Kong, China, and Singapore. Further, two of the G-SIBs – HSBC and Standard Chartered – have a particular focus on Asia, including a large volume of their operations (FSB 2012e, p. 3). As a result, while the region is characterized by D-SIFIs, it also has very direct concerns regarding the regulation and stability of G-SIFIs. While at present, the FSB does not designate R-SIFIs and R-SIBs, given the experiences of both the Eurozone and Asian financial crises (see Chapter 10 in this volume), this is a significant issue of concern for regional financial integration initiatives, such as those in the EU and ASEAN+3. In East Asia, a growing number of financial institutions could now be characterized as R-SIFIs, including (at minimum) HSBC, Standard Chartered, and DBS. In addition to these, a number of other regional and international institutions are rapidly increasing their cross-border operations in the region.

Since the near failure of numerous SIFIs during the GFC, the FSB and BCBS, at the direction of the G20, have extensively reviewed the financial stability issues relating to SIFIs. In order to manage the risks posed by SIFIs, a properly designed system should address macro-prudential supervision, capital and liquidity requirements, resolution, and insolvency. Macro-prudential supervision is addressed in section 1. Capital and liquidity (Basel III) are dealt with separately in more detail in other chapters (see Chapter 11 in this volume), with the focus in this chapter being additional requirements for SIFIs.

### 3.1 Capital and Liquidity

The FSB released the first recommendations that SIFIs should have loss absorbency beyond the minimum Basel III standards (FSB 2010, p. 3; see also Arnold et al. (2012, p. 3131).\textsuperscript{16} Formulating these recommendations was undertaken by the BCBS, with a particular focus on capital and liquidity requirements.

#### 3.1.1 Capital

Loss absorbency instruments recommended by the BCBS (2013b) include common equity (Tier 1) and higher-trigger going-concern contingent capital in advance of the point of non-viability. The BCBS (2012b, p. 1) distinguishes measures that apply to D-SIBs and measures that apply to G-SIBs. A G-SIB’s systemic importance is to be determined by an indicator-based measurement approach that allocates levels of additional
loss absorbency requirements above the minimum Basel III level that range from 1.0 percent to 3.5 percent of common equity as a percentage of risk-weighted assets (BCBS 2013b, p.12). Indicators reflect size, interconnectedness, lack of readily available substitutes or financial institutional infrastructure for the services provided, global cross-jurisdictional activity and complexity (Drehmann and Tarashev 2011, p.26; BCBS 2013b, p.5).

Allowing for national discretion, the BCBS recommends that D-SIBs’ higher loss absorbency is to be calibrated according to a bank’s domestic systemic importance, quantitative methodologies, and country-specific factors. Because of the nature of the banking business model, the BCBS (2012b, pp.8, 10) recommends that higher loss absorbency is to be fully met by common equity (Tier 1), accommodating domestic structural characteristics through an extension of the capital conservation buffer, sitting on top of the Basel III capital buffers and minimum capital requirement. Home authorities can impose higher requirements than the G-SIB additional loss absorbency requirements, based on the degree of domestic systemic importance. Where a D-SIB is also identified as a G-SIB, the BCBS (2012b, pp.4, 8–10) recommends that the higher of the G-SIB or D-SIB loss absorbency requirements should be applied, avoiding any double counting.

As an example, under the new Swiss regime, to further increase loss absorbency, Swiss banks are required to hold a minimum capital representing 8 percent of the company’s risk-weighted assets (RWA) and a capital buffer of 2.5 percent of RWA. Of these two components, 7 percent has to be Tier 1 common equity, which consists substantially of share capital and reserves. In accordance with the Basel III framework, SIBs have to meet more rigorous capital requirements than other banks: By the end of 2018 SIBs are required to build up to 19 percent RWA. Systemically important banks have to fulfil this component with at least 10 percent Tier 1 common equity, the remaining 9 percent may consist of convertible contingent capital (CoCos) (Swiss Federal Department of Finance 2013, p.2). These instruments play a vital role when a Swiss SIB’s capital base comes under severe stress as they allow debt to be converted into equity if the Tier 1 common equity falls below 7 percent of RWA. Further, a so-called Progressive Component must be introduced that consists of additional CoCos. The Progressive Component level correlates (mainly but not only) with total assets and market share of the SIB. Should the Tier 1 common equity reach a level of 5 percent of RWA, this component is to be converted.18 Overall, Isler et al. (2012, p.28) state the Swiss provisions result in stricter and more stringent requirements for banks than the Basel III framework requires.

Additionally, based on the new provision in the Federal Banking Act,
Article 11 paragraph 2, banks and controlling companies of financial groups or financial conglomerates predominantly doing business in the banking sector may emit a ‘write-off bond’ (Anleihe mit Forderungsverzicht). By subscribing to such bonds, investors agree to waive any claims in case of a previously determined trigger event. As there is no conversion into equity capital, there is no equity dilution.

In the context of the BCBS Assessment of Basel III regulations in Switzerland, FINMA announced on 10 May 2013 that its circulars will be amended for the implementation of Basel III (FINMA 2013). The BCBS (2013a, p. 11) stated that while overall compliant, in regards to the definition of capital, the internal rating of credit risk and disclosure under the Swiss approach was ‘largely compliant’. Harmonization with the Basel III framework came into force on 1 January 2014 (FINMA 2013).

3.1.2 Liquidity
Before the GFC, there were unharmonized, limited, and discretionary international standards for liquidity. Most jurisdictions based their pre-GFC liquidity requirements on the presumption that most financial markets and assets were liquid. Post-crisis, Basel III includes a new liquidity standard, as well as special requirements for SIBs. In terms of liquidity risk, the BCBS (2012a, p. 56) Core Principle 24 recommends that supervisors are to set out SIB requirements that reflect liquidity needs, macro-prudential profile, a liquidity risk strategy, and compliance. Global SIBs’ liquidity requirements are not to be lower than the Basel requirements.

3.1.3 Implementation
Basel III holding requirements for common equity will be raised to 4.5 percent of risk RWA. Under Basel III, this ratio began being progressively phased in at 3.5 percent from 1 January 2013, increasing to 4 percent from 1 January 2014, and 4.5 percent by 1 January 2015. Banks identified as D-SIBs by their national authorities will have to comply with the principles and phase in arrangements for the G-SIB framework by January 2016 with full implementation by January 2019 (BCBS 2012b, p. 2).

In the context of East Asia, the various G20 and FSB members (the PRC, Hong Kong, China, Indonesia, Japan, the Republic of Korea, and Singapore) have all committed to implementation of Basel III. At the same time, given the generally strong capital position across the banks of these jurisdictions, capital has been less of a concern than in Europe or the US. This is also generally the case for the more developed East Asian jurisdictions outside the G20 and FSB (that is, the balance of ASEAN5 including Malaysia, Thailand, and the Philippines, and the Executives’ Meeting of East Asian Pacific Central Banks). However, higher capital
requirements – and the equity market infrastructure and investor base to support them – are a major concern for the other developing East Asian economies.

3.1.4 Non-bank SIFIs
Capital and liquidity requirements also extend to non-bank SIFIs. The Joint Forum notes some underlying principles for supplementary capital and liquidity requirements relating to the supervision of financial conglomerates. First, financial conglomerate requirements are not to override or substitute capital adequacy and liquidity requirements for individual sectors such as the BCBS’s recommendations for the banking sector. Secondly, supplementary capital adequacy assessment is only necessary if group-wide capital adequacy is not addressed. Group-wide risks to capital adequacy include those sourced from unregulated entities within the group, excessive leverage sourced from the parent, and intra-group transfers of capital (Arnold et al. 2012, p. 3127). Finally, managing liquidity risks requires a combination of effective governance and management oversight, adequate policies, procedures, limits on risk taking, controlling liquidity risks, and strong management of information systems (BCBS-Joint Forum 2012, pp. 25, 30).

In East Asia, where domestic financial systems tend to be dominated by D-SIBs and where insurance markets tend to be less developed than in developed Western economies, the stability of insurance companies is of concern but less so that than of D-SIBs. At the same time, as insurance and other forms of non-bank finance (the subject of section 2) continue to grow rapidly across the region, these sorts of institutions will require increasing attention, particularly as they integrate within D-SIB, R-SIB, and G-SIB financial groups.

3.2 SIFI Resolution as Viable Option

One of the key regulatory failures raised by the global and Asian financial crises relates to the essential combination of prevention (through capital and other regulation) to be combined with appropriate mechanisms to address problems when they arise. The GFC in particular highlighted the lack of such mechanisms both in respect of D-SIFIs in individual jurisdictions and their global operations. Ideally, when a firm is no longer viable a timely and early resolution must be initiated before the firm is balance sheet insolvent (FSB 2013b, p. 38). Jurisdictions should undertake the necessary legal reforms where it is feasible for an SIFI to undertake resolution. The FSB argues that a resolution should be feasible without severe systemic disruptions and without exposing taxpayers to loss from solvency
support, while protecting vital economic functions through mechanisms which make it possible for shareholders and unsecured and uninsured creditors to absorb losses in a manner that respects the hierarchy of claims (FSB 2011b, p. 3, 2013b, p. 1; see also Edwards 2012, p. 140). To more effectively manage the resolution regime, the FSB (2013b, p. 29) recommends that each jurisdiction should have a designated resolution authority or authorities (see also Huepekse 2010, p. 219).

Generally SIFI resolution tools require sale and restructuring mechanisms to enable a viable SIFI resolution. The FSB (2011b, pp. 7–8, 2013b, pp. 40–41) recommends that the resolution authority is enabled to maintain a SIFI’s continual performance as an ongoing enterprise with essential economic and financial functions while maintaining the ability to sever and sell viable operations.19

Bail-in powers within resolution enable resolution authorities to absorb losses, recapitalize vital or viable parts of the firm, or capitalize a bridging entity to which these parts are transferred (for legal aspects of bank bail-ins, see Gleeson 2012, p. 5). Powers should be undertaken by resolution authorities with a view to maintaining continuity of systemically vital functions by either recapitalization or to capitalize a bridging entity to which systemically vital functions have been transferred (FSB 2011c, pp. 11–12, 36, 2013b, pp. 1, 3). The FSB (2013b, p. 3) states that contractual bail-in instruments or CoCos should enable the recapitalization of a firm in resolution or effective capitalization of a bridge institution through the write-down or termination of equity, debt, subordinated unsecured liabilities of a firm in resolution, and the conversion, or exchange of CoCos into or for equity generally.

In the Swiss example, a bank may issue CoCos under certain contingent conditions. These conditions would have been agreed upon by both parties prior to the conversion. During a financial crisis, the conversion of the debt capital to equity provides a buffer against financial loss, stabilizing the bank (Swiss Federal Department of Finance 2011, p. 19).

Measures taken by resolution authorities have to be flexible and tailored to each SIFI and their domestic and global activities (FSB 2012d, p. 15). The FSB (2013b, p. 23) proposes that resolution regimes should extend to any financial institution that could be systemically significant or critical if it failed including: financial conglomerates, their holding companies, and significant non-regulated conglomerate entities including foreign branches. Financial conglomerates should have a sufficiently transparent structure that promotes and enables prudent management aligned with sectoral requirements to ensure that recovery or resolution is not impeded (BCBS-Joint Forum 2012, pp. 9, 20).
3.2.1 Effective cross-border co-ordination mechanisms

In 2009, the G20 member states assigned the FSB to set guidelines for the most systemically important cross-border firms as well as to support contingency planning for cross-border crisis management. In 2010, the FSB (2010, p. 4) proposed that legal mandates should fully oblige resolution authorities to seek co-operation and information sharing with foreign resolution authorities and eliminate legal provisions that hamper fair cross-border resolution such as preferential domestic depositor treatment (see also Edwards 2012, p. 123). A key attribute under the FSB (2013b, p. 86) 2013 resolution regime suggests that domestic resolution powers should support a resolution instigated by a foreign authority only in circumstances where the domestic jurisdiction’s financial stability is not under threat. Further, any statutory cross-border co-operation framework should not be so prescriptive as to deprive jurisdictions of the flexibility to achieve domestic stability. Systematically important financial institutions should be subject to a legally binding institution-specific cooperation agreement between home and host resolution authorities that establishes objectives, defines roles and responsibilities of authorities pre-crisis, and set outs the processes for coordination including agreed procedures (FSB 2013b, p. 100).

3.2.2 Recovery and resolution planning

Systematically important financial institution recovery and resolution plans (RRPs) – sometimes referred to as ‘living wills’ – provide a summary of key recovery and resolution strategies and an operation plan for their implementation which at a minimum should cover D-SIFIs (FSB 2011b, p. 37, 2013b, p. 109). Decisions by host jurisdictions under an RRP must consider the domestic systemic significance of hosted foreign institutions, whether a branch or subsidiary (FSB 2010, p. 5, 2013b, p. 115). The lack of an RRP was particularly evident from the failure of Lehman Brothers as there was no statutory framework in the US that prescribed an RRP or a plan to deal with the resolution of non-bank SIFIs in home and host jurisdictions.

The Swiss RRP (emergency plan), unlike other ‘living wills’, does not only become effective after difficulties have already arisen, but is meant to be a preventive and precautionary measure that helps maintain systemically relevant services when an institution’s insolvency is impending and conceivable (Swiss Federal Department of Finance 2013, p. 1).

Recovery plans include measures for addressing capital shortfalls and liquidity pressures, creditable recovery options to deal with a range of stresses covering both idiosyncratic and market-wide stress and clearly defined backstops and escalation procedures that would trigger the plan
Resolution plans facilitate financial and economic functions for which continuity is critical, suitable resolution options to preserve those functions or wind them down in an orderly manner, data requirements, potential barriers and actions to mitigate those barriers, actions to protect insured depositors, and clear options and principles for exit of the resolution process (FSB 2013b, p. 113).

The FSB (2013b, p. 111, 2011c, p. 17) argues that resolvability assessments and RRP s are mutually dependent because RRP s should use the conclusions of the resolvability assessment as a base to develop a plan to identify actions to make D-SIFIs resolvable. A separate resolvability assessment is needed for each SIFI, as firms differ greatly in their corporate structure and mix of activities. During the GFC, there were very few SIFIs that could be effectively resolved in an orderly and expeditious manner given the powers of domestic authorities, lack of legal capacity for domestic authorities to cooperate, and SIFIs’ complex structures and activities (FSB 2011c, pp. 16–17). Systematically important financial institutions that consist of multiple significant entities should maintain and share information on a legal entity basis, minimize intra-group guarantees, provide that document service agreements cannot be abrogated by services providers in resolution, and support and cooperate with resolution actions taken in other jurisdictions (FSB 2010, p. 5, 2013b, p. 97). Group resolvability assessments, including subsidiaries, are to be conducted by the home authority and coordinated with the firm’s crisis management group (consisting of supervisory agencies, central banks, resolution authorities, finance ministries and other relevant public authorities) taking into account national assessments (FSB 2013b, pp. 96, 106).

3.3 Strengthening SIFI Supervision

In East Asia, every country must have a proactive supervisory system that ensures regulations are backed up by effective SIFI risk assessment and enforcement to reduce the impact of potential stresses on financial institutions and therefore the financial system as a whole (FSB 2010, p. 7). Fundamentally, the FSB (2012c, p. 1) observed that to overcome the pre-GFC weaknesses, supervision of SIFIs has to become more intensive, proactive, effective, and reliable by focusing on outcomes. The Basel Core Principles apply to the supervision of all banks and banking groups with the expectation on supervisors that SIBs will be subject to a higher degree of supervision commensurate with their risk profile and systemic importance (BCBS 2013b, p. 3, 2012a, p. 5). This applies to the economies of East Asia, whether developed, emerging, or developing.
3.3.1 Mandates, independence, and resources
The BCBS recommends that supervisors should have the power to increase the prudential requirements for individual banks and banking groups based on their risk profile and systemic importance (BCBS 2012a, pp. 21–2). A legal framework should mandate the supervisors with clear responsibilities and objectives so that the system of supervision can be effective. Therefore, it is also necessary that the regulation and prudential standards are updated and amended should a changing market environment require it. If there is more than one authority responsible for supervision in any given area, co-ordination between these two bodies becomes crucial.

Looking at the example of Switzerland, on 23 February 2010, Switzerland’s SNB and FINMA, both of which are responsible under a mandate for surveying the SIBs, signed a Memorandum of Understanding concerning financial stability. The SNB monitors large-scale developments in the banking sector (macroeconomic level), with FINMA monitoring individual financial institutions (microeconomic level). These regulatory agencies work together to assess the soundness of SIBs coordinating their actions in common areas of supervision. Generally, information and opinions are exchanged concerning the soundness of the SIBs (FINMA and SNB 2010, p. 4). Pursuant to the Memorandum of Understanding, these two bodies coordinate their respective actions.

3.3.2 Supervisory powers
A full arsenal of powers and tools for effective supervision includes increased liquidity requirements, large exposure limits, and additional capital (FSB 2011a, pp. 19, 25). This subsection focuses on the recommendations of the improved techniques that have a substantive impact on regulatory structural design. Improved techniques include inter alia, business model analysis, product analysis, and risk management. The FSB (2011a, p. 25) has identified that supervisors need to determine whether their frameworks focus too much on processes and not enough on outcomes.

Supervisors need to understand a SIFI’s risk appetite, economic drivers of profitability, operational infrastructure, product risk, and funding structure. A system-wide perspective to challenge SIFI’s risk controls and the implications of potential failure has been prioritized by the FSB (2012c, p. 1). The Joint Forum (BSBC-Joint Forum 2012, pp. 9, 33) has argued that supervision of financial conglomerates requires awareness of the entirety of the business model including the risks posed by unregulated entities and products.

One way to effectively challenge SIFI’s underlying assumptions is by
putting in place a risk appetite framework (RAF) consistent with its business model. The RAF should be embedded into the culture of the firm, establish a process for communicating RAF across the firm, be driven by both top-down and bottom-up involvement, act as a brake against excessive risk-taking, allow for a risk appetite statement to promote discussion, be adaptable to changing business and market conditions, cover the overall risk profile and appetite of the SIFI, implement policies, procedures, strategic planning, and have the ability to aggregate risk data (FSB 2011a, p. 10, 2012c, p. 11, 2013d, pp. 3–4). Risk management of SIBs has been partially addressed under Basel III and SIFI recommendations more generally through stress tests, but relying solely on the outcomes of risk models and not the effectiveness of those models may lead supervisors to a false sense of security which could result in failure (FSB 2012c, p. 17). A risk function must be able to challenge the financial conglomerate’s business lines while remaining independent to review broader risk management controls, processes, and systems (BCBS-Joint Forum 2012, pp. 33–4).

3.3.3 Continuous and comprehensive supervision
The Joint Forum (BCBS-Joint Forum 2012, pp.31–2) recommends that a SIFI supervisor must identify, assess, and mitigate any emerging risks across banks and the banking system and communicate its findings to banks or industry by maintaining sufficiently frequent contacts with the bank’s board, executive, and management as appropriate. Comprehensive supervision of financial conglomerates is facilitated by the appointment of a single group-level supervisor that carries out consolidated supervision over the head or largest part of the financial conglomerate (BCBS-Joint Forum September 2012, pp.12–13).24

3.3.4 Macro-prudential surveillance
Challenges still remain regarding macro-prudential instruments integrating with micro-prudential supervision (Weber 2010, p.701; FSB 2011a, p.17; Osiński et al. 2013, p.5). To better position supervisors in proactively addressing any threats to the stability of the banking system, the FSB (2012c, p.6) recommends that the supervisory approach should be forward-looking. In this regard the BCBS (2012a, pp.10, 29; see also Lastra 2011, p.198) has introduced essential criteria, which should be exercised proportionate with an SIB’s systemic importance.

3.3.5 Group-wide supervision, consolidated supervision, and supervisory colleges
The BCBS (October 2006, pp.38–9) has long promoted that domestic authorities supervise banking groups on a consolidated basis and enhance
their familiarity with the overall structure and domestic material activities, review overall activities of the banking group, and have a framework to evaluate the risks posed by non-banking activities. Following the GFC, the BCBS (2012b, p. 9) has stated that the same loss absorbency requirements shall apply, ceteris paribus, in order to mitigate the potential systemic impact of the failure on the domestic economy.

A home supervisor should establish bank-specific supervisory colleges for banking groups with material cross-border operations, taking into account the risk profile and systemic importance to co-ordinate and co-operate on the appropriate higher loss absorbency requirement between home and host authorities (BCBS October 2012, pp. 10, 37; D'Hulster 2011, p. 17). In Switzerland, FINMA is required to have access to cross-border information and it enhances its cooperation with foreign supervisory authorities by entering into corresponding agreements.

In the context of financial conglomerates the Joint Forum (BCBS-Joint Forum September 2012, p. 13) recommends that supervisors are to establish co-ordination arrangements that enable effective group-wide supervision including appropriate information sharing, participation in supervisory colleges, co-operating in on-site and off-site supervision and stress testing, and taking enforcement actions.

3.4 Lessons and Recommendations

The FSB and BCBS state that SIFIs should be subject to higher loss absorbency, including SIBs and D-SIBs, primarily based upon capital adequacy exceeding Basel III Common Equity (Tier 1) calibrated to a SIFI’s systemic importance. In this context, the aim of increasing loss absorbency is to maintain the SIFI’s solvency in times of stress. Such an approach therefore has a balance sheet focus. Various instruments have been employed to maintain solvency, most notably CoCos, which have the effect of manipulating a SIFI’s balance sheet by converting debt to equity. Increasing liquidity requirements is an off-balance sheet approach to maintaining solvency beyond common equity (Tier 1). Analogous to the capital adequacy approach, SIFI liquidity requirements are to exceed Basel III. Increased liquidity requirements address times when market or asset funding is scarce that may place a SIFI’s solvency in doubt. Both of these approaches are targeted at SIBs as they reflect the higher risks of the banking business model. Therefore, it is recommended that a structure will be well suited to supervising the FSB’s increased loss absorbency if the banking supervisor’s regulatory perimeter reflects the SIB’s business model, capturing all its risks. One outcome of these higher standards is that they provide an incentive to divest non-bank business lines, reducing
a SIB's systemic importance and therefore the level of prescribed capital adequacy or liquidity beyond Basel III. This outcome will not affect the abovementioned advantage of effective increased loss absorbency supervision of a banking supervisor. However, this outcome presumes that by divesting certain non-banking business lines a SIB will decrease its systemic importance. It is recommended that the supervisor in such circumstances undertake a comprehensive review of the SIB's loss absorbency to calibrate new capital adequacy and liquidity requirements that accurately reflect the risks of the entity and its activities.

The Joint Forum addresses this issue by recommending supplementary capital adequacy and liquidity across a financial conglomerate from a group-wide perspective. Because every SIFI has a unique risk profile, this perspective is necessary as a ‘one size fits all’ supervisory approach would provide an incentive to pursue regulatory arbitrage in order to reduce these requirements, undermining a SIFI’s loss absorbency and resulting in a buildup of unregulated risks that could spread contagiously and destabilize the financial system. This is a major disadvantage of a regulator subject to a rigid regulatory perimeter. It is recommended that a cross-sectoral approach be introduced to reduce the incident of regulatory arbitrage and mitigate the potential buildup of systemic risks.

If the additional capital adequacy and liquidity recommendations beyond Basel III are struggling to maintain the viability of a SIFI, a timely and early resolution must be initiated before the firm is balance-sheet insolvent. As stated previously, the principal objective of the SIFI’s resolution is not to expose taxpayers to loss while protecting the SIFI’s vital economic (systemic) functions. A designated resolution authority should be assigned to manage this task. To best manage this task the resolution authority requires tools that enable the sale or restructuring of whole or part of the SIFI to maintain its continual performance with essential economic functions. Convertible contingent capitals are one tool that facilitates this mechanism. This also illustrates the overlap between increasing loss absorbency and undertaking an early resolution in order to maintain the economic functions of a SIFI. Therefore a resolution authority that focuses on SIBs should reflect the banking regulator or the banking regulations to facilitate this overlap. The diversity of the economic functions of SIFI financial conglomerates necessitates resolution authorities to instigate a flexible and tailored approach to their domestic and global systemic activities. An RRP provides a summary of key recovery and resolution strategies and an operation plan that includes essential and systemically important functions. Resolvability assessments complement the RRP as they identify resolution actions. Each SIFI, such as financial conglomerates, requires a separate resolvability assessment to allow for its different
Addressing systemic risk in East Asia

economic functions. It is therefore recommended that a jurisdiction characterized by this model and a high incident of SIFI financial conglomerates appoint an integrated or collective resolution authority to facilitate different economic functions. In contrast to a resolution authority that reflects a rigid regulatory perimeter, an integrated or collective resolution authority will enable a flexible and tailored supervisory approach to more effectively manage both domestic and global systemic risks.

To effectively strengthen SIFI supervision, supervisors need powers to increase prudential requirements based on their systemic importance. For financial conglomerates this involves coordinating and communicating with supervisors across financial sectors to identify and understand systemic risks within and across the group. Again, overlap with the framework to increase loss absorbency from a systemic perspective is the focus of a supervisor’s extensive arsenal of powers and tools. Such frameworks should be centered on outcomes not processes when analyzing business models and products. Basel III only partially addresses the risk management for SIBs and financial conglomerates through stress tests which may provide inaccurate or uncertain results. A SIFI supervisor must be able to identify, assess, and mitigate any emerging systemic risks across banks and the financial system. Therefore, it is recommended that the regulator’s regulatory perimeter encapsulates both a micro-prudential and macro-prudential perspective to more effectively evaluate the SIFI’s systemic importance. This point is of particular importance for financial conglomerates and cross-border activities, as the supervisor must be able to appreciate the SIFI’s systemic importance by coordinating and cooperating appropriate higher loss absorbency requirement between home and host authorities.

4 SHADOW BANKING

The shadow banking system provides both credit outside the normal banking system and support to regulated banking institutions and other non-bank financial institutions engaged in bank-like activities. Links between the shadow banking system and the regulated financial system can transmit and spread systemic risks to the broader economy. Adrian and Ashcraft (2012, p. 1) argued that the recent GFC demonstrated that the global shadow banking system has grown to such critical levels that the financial stability of not only national economies but also the international economy can come under threat.

As non-bank institutions may contribute to SIB-like systemic risk, the FSB has been tasked by the G20 to address this issue. The next section
focuses on the FSB’s supervisory recommendations addressing shadow banking issues. As the risks of shadow banking may arise in the context of securitization, the G20 and FSB mandated IOSCO to analyze the risks to securities markets and to produce a set of recommendations. Following this the subsequent section illuminates the related IOSCO recommendations.

The ‘shadow banking system’ is broadly defined by the FSB (2013e, p.iv) as: ‘credit intermediation involving entities and activities (fully or partially) outside the regular banking system’ or non-bank credit intermediation in short.

Credit intermediation in this context encapsulates entities and activities (fully or partially) involved in extending credit outside the regular banking system (FSB 2013c, p.ii).

Shadow banking entities and transactions can create bank-like risks to undermine financial stability, sourced from their business model reflecting that of traditional banks – extending long-term credit, short-term funding, maturity mismatch between this credit extension and funding, and high leverage. Maturity mismatch and high leverage can strain liquidity creating feedback transmissions, heighten procyclicality and generate contagion thereby transmitting and possibly amplifying systemic risks giving rise to financial instability (FSB August 2013e, p.iv).

4.1 FSB Shadow Banking Approach

The FSB (2013c, p.ii) describes its shadow banking policy objective as: ‘to ensure that shadow banking is subject to appropriate oversight and regulation to address bank-like risks to financial stability emerging outside the regular banking system while not inhibiting sustainable non-bank financing models that do not pose such risks’.

A practical two-pronged policy process is being employed to target non-bank credit intermediation, which has the potential to generate bank-like systemic risks, by identifying and defining the shadow banking system through: the creation of an enhanced system-wide monitoring framework; and strengthening regulation through five related policy areas (FSB 2013e, p.1).

4.1.1 Enhanced system-wide monitoring framework

To assess sources of exogenous and endogenous systemic risks pertaining to the traditionally regulated banking system, enhanced system-wide monitoring thorough data gathering and surveillance of all non-bank credit intermediation has begun to be analyzed by supervisors in a number of jurisdictions (FSB 2013e, p.2). However, there has been little take-up in East Asia to date. In 2012 macro- (systemic) mapping was
conducted by the FSB (2012b, p.4) to monitor non-bank financial entities and activities. The FSB (2011e, p.6) describes the objective of macro-mapping as providing an estimate of financial assets in the shadow banking system and the size of the regular banking system, to detect potential vulnerabilities.

This analysis, in the context of the East Asian G20 and FSB members raised a number of concerns regarding shadow banking. In particular, Hong Kong, China, and Singapore have among the largest\(^2\) shadow banking systems in the world, with Hong Kong, China having the largest shadow banking sector among the jurisdictions surveyed, and Singapore having the fourth largest (FSB 2013g). Beyond these two global financial centers, both the Republic of Korea and Japan have significant shadow banking sectors. In addition, China (in particular) and Indonesia were seeing very rapid growth in shadow banking. In the context of China, shadow banking has been growing at a very rapid rate and now accounts for a significant portion of financial sector activity. As a result, it is clear that – although East Asia does not have shadow banking of the sort seen in the US and the UK in particular prior to the GFC, with its combination of securitization, derivatives and off-balance sheet vehicles – East Asia does have significant and growing shadow banking activities. At the same time, particularly compared with developed Western countries, data on non-bank finance in East Asia are far less accessible, comprehensive and reliable. Thus, the first step – enhanced monitoring – poses one of the greatest challenges in East Asia, a situation very different from that among developed Western economies.

### 4.1.2 Strengthening regulation

The second step narrows this focus to some subsets of non-bank credit intermediation involving developments that increase systemic risks such as maturity and liquidity transformation, imperfect credit risk transfer, leverage, and/or regulatory arbitrage that is undermining the benefits of financial regulation (FSB 2013e, p.3). Five areas of oversight which have been identified that need strengthening by the FSB (2013b, p.1) to mitigate potential systemic risks are: interactions between banks and shadow banks; reducing the susceptibility of money market fund runs; improving transparency and aligning incentives in securitization; dampening procyclicality, and financial stability risks notably those posed by shadow banking entities and activities. In conjunction with the BCBS, five overarching aims that should guide these regulatory areas of oversight are: focus, proportionality, forward-looking and adaptable, effectiveness, and assessment and review (FSB 2013e, p.12). The FSB (FSB 2013e, p.12) recommends that externalities and risks created by shadow banking require
regulatory measures to be carefully (focus) designed and implemented in an effective manner domestically and internationally, proportionate to the risks posed to the financial system, that are forward-looking and adaptable to emerging risks, with the effectiveness of regulatory measures to be regularly assessed and reviewed after implementation and adjusted where necessary.

In this context these principles provide an essential outline for East Asian jurisdictions seeking to appropriately address the risks raised by shadow banking activities in their financial systems. In particular, only from the basis of comprehensive analysis of the sorts of activities actually taking place in their financial systems can East Asian jurisdictions form a view of the risks potentially raised and the appropriate regulatory responses required.

4.2 FSB Policy Areas

4.2.1 Interactions between banking entities and shadow banking entities
Basel III strengthens the banking sector against risks from the shadow banking sector through increased capital requirements pertaining to re-securitization exposures, liquidity facilities provided to securitization vehicles, regulated financial institutions greater or equal to US$100 billion, unregulated financial institutions, Pillar 2 (securitization risk, reputational risk, and implicit risk), and Pillar 3 disclosure requirements (FSB 2012b, p. 5).

4.2.2 Assessing and mitigating systemic risks posed by shadow banking entities
Because of non-bank financial entities’ high degree of heterogeneity and diversity the FSB (2013e, p. 13) has adopted an activities based approach judged against underlying economic functions. Policy tools are being developed to mitigate shadow banking systemic risks emanating from each of these economic functions. These tools are to be applied across jurisdictions to all entities regardless of their legal form (FSB 2013e, p. 13). When applying the policy tools authorities should adopt four overarching principles: defining the regulatory perimeter; collecting information to assess risks; enhance disclosure to help market participants understand risks; and assessing non-bank financial entities based on the economic functions taking necessary actions drawing on tools from the policy toolkit (FSB 2013e, p. 13). Common themes across the economic functions’ policy tools were the implementation of prudential regulations; capital requirements; liquidity buffers; asset concentration limits; and leverage limits that are analogous to those imposed on banks under Basel III.
Loan provision that is dependent on short-term funding  Entities engaging in this provision of shadow banking credit focus on specific financing sectors that can create heightened risk of contagion and systemic risks if those sectors are cyclical in nature. Non-bank entities include: deposit-taking non-bank institutions; finance companies who are dependent on funding from parent companies in cyclical financial sectors; and non-bank finance companies whose funding is heavily dependent on banks (FSB 2012a, p.7).

The FSB (2013e, p.18) argues that because bank-like entities operate under the same business model as banks they produce the same risks as banks, including susceptibility to runs – especially in wholesale markets – from exposure to long-term assets. Further, the FSB (2013e, p.18) asserts that this business model should be subject to prudential bank-like regulations to mitigate these risks, although they may prove less effective when entities do not accept deposits or have a material exposure to long-term assets. Such bank-like regulations should involve Basel III-like capital requirements, liquidity buffers, leverage limits, limits on large exposures, and restrictions of liabilities to effectively manage credit risks and reduce procyclicality (FSB 2013e, pp.17–18). The FSB (2013e, pp.17–18) recommends that capital instruments require sufficient loss absorbency, liquidity buffers should address maturity/liquidity transformation to counteract potential stress from reputation reasons, leverage limits apply where entities (for example, SIFIs) pose a threat to financial stability, limits on large exposures subject to maturity/liquidity transformation or leverage from asset concentrations, and restrict liabilities such as asset backed commercial paper to reduce run risks. Balanced with appropriate risk management, these regulatory tools assist in the mitigation of SIFIs’ transmitting and amplifying systemic risks.

Facilitation of credit creation  Credit enhancements, such as CDSs, financial guarantees, and financial insurance, facilitate credit creation and are integral to credit intermediation (FSB 2013e, p.9). When non-bank intermediaries engage in credit enhancement that is not commensurate with the risk profile of the borrower, it can excessively increase leverage, procyclicality, and systemic instability. The FSB (2013e, p.10) argues that entities which insure or guarantee financial products may be prone to ‘runs’ if funding is dependent on wholesale or short-term funding markets, for example, mortgage insurance may cause systemic disruption if risks are excessive or not appropriately reflected in the funding costs.

Capital is crucial for entities that provide CDSs, financial guarantees, and financial insurance. To reduce excessive leverage, products should be priced to reflect risk and issuing entities require sufficient long-term capital
to cover potential losses. This capital should be calibrated to be countercyclical, take jurisdiction specific characteristics, and reduce cross-border regulatory arbitrage (FSB 2012a, p. 18). The FSB (2012a, pp. 19–20) argues that sufficient liquidity buffers for both normal and stressed times should be adopted to mitigate the incident of ‘runs’.30

4.2.3 Securitization
Securitization is a valuable financing technique that efficiently diversifies risk and contributes to economic growth by providing bank-like long-term finance sourced from short-term funds. Unlike traditional banking finance, securitization transfers long-term credit risks to non-bank investors. During the GFC, the IOSCO (2012a, p. 8) and the FSB (2012b, p. 10) observed that this transfer mechanism led to risk concentrations and misaligned incentives, and encouraged a rapid and undetectable build-up of leverage and maturity mismatching.

Securitization can promote procyclicality and create regulatory arbitrage (FSB 2012b, p. 21). The FSB (2013e, p. 21) asserts that where securitization vehicles are used as funding channels there should be restrictions on maturity and liquidity transformation, and on the liquidity requirements between the securities issued and the underlying pool of assets. Further, to reduce excessive leverage and liquidity transformation, restrictions on the quality of eligible capital should be imposed so that collateral is highly liquid to neutralize losses from counterparty non-performance or default (FSB 2013e, p. 22).

The FSB recommends mandated risk retention in securitized products to better align incentives between securitizes and investors. This should be underpinned by originators and sponsors taking long term economic exposures. The IOSCO (2012a, pp. 27, 48–49) recommends that where mandated in legislation these incentives are to clearly set out elements underpinned by regulation and/or guidance including obligations imposed with permitted and exempted forms of risk retention. Risk retention builds upon enhanced disclosure requirements of underlying assets, flows of funds (waterfall) and structure performance (IOSCO 2012b, p. 2).

The IOSCO (2012b, p. 1) states that the underlying reasoning behind enhanced disclosure is that it reduces the reliance on credit rating agencies. Investors should be able to assess the risks or conduct credit analysis in underlying loans within pools of securitized assets. Effective risk assessment and credit analysis can be achieved through various modelling tools. Standardized asset level templates enable investors to analyze and compare information through the use of modelling tools. The IOSCO (2012a, pp. 35, 42–43) advises that the quality of securitized products can
be assessed from originator underwriting practice information throughout the life of the transaction.

4.2.4 Credit default swaps
During the GFC, CDSs provided contractual connections between bank and non-bank entities that transmitted and amplified systemic risks between both regulated and unregulated entities. The IOSCO (2012a, p. 36) concluded that to manage and mitigate CDS credit risks, based on FSB and International Derivative and Swap Association (IDSA) recommendations, standardized contracts, centralized clearing parties, electronic processing, and making publicly available large amounts of data are requisite.

4.3 Lessons and Recommendations
Shadow banks share the same risks as regulated banks, thereby generating the transmission and amplification of systemic risks causing instability in the financial system and a nation’s economy as a whole. To assess these risks the FSB has recommended enhanced monitoring of shadow banking and strengthening the supervision of non-bank entities and activities. Basel III in particular has been designed to heighten the banking sector’s resilience to systemic risks emanating from the shadow banking sector. Non-bank financial entities are subject to an activities-based regulatory approach judged against economic functions utilizing the Basel III framework. Therefore, capital adequacy and liquidity requirements that apply to banks will also have to be applied to shadow banking institutions that are undertaking bank-like activities.

When securitization is used as shadow banking funding channels, Basel III-type requirements should be imposed on capital adequacy and liquidity to reduce systemic counterparty risks. Furthermore, mandated risk retention should be imposed on originators over a long-term time horizon to align their interests with investors. In this regard, disclosure is important to reduce investor’s reliance on credit rating agencies so that they can independently assess risks. Information garnered from standardization, modeling tools, and originator underwriting practices facilitate this investor analysis and the assessment of CDS credit risks. Therefore, it is recommended that the banking regulator also oversees the reinterpretation of the Basel III framework applicable to the shadow banking sector because the risks, including systemic risks, are analogous to the banking sector.

Credit enhancements, such as CDSs offered by shadow banks, can result in those institutions being subject to ‘runs’ like banks, increase systemic disruptions and instability, and heighten procyclicality within the
financial system. Therefore, the pricing of CDSs and Basel III prudential regulations should be commensurate and calibrated to their potential systemic risks to cover any potential losses. This will require both a national jurisdictional and cross-border perspective. To more effectively manage ambiguous products such as CDSs, it is recommended that a cross-sectoral approach to supervision should be undertaken to mitigate systemic risks.

In the context of East Asia, where the sort of shadow banking that was common prior to the GFC is less well developed, the general concerns are the same, albeit the context is very different. In particular, in East Asia, the primary need is to have a full understanding of all the sorts of financial activities and institutions in order to adequately address the potential risks raised from a regulatory standpoint. In particular, this highlights the need to have in place appropriately designed regulatory systems.

5 CONCLUSION

This chapter has focused on the challenges of designing appropriate financial regulatory systems in East Asia, looking to the lessons from experiences in the global, Eurozone, and Asian financial crises. The chapter discussed the various options for financial regulatory structure and their advantages and disadvantages from the perspective of addressing SIFIs and shadow banking. It has focused on issues respecting SIFIs and their regulation and resolution, particularly the sorts of D-SIBs common across East Asia, as well as the challenges of shadow banking.

In the context of East Asia, with its various levels of financial development, the starting point in addressing SIFIs, shadow banking and regulatory structure – the overall design of the financial regulatory system – is a comprehensive analysis of the structure of the existing financial system, focusing on its main elements and characteristics. This analysis underpins adequate identification of potential risks, especially potential systemic risks, and is necessary in order to determine whether the design of the regulatory system is comprehensive and effective. In this respect, the most direct approach may well be an external review, such as an IMF–World Bank Financial System Stability Assessment as part of the IMF–World Bank Financial Sector Assessment Program (FSAP), now required of all G20 and FSB members. At the same time, for many jurisdictions, an internal assessment – perhaps assisted by an international development institution such as the ADB – may be a more appropriate first step, in order to identify major issues prior to an FSAP. An internal review and/or FSAP, however, is by no means the end of the process and in fact only provides the essential material necessary for the development of a financial sector.
development strategy, focusing on necessary infrastructure to support financial sector development and stability.

NOTES

1. In relation to the efforts of the G20 see Weber (2013, p. 393).
2. ASEAN + 3 refers to the ten member countries of the ASEAN plus the PRC, Japan, and the Republic of Korea.
3. For a discussion of EU and Eurozone reforms, see Chapter 10 in this volume.
4. For an overview see Swiss Federal Department of Finance (2013).
5. Sections 4 and 6, Financial Services Act 2012.
6. See Table 6.1.
7. For a detailed discussion of major models and their implementation in various jurisdictions, see Arner and Lin (2003). This analytical division is generally used outside the US as well as by the IMF. For an alternative framework of analysis (adopted in the US), see G30 (2008). Under the G30–US framework, there are also four models: (1) functional, (2) institutional, (3) Twin Peaks, and (4) integrated. Under this framework, the functional model is largely equivalent to the more generally-used sectoral model. The institutional model is largely equivalent to the more generally used functional model. The integrated and Twin Peaks models are equivalent in both the US–G30 and international–IMF formulations. The G30–US framework does not have an equivalent to the international–IMF functional approach. To further complicate matters, in its recent review of regulatory reform options, the US Treasury suggested there are four main options: (1) institutionally based functional regulation (the current US model), (2) activities-based functional regulation (a model based on regulators assigned specific functions within the financial system), (3) consolidated regulation (the model in the UK), and (4) objectives-based regulation (the model in Australia). As a result, the definition of that terminology being used is of significant importance in this context. See US Department of the Treasury (2008).
8. For a detailed discussion, see Barth et al. (2006). The US regulatory system is exceptionally complex and this complexity and resulting overlaps and gaps in jurisdiction are now regarded as significant contributors to the subprime crisis. See US Department of the Treasury (2008).
11. In Australia, the Reserve Bank of Australia (RBA) as the central bank is responsible for monetary policy and financial stability, the Australian Prudential Regulatory Agency (APRA) is responsible for regulating the safety and soundness of all significant financial institutions, the Australian Securities and Investments Commission is responsible for market conduct and financial product regulation, and the Australian Competition Commission is responsible for competition and antitrust. Canada’s regulatory structure consists of: the Bank of Canada — Canada’s central bank responsible for monetary policy and financial stability; the Office of the Superintendent of Financial Institutions which is the federal prudential and conduct regulator responsible for supervising all federally charted licensed or registered banks and federally incorporated financial institutions, including deposit-taking institutions, trust companies, loan companies, pension plans, insurance companies, cooperative credit companies, and fraternal benefit societies; and the Financial Consumer Agency of Canada is the financial services consumer protection agency. Securities regulation is currently undertaken at the provincial level, although there are moves to create a federal securities regulator subject to provincial consent and cooperation.
13. The FSB describes G-SIFIs in terms analogous to the SIFI description: 'institutions of such size, market importance, and global interconnectedness that their distress or failure would cause a significant dislocation in the global financial system and adverse economic consequences across a range of countries' (FSB 2010, p. 2). Thus from the FSB’s G-SIFI description, a D-SIFI or R-SIFI description can be derived as: institutions of such size, market importance, and interconnectedness that their distress or failure would cause a significant dislocation in the domestic and regional financial system and adverse domestic and regional economic consequences, which could spill over into the global financial system and global economy.
14. In this chapter, SIFI is used to refer to systemically important financial institutions, while SIB is used where the explanation applies specifically to banks.
15. Assessment methodology was developed by the BCBS.
16. Meanwhile the implementation of this framework has made substantial progress: for example, methodologies for assessing the G-SIBs have been designated; enhanced supervision is being implemented; issues concerning the core financial market infrastructure have been addressed. For details see FSB (2013f, p.2).
17. Common Equity (Tier 1) fundamentally consists of common shares and retained earnings.
18. See, for example, the Key Loss Absorbency Features of Contingent Capital Instruments for Credit Suisse and UBS in: Bono et al. (2012, p. 2).
19. Furthermore, the resolution authority must be able to: remove, replace, recover monies and claw-back remuneration of senior management and directors; appoint administrators to take control and manage whole or part of the firm; operate, resolve, restructure and wind-up the firm including powers over contracts, assets, and debt; requiring companies within the same group, any successor or acquiring entity to continue to provide essential services, or provide these services to a successor or acquiring entity, or procure these services from an unaffiliated third party; override shareholder rights to restructure the business and dispose of assets or liabilities; transfer or sell assets, liabilities, legal rights and obligations; establish a temporary bridge institution; establish a separate asset management vehicle; carry out bail-in within resolution; temporarily stay the exercise of early termination rights; impose a moratorium with a suspension of payments to unsecured creditors and customers and a stay on creditor actions, collect money or property from the firm; and effect the closure and orderly winding-up of whole or part of a failing firm.
20. For example: depository priority rules within resolution that trigger preferential treatment to domestic depositors over foreign branch depositors or are triggered by official intervention and/or the initiation of resolution or insolvency proceedings in a foreign jurisdiction that favors preferential domestic treatment.
21. When exercising discretionary national action the resolution authority should consult and assess the impact of its resolution on financial stability (FSB 2013b, p.86).
22. ‘Living Will is a recovery and resolution plan drawn up ex ante with the purpose of using it if a bank gets into difficulties’ (Avgouleas et al. 2013, p. 210).
23. In particular blanket guarantees.
24. Roles and responsibilities of each supervisor should reflect the structure of the financial conglomerate, the characteristics of the regulated and unregulated entities, the presence and dominance in financial sectors, the location of entities, and the location of markets in which it operates.
25. Emphasis is placed on information sharing between supervisory colleges and home/host supervisors.
27. In terms of coordination mechanisms, communication between supervisors should ensure that all cross-sectoral and cross-border positions are exposed.
28. Largest here refers to a jurisdiction’s shadow banking sector in comparison to its GDP.
29. This involves international consistency to avoid creating cross-border arbitrage while considering differences across jurisdictions and between financial systems.
30. Further tools include enhanced risk management practices to capture adverse economic circumstances and events, and mandatory risk-sharing between insurer/guarantor and insured/guaranteed to proportionately share losses and to ensure careful scrutiny of the risk profile of the underlying borrower, but not in a manner that increases credit risk.

REFERENCES


Basel Committee on Banking Supervision – Joint Forum (BCBS-Joint Forum)
Global shock, risks, and Asian financial reform


Financial Stability Board (2011d), ‘Policy measures to address systemically impor-


Financial Stability Board (2013g), ‘Global shadow banking monitoring report
Global shock, risks, and Asian financial reform


Addressing systemic risk in East Asia


7. Financial innovation and development in East Asia: balancing risks and opportunities

Ross P. Buckley, Douglas W. Arner and Michael Panton

1 INTRODUCTION

In the two decades prior to 2007, financial innovation was viewed in most countries as a desirable objective worthy of policy support. Institutional development was particularly encouraged, specifically, law reform, deregulation, and financial liberalization. During this period, finance in Asia was generally viewed as suffering from a lack of innovation, with repressed markets and an underdeveloped institutional infrastructure, particularly in the realm of law and regulation.

Since 2007 and the onset of the global and Eurozone financial crises, the general view of financial innovation has become much more nuanced. Financial innovation is no longer seen as universally desirable, particularly as many innovations of the preceding decades played a central role in the global financial crisis. Financial systems that had previously been characterized as suffering from excessive regulation and insufficient innovation, such as those of Canada and Australia, performed far better during the crisis than the highly innovative financial systems in the UK and the US. Likewise, while the financial systems of East Asia had been viewed as insufficiently innovative, they suffered relatively minor financial crises by comparison to the US and Western Europe. As a result, views of financial innovation have changed significantly in a short period of time.

This chapter considers the role of financial innovation in the past, present and future development of East Asia. It begins with the question of whether East Asia can, in fact, be characterized historically as suffering from a lack of financial innovation. While East Asia has certainly been the source of many significant financial innovations historically, it is most commonly seen as lacking innovation in the period since the Second World War. We argue that this characterization is not entirely accurate and that
East Asia has continued to innovate in finance during this period. At the same time, perhaps one of its most important innovations has been an approach to finance that is both cautious and focused primarily on supporting real economic activity, particularly in the wake of the Asian financial crisis of 1997–98. This approach (pragmatism and caution as regards financial innovation) is largely responsible for the region’s resilience during the global and Eurozone financial crises.

From this background, we consider financial innovation in East Asia’s future development. Given that finance in the individual economies of the region tends to be dominated by large domestic banks, which often focus their lending on large firms, there is a clear need for alternative sources of funding. This is the area where financial innovation matters most for East Asia in the future. Specifically, we identify five areas where East Asia needs to focus on supporting innovation in order to maintain financial stability and also support economic growth and development: mortgage markets, trade finance, small and medium enterprise (SME) finance, non-bank finance, and mobile financial services. In each of these areas, innovation based on local circumstances and need is vital to support financial stability and growth across the region.

2 FINANCIAL INNOVATION IN EAST ASIA’S DEVELOPMENT

Finance in East Asia is frequently characterized as having always lacked innovation, particularly by financial market professionals (Liu et al. 2013, ch. 7). Under this characterization, East Asia has been a ‘taker’ of finance from the West, usually receiving financial innovations third-hand after their development in the US and successful spread to Western Europe. Only at that point have Western financial institutions and professionals exported successful techniques to East Asia in search of new opportunities for profit.

2.1 Financial Innovation in Asia’s Early Development

We argue that historically, and particularly prior to the Industrial Revolution in Western Europe, the characterization of Asia as not financially innovative was inaccurate. In fact, Asia was the source of some of the most significant historical financial innovations. Examples of important early financial innovations from Asia and the Middle East include marine insurance and ship finance from the Phoenicians (and arguable early forms of venture capital and corporations), agricultural futures and paper currency from the People’s Republic of China (PRC), group lending
and insurance pools (common across the region and probably originating from the PRC), and bills of exchange, hawala\(^1\) and covered bonds from the Islamic world and the Ottoman Empire. As such, it is clearly incorrect to suggest that Asia (including East Asia) has always suffered from a lack of financial innovation and has always been a taker of financial innovations from Western markets. In fact, many of these innovations which originated in Asia are central to the institutional framework which supported and funded the Industrial Revolution in Western Europe (Parthasarathi 2011).

The question then becomes whether, in the post-war period, Asia has lacked financial innovation? Once again, we would argue that the prevalent characterization is wrongheaded. In looking at the second half of the twentieth century, Asia has been the source of a number of significant financial innovations. Three examples warrant particular attention: the developmental state, microfinance, and Islamic finance; all of which are important Asian financial innovations.

The model of the developmental state, pioneered by Japan and exported across the region, is characterized by repression of finance to mobilize financial resources to support export industries and thus economic growth and development (Liu et al. 2013, chs 1–2). There are very significant limitations to the model, particularly as economies reach higher levels of development and fuller integration with the global economy and financial system. This has been highlighted dramatically by Japan’s two-decade financial malaise and the Asian financial crisis. Nevertheless, the model has been vital to the region’s successful development. Likewise, the centrality of finance to the model is clearly an innovation and a very successful and influential one, albeit one with important limitations.

Microfinance emerged from Bangladesh as an Asian innovation and has spread around the world. It is one of the most influential developments in finance in the past 30 years. The focus microfinance puts on lending small amounts to the poor to support economic activity and its use of a range of social techniques (such as group lending) to ensure repayment is an innovation clearly related to the actual conditions and needs in the region. Likewise, the region, particularly Malaysia and Pakistan, has contributed greatly to innovations involving Islamic finance, which have been exported across Asia and also to Western markets (Aziz 2013; Kuo 2009).

In addition, other areas of Asia-Pacific financial innovation include pensions (where Australia and Singapore are world leaders), stored value cards/e-money (where innovations in Hong Kong, China have spread around the world), and Internet and mobile banking and financial services (where developed East Asia leads the world).

While Asia has not generated as much innovation in the past 70 years as North America and Western Europe, the region has nonetheless produced
globally significant financial innovations that have contributed to real economic growth and development. It is thus clearly incorrect to characterize finance in Asia as lacking innovation.

2.2 The Limits of Innovation

In an era of globalization and highly interdependent markets, finance matters. From the most advanced leading economies to emerging and developing nations, finance is viewed as a vehicle for development and economic stability. Supported by a growing body of literature, a consensus exists that a well-functioning financial sector is a primary driver of growth.

At the same time, finance – as emphatically demonstrated by the Asian, global and Eurozone financial crises – is not without its risks. These crises have raised important questions about the limits of financial innovation and development. Jeanneney and Kpodar (2008, p. 3) argue that ‘financial development helps reduce poverty indirectly by stimulating growth and directly by facilitating transactions and allowing the poor to benefit from financial services (primarily savings products) that increase their income . . . and enhance their ability to undertake profitable . . . activities’. However, they conclude that during some stages financial development may ‘demonstrably undermine poverty reduction because the poor are generally more vulnerable than the rich to unstable and malfunctioning financial institutions’ (ibid.). Thus increases in financial development and activity, and moves to more open markets may, in some countries, increase the disparity between the rich and the poor and positively harm the poor (Arestis and Caner 2004; Buckley and Arner 2011).

While finance is important in the process of industrialization, an unbridled financial sector does not necessarily lead to continuing economic growth and prosperity. In Paul Volcker’s words, ‘I wish that somebody would give me some shred of neutral evidence about the relationship between financial innovation recently and the growth of the economy, just one shred of information’ (Murray 2009).²

While in our view this position is too extreme, at the same time, post-crisis research does indicate that in finance more is not necessarily better. In an important recent study, Cecchetti and Kharroubi (2012) examined the impact of finance on growth and development at the aggregate level and found that mature sophisticated economies get to a point where greater volumes and sophistication in banking, credit, and other financial tools become associated with lower economic growth. They found that because the finance sector competes with other sectors for scarce resources
and, in contrast to the common misconception, rapid growth of finance can have an adverse impact on aggregate real growth. Essentially, rapid growth of a financial sector can serve as a drag on an economy and shift resource allocation and distribution in sub-optimal ways (Cecchetti and Kharroubi 2012).

Finance in the most advanced nations today utilizes increasingly sophisticated and complex financial products, which are not always transparent and are often difficult to source and assess. Meanwhile, developing states continue their integration into the global markets while being challenged by capacity and governance issues. This is the context for our examination of the benefits of increased financial activity and its likely impact on long-term economic development. This also highlights East Asia’s most important financial innovation since the Asian financial crisis: a pragmatic and cautious approach to financial innovation and development, focusing not on encouraging innovation for innovation’s sake, but rather seeking to support the needs of the real economy through financial stability and economic growth.

3 FINANCIAL INNOVATION IN EAST ASIA’S FUTURE

Today’s financial innovations are largely a by-product of financial liberalization, which itself was a response to the financial repression of the 1970s and 1980s in many developing countries. Financial repression included state ownership of financial institutions, government control, distortion of interest rate pricing, and capital controls to restrict asset transfers. Such measures came to be seen as questionable given their poor financial and economic results, inefficient allocation of resources, and high costs, especially associated with the proliferation of non-performing loans (NPLs). Globalization thus supported the move to financial liberalization (World Bank 2005).

Liberalization involves the broad deregulation of financial markets (Kaminsky and Schmukler 2003). This is typically accompanied by easier and faster capital flows, decreased regulatory scrutiny, and an increase in the types of financial instruments used or traded. Liberalization tends to lead to increasingly creative and innovative financial products that feed investors’ demands for higher yields (FCIC 2011). In the wake of the increasing frequency of cross-border financial crises over the past four decades, questions have emerged concerning the relationships between liberalization, economic development and risk. In moving away from financial repression, liberalization – and the rise of privatization that is
associated with it – is often thought to be a significant driver of economic expansion and higher long-run growth.4

While many assert a positive correlation between financial liberalization and growth, the empirical literature is decidedly divided. Critics have found that external liberalization is more prone to producing instability in developing countries, and generates financial fragility that can often have severe recessionary consequences (Rancierre et al. 2006; Wyplosz 2002). Further, Glick and Hutchinson (2001) found a tendency towards banking and currency crises following financial liberalization. Thus, while financial liberalization promotes growth more than does a repressed economy, it also increases market uncertainty and the chances of severely damaging crises.

When financial liberalization is used to promote economic development, measures must be taken to limit instability in markets and the risk of financial crises. In developing nations, where premature liberalization before a strong prudential regulatory structure is in place it can lead to destabilized markets and crises (Arestis and Glickman 2002; Buckley 2001). Without adequate regulation and supervision, as Arestis and Caner (2004) have shown, financial institutions tend to take excessive risks.

These are lessons that East Asia learned directly from the Asian financial crisis – a decade prior to the global and Eurozone financial crises. In East Asia, the Asian financial crisis triggered a rethinking of both the developmental state model and the then prevailing model of financial liberalization. The result was a synthesis focusing on maintaining financial stability and supporting economic growth. Since the Asian financial crisis, finance in the region has been treated pragmatically rather than relying excessively upon market-focused theoretical approaches. Arguably, this approach to finance largely explains why the major financial centres in the region (Hong Kong, China, Singapore, and Tokyo) suffered so much less from the global financial crisis than their major Western competitors (London, New York, Frankfurt, and Zurich).

This approach was a major innovation in financial regulation and all the more remarkable as it was dramatically against the prevailing wisdom. It is an innovation that regulators and policymakers from around the world have increasingly looked towards in the wake of the global and Eurozone financial crises. This is arguably East Asia’s most important financial innovation in the past 15 years and it should be accorded a high profile. Given the significant Asian membership of the G20 and the Financial Stability Board, and the region’s relative success in the area of financial regulation over the past 15 years, there are important opportunities for the region to lead global approaches to financial regulation.

East Asia’s financial systems span a wide range of development levels, from world-class international financial centres to primitive financial
Global shock, risks, and Asian financial reform

systems. It is thus difficult to address concerns regionally. Nonetheless, looking to the future, East Asia should continue to adopt its pragmatic approach to financial innovation, seeking to balance financial stability and economic growth with market enhancing policies and institutional reforms.

Identifying financial limitations across the region will help to identify areas in which innovation should be encouraged. We have identified five areas that we believe should be of central concern for financial stability and economic growth: trade finance, mortgage markets, non-bank finance, SME finance, and mobile financial services.

4 TRADE FINANCE

International trade enhances efficiency and competitiveness within economies and promotes their economic development. Trade finance is essential to support trade, and the region that finances more trade than any other is East Asia. Some 80–90 percent of trade transactions are supported by some form of credit financing (Auboin 2009b). Finance for international trade transactions is important for leading nations, and particularly critical for developing and emerging markets, where both exporters and importers may be severely constrained by limited working capital.

4.1 The Global Financial Crisis: Impact on Trade Finance

The global financial crisis sparked a substantial worldwide shortfall in trade finance in a global market estimated at US$10–12 trillion a year (Auboin 2009a; Auboin and Engemann 2013). The effects of this contraction were markedly different in different regions (Ho 2008). South Asia, the Republic of Korea and the PRC were particularly affected, with the PRC experiencing a double-digit decline in the availability of trade finance during 2008 (Liu and Duval 2009). The G20 responded with its ‘trade finance package’ in April 2009, which ensured the availability of US$250 billion to support trade finance over a two-year period (Auboin and Engemann 2013). The package provided a much-needed boost, and financiers worldwide responded to the package by making substantially more finance available for trade.

The G20 package ended in 2011. Trade finance market conditions improved continuously over the two-year period up to this time, with falling prices and increasing volumes of transactions, albeit with some volatility around an upward trend (Auboin and Engemann 2013). However,
recovery has not been even across all countries and gaps in trade finance persist.

4.2 Europe’s Withdrawal of Trade Finance to Asia

Efforts to address the Asian trade finance gap have been hampered by the ongoing economic crisis in Europe. European banks that traditionally provided trade finance facilities in East Asia have severely limited their extensions of credit so as to improve their capital ratios (Ito and Adam 2011). Since 2008, the proportion of international credit provided by Eurozone and Swiss banks to emerging Asia-Pacific economies has fallen from 38 percent to 19 percent of the region’s trade credit (Van Rixtel and Upper 2012). This retreat has led to a dramatic increase in trade finance prices in Asian markets (Bainbridge 2012).

The reduction in trade finance by European banks has left a funding gap at a time of increasing demand for finance in Asia. In 2011, a US$1 billion trade contract between the US and the PRC could not proceed owing to the lack of trade finance (UNCTAD 2012). In the year prior to January 2013, Chinese exports grew by 25 percent, imports climbed by 28.8 percent (Turner and Kumar 2013), and the demand for trade finance products increased correspondingly (WTO 2012).

Japanese banks have stepped in to cover much of the trade finance gap left by the European banks, dramatically increasing their share of large-ticket, regional trade finance volumes from 6 percent in 2010 to 54 percent in the first quarter of 2012 (Morgan Stanley Research 2012). As a result, Japan became the largest provider of trade finance globally in 2012, with reported trade finance volumes of US$16.8 billion (Global Trade Review 2013).

Despite Japanese and other nations’ banks stepping in, there is still a trade finance shortfall in East Asia today, which is serious given the critical role finance plays in facilitating trade. The shortfall particularly affects our region as a higher proportion of trade is financed in East Asia than other regions: more than 80 percent of trade letters of credit are issued in Asia (Bainbridge 2012).

As well as a simple shortfall of finance, Asian companies have complained that the cost of trade finance is rising, probably owing to the growing pricing power exerted by the few banks in the region willing to extend trade credit (Guerrera 2012). While the top 40 institutions represented 95 percent of the Asian trade finance market in 2011, only 20 remained in the market for Asian trade finance in 2012 (Morgan Stanley Research 2012).
4.3 Basel III

Apart from the retreat of European banks, the largest challenge on the horizon lies in the implementation of Basel III. While the regulation aims to establish a level playing field across borders, Basel III is based on Western experiences and its implementation will not have the same impact worldwide (Nakao 2013). Basel III’s requirement of larger capital holdings against trade transactions could slow trade financing in emerging and developing economies in the Asian region by substantially raising transaction costs and discouraging trade financing, thereby exacerbating the trade finance shortage in the region (Baldwin 2012; Elliot 2013).5

Most experts expected that Basel III would considerably increase trade finance pricing worldwide if implemented in its original form (Bainbridge 2012). After two years of intense pressure from the banking industry, the Basel Committee on Banking Supervision modified the liquidity coverage ratio for trade finance products in January 2013 and delayed its full implementation until 2019 (Enrich et al. 2013). The decision to relax the Liquidity Coverage Ratio (LCR) has been regarded by the industry as positive, however the longer-term impact of Basel III is still likely to increase the cost of financing trade.

4.4 Potential Responses

Further adjustments to the Basel III rules
Trade finance rates of default and loss have historically been very low, even during crises. Data collected by the International Chamber of Commerce (ICC) Trade Finance Register between 2008 and 2010 observed fewer than 3000 defaults in a full dataset of 11.4 million transactions (Senechal 2011). The data collected determined the probability of loss as just 0.02 percent in a period of global economic turmoil (Vaghela 2012).

The proposed Basel III rules do not come close to reflecting this very low level of risk involved in trade finance. At present, there is no differentiation between trade finance and other forms of financing in credit conversion factors (CCFs) for calculating the leverage ratio (Chitkara and Woolner 2013). The current rules require banks to apply a CCF of 100 percent for all off-balance sheet items when calculating a leverage ratio (Neville 2012). This is unnecessary given that the objective of the leverage ratio is to prevent the buildup of excessive leverage in the banking sector and yet, as trade finance is underpinned by the movement of goods and services, it does not lead to the sort of leveraging that may endanger real economic activity (BAFT-IFSA 2011) but actually supports the real economy.

The leverage ratio in its current form does not reflect market realities
and will significantly limit banks’ ability to provide affordable financing to businesses in developing countries and SMEs in developed countries (Senechal 2011). The ICC has identified numerous ways the leverage ratio proposed by Basel III could adversely affect global trade and growth (Senechal 2011). Examples include encouraging the use of high-risk financial products, increasing the cost of trade, and limiting banks’ ability to provide affordable financing to businesses in developing countries.

At present, Basel III also uses a standard asset value correlation (AVC) for corporate banking, which applies to all sources of credit risk exposure. The rule is based on the assumption that such exposures present greater systemic risks or default correlations than others (Chitkara and Woolner 2013). This assumption ignores the fact that trade finance rates of default are dramatically lower than the rates of default in other banking sectors.

While Basel III subjects corporate banking to a blanket AVC, consumer banking is granted several product-specific default curves (Chitkara and Woolner 2013). Corporate banking products should likewise be distinguished from one another to accurately reflect their level of risk. Applying a standard AVC is likely to increase the cost of providing trade finance, and may prompt smaller banks to pursue other, more profitable areas of banking. This could particularly affect emerging markets.

Recent changes to the LCR under Basel III came about after sustained pressure from the trade finance industry (Enrich et al. 2013). At present, making further changes to the rules may be difficult for the Basel Committee given public sentiment towards banks. Furthermore, the Basel Committee is faced with the challenge that concessions for one type of financing may encourage others to make such claims (Chitkara and Woolner 2013). Nevertheless, statistical information demonstrates that trade finance is far less risky than other forms of finance and provides a strong case for the industry to continue lobbying the Basel Committee to modify the Basel III rules. Without changes to the leverage ratio and the AVC, it is highly likely that the price of trade finance will increase, with damaging consequences for trade and growth globally, and particularly in East Asia.

**Deepening cross-border cooperation**

Deepening regional cooperation on trade finance would be beneficial to all parties (Liu and Duval 2009). By pooling resources and expertise, our region would be better equipped to tackle bottlenecks in trade financing (Liu and Duval 2009). The cost of providing trade finance would also likely decrease (UNCTAD 2012). Cooperation within the region would reduce reliance on foreign finance, which tends to be heavily procyclical and often destabilizing (UNCTAD 2012), as is seen in the current trade finance gap caused by the retreat of European banks from Asia.
As the Eurozone crisis continues, it is likely that European banks will continue to withdraw credit from our region. Strengthening the regional network of export–import banks and development finance institutions within Asia, and entering into agreements to extend credit to each other in local currencies, would greatly assist our region. Deepening cross-border cooperation within Asia will reduce the cost of trade finance within the region, tackle current trade finance bottlenecks, and help to insulate Asian economies from the crisis in Europe.

Creating a ring-fenced liquidity pool for trade finance

Since the global financial crisis, banks have become more risk averse and prefer to work with large, sound multinational firms (Chauffour and Malouche 2011). SMEs and new exporters have been especially vulnerable to the tightening trade finance conditions as they typically have a weaker capital base and bargaining power in relation to global buyers and banks (Chauffour and Malouche 2011). Firms in developing countries with underdeveloped financial systems and weak contractual enforcement systems are particularly affected by a lack of affordable trade finance as they need it the most (Chauffour and Malouche 2011).

Establishing a small, targeted liquidity pool run by international financial institutions would be useful to assist smaller segments of the market that are more vulnerable to the contraction of trade credit (Auboin 2009a). After the global financial crisis, much of the increased liquidity support provided by central banks was used to ease money market conditions and improve liquidity ratios (Auboin and Engemann 2013). As a result, trade transactions did not benefit greatly from the liquidity support. Creating a ring-fenced liquidity pool for trade finance would ensure that adequate funds remain available to assist trade by SMEs and new exporters, even during times of crises when banks may prefer to direct funds elsewhere.

For banks, the downside to ring-fencing is that liquidity is prevented from being used for other purposes at times when the other purposes might be more pressing (Vaghela 2011). Large cross-border banking groups benefit from the efficiency of holding liquidity centrally and directing it to locations where it is most needed (Vaghela 2011). This process is more cost-effective than ring-fencing liquidity (Vaghela 2011). Nonetheless, any disadvantages of a ring-fenced liquidity pool for trade finance would be far outweighed by the benefit of ensuring that trade finance is still available for SMEs and new exporters when economic crises occur and trade finance conditions tighten. The global financial architecture needs to reflect that the finance of trade is probably the most important form of finance for the real economy.
Encouraging co-finance between the various providers of trade finance, including public sector-backed institutions

The majority of trade finance is provided by the private sector. In 2009, private banks accounted for about 80 percent of all trade finance (Lamy 2009). Such reliance on banks leaves trading firms vulnerable in times of crisis, as we have seen with the recent drop in trade credit provided to Asia by European banks. To reduce the impact of crises on trade finance flows, public sector actors, such as export credit agencies (ECAs) and the Regional Development Bank (RDB), should share some of the private sector risk (Auboin 2009a).

Mobilizing private and public-sector institutions to form a partnership during times of crisis would ensure that institutions with excess capacities had an opportunity to meet the needs of those with insufficient funds (Auboin and Engemann 2013). However, co-financing between the two sectors need not only be limited in times of crisis. Longer-term cooperation would help to close the structural market gaps in our region and reduce the impact of any future financial crises on the availability of trade finance (Auboin and Engemann 2013).

Establishing a regional trade finance database to facilitate the collection and exchange of information

Filling information gaps between public and private institutions is of great importance, particularly during times of economic crisis. The ICC Trade Register established by the ICC and the Asian Development Bank (ADB) in 2009 was a significant step towards increasing trade finance information. So far, the database has recorded over 15 million transactions worldwide, reflecting 70 percent of global transactions (ICC 2012). It is currently the most comprehensive data available on trade and export finance (ICC 2012). Nevertheless, the register only records data provided from participating banks (ICC 2012). Within East Asia, much more information is needed as to how SMEs, in particular, finance their trade and the challenges they face.

The ICC Trade Register is crucial for the development of trade finance policy, however it does not provide stakeholders with up-to-date information about the type and amount of trade finance being provided at the present time. In times of crisis, such information is needed to allow trade finance institutions to respond rapidly.

In order to address gaps in trade finance information, a regional database should be created that disseminates relevant information to both public and private institutions, such as the development of programs by ECAs. Such a database should include all trade finance stakeholders within the Asian region, not just commercial banks. It is important that
the information gap between the public and private sectors is filled so that both sectors can respond quickly when shortfalls in trade finance arise.

5 MORTGAGE MARKETS

Mortgage market development varies greatly across the Asian region. Figure 7.1 shows the extent of mortgage market development in selected Asian economies in 2006, before the crisis (Chiquier 2006). At that time, Hong Kong, China’s mortgage markets (unsurprisingly in light of recent events) had already developed the most – standing at about 50 percent of GDP and 25 percent of overall lending. At the other end of the spectrum, mortgage markets in Indonesia represented only about 3 percent of GDP.

In virtually every developed economy, mortgage financing supports housing markets. However, its effect varies in different domestic financial sectors. The PRC’s mortgage finance market, for example, eclipses mortgage markets in the rest of Asia. Yet the Chinese mortgage market remains but a fraction of the size of the US market. The PRC’s housing loans to GDP ratio stands at about 16 percent, while US ratios peaked at about 80 percent (Wagner 2010). Government supply of housing, and purchasing using pooled family resources, explains the PRC’s housing loans to GDP ratio.

In most developed economies, strong housing markets underpin and correlate with robust economic growth. A strong housing market also creates jobs (Schnurr 2012; Spicer and Schnurr 2012). In Hong Kong, China, rapid housing sector development has not correlated with vigorous growth in gross metropolitan product. In Singapore, on the other hand, the Singaporean mortgage market is relatively small, but it is growing rapidly. In fact, Singapore’s mortgage market is one of the largest in the world, with mortgage loans to GDP ratio standing at about 16 percent.

Source: Chiquier (2006).

Figure 7.1 Size of residential mortgage debt in 2005 in selected Asian economies
hand, highly developed banking and equity markets (along with associated legal and regulatory infrastructures) have helped support sustained growth in housing finance markets (Zhu 2006). Nevertheless, Singapore’s active mortgage market makes the city-state more vulnerable to an overheated and overpriced market. Japan possesses Asia’s second largest mortgage market, and the most sophisticated mortgage financing market. With mortgage-to-GDP ratios of approximately 40 percent, the reliance of Japan’s financial markets on mortgage-generated returns cannot be underestimated. Such dependence on mortgage-backed finance has led the Japanese economy to heights and depths that are all too familiar.

In developing economies, the relationship between mortgage finance and economic growth is murkier. Housing prices in the PRC continue to rise at an alarming rate, in spite of the relatively small size of the residential finance market. The Chinese government and many investment analysts fear that the Chinese housing market may resemble that of Japan in the 1970s (Hessian 2012). However, Ozeki (2009) points out that while Japan’s economy had matured by the 1980s, the PRC’s economy still possesses enormous upside growth potential. The PRC’s young demographic profile will continue to drive the demand for new housing for the foreseeable future.

In Southeast Asia, the link between mortgage markets and economic growth also remains relatively unclear. In India, the mortgage finance market represents about 8 percent of GDP at US$104 billion (Thakur and Anthony 2012). India’s mortgage industry remains at a nascent stage, and mortgage markets should grow by 15 percent annually, to achieve a mortgage to GDP level of 13 percent within the next five years (Thakur and Anthony 2012). The migration of professionals to major cities such as Mumbai and Bangalore continues to support such growth. In a population averse to debt, the average mortgage loan repayment duration stands at about 13 years (EmKay Global Financial Services 2012). In Thailand, the housing market is supported by a strong land registry system in place for more than a century. The registration system has evolved to being able to facilitate land title transfers extremely quickly and efficiently (often in less than a day), and can easily be navigated without the need for a lawyer or a real estate agent (Prachuabmoh 2010). The home financing market is very competitive, and there has been a recent lowering of interest rates to help stimulate home ownership for first-time buyers (ASEAN Free Trade Area Sources 2012).

Mortgage markets in developing parts of Southeast Asia remain very small. In Indonesia, few homebuyers take out mortgages, as purchasers traditionally pay cash for their residences (Kolesnikov-Jessop 2009). Housing markets appear to have flourished nevertheless, although lack
of credit finance has tended to keep home prices low. In Viet Nam and Cambodia, mortgage markets do not yet play a significant role in supporting the housing markets. That is expected to change, particularly in Viet Nam as its economy continues to evolve.

Urban migration has supported the need for (and development of) housing markets across Asia. By 2030, 50–55 percent of Asian people are expected to reside in urban regions (UNPD 2001). Urbanization will continue to underpin the importance of the housing market and housing finance for low and middle-income families. As such, stable housing markets and mortgage markets that finance home purchases remain vitally important.

5.1 The Mixed Reform of Housing-related Lending in Asia

The Financial Stability Board’s (FSB) guidelines on mortgage underwriting serve as a useful starting point in deciding whether various Asian countries have the regulatory institutions in place to provide for pro-development outcomes and manage the risks to the financial sector concomitant with mortgage finance (FSB 2012a). These principles include effective verification of income and other financial information, reasonable debt service coverage, appropriate loan-to-value ratios, effective collateral management, prudent use of mortgage insurance, and effective supervisory powers and tools.

Differences in regulations designed to maintain appropriate loan-to-value ratios represent an important illustration of the way that financial regulation can balance development needs and financial risks. The Republic of Korea represents a positive example. The Financial Supervisory Service (FSS) targeted loan-to-value requirements for certain zoning areas in particular, and applied different maximum levels to various zones (Se 2013). Korean regulators then changed these requirements counter-cyclically in response to changes in the economy. The Republic of Korea’s financial regulators coordinated with other government departments to ensure that loan-to-value requirements served the broader interests of regional development and other policy objectives. As a result of such targeted policies, housing price-to-income ratios rose by only 7 percent in the Republic of Korea between 2000 and 2007. In contrast, these ratios rose more than 30 percent in a range of OECD countries (Igan and Kang 2011). Such an example shows how dynamic mortgage regulations can strike a balance between development and risk-management needs better than a fixed policy-rule.

The Hong Kong, China case shows how regulators may need to constantly adjust their mortgage underwriting rules. In Hong Kong, China, housing prices have risen 73 percent over the past three years (Hong
Kong Property Review 2013), yet the city’s GDP grew only 1.8 percent in 2012 (IMF 2012). This has caused the authorities to question the sustainability of current high property prices. In response, the Hong Kong Monetary Authority (HKMA) instituted its fifth round of property market measures – including tightening the maximum debt servicing limit and capping home loan amounts in an effort to cool the overpriced residential property market. Economists expect these measures to cut Hong Kong, China’s mortgage lending by 25 percent to HK$171.3 billion ($22.1 billion), which would return the market to levels approaching those in 2007 (Chen 2012). Nonetheless, the market remains overpriced (Yung 2012).

Indian policymaking shows the opposite extreme – how slow-moving and contradictory regulation can limit development and increase systemic risk (Campbell et al. 2012). Urban housing has failed to keep up with rapidly expanding demand for residential housing owing to failures in land and housing laws, and mortgage finance laws. Inappropriate formal institutions governing the supply of land and real estate have resulted in high transaction costs, fragmented markets, tenuous approval processes for building, and low mortgage rates.

Prudential regulation in India has adjusted slowly to the rapidly evolving demand for housing. First, changes to formal institutions have allowed for broader changes in the risks and returns to mortgage finance. Easier recovery reduced risks for financial institutions and transferred some of those risks to borrowers. Instead of the previous quantitative restrictions placed on lending, Indian mortgage finance institutions allowed lenders and borrowers to take greater risks – but price those risks themselves. Second, changes in formal institutions have led to changes in informal institutions. The ‘rules of the game’ of mortgage lending have clearly changed – as informal norms have encouraged a large increase in mortgage lending. Mortgage lending as a percentage of GDP has increased fourfold from 2008 to 2012. Third, Indian institutions – despite their adaptation – have remained ‘sticky’. In contrast to India’s waves of mortgage-related reform, regulators in jurisdictions such as Hong Kong, China and Singapore reform their regulations often, responding to housing market needs and macroeconomic developments. Such Indian ‘stickiness’ (in academic terms, institutional rigidity) has kept mortgage-finance at too low a level to supply enough housing to meet existing needs.

5.2 Financial Crises and Mortgage Financing

Given the role of asset securitization in the US subprime crisis, a key area for housing finance reforms has been to ensure the retention of a degree of originator interest in securitized loans. Securitization enabled loan
originators to quickly move loans from their balance sheets. This created the moral hazard of originators having no stake in the quality of the loans being written (Selody and Woodman 2009). Mandating the retention of a permanent stake in a portion of the credit risk is likely to improve the quality of loans originated.

An important way forward for East Asia is the enhancement of institutional and legal frameworks that will support the development of a robust mortgage finance market (Arner et al. 2007). These institutional frameworks include property rights, effective enforcement mechanisms, and regulatory regimes (Torstensson 1994).

5.3 Moving Forward

Policymakers in many Asian countries have adopted policies that encourage mortgage finance of residential housing and other real estate. Such credit creation deepens domestic financial markets, encourages access to residential housing, and has multiplier effects in the construction, consumer goods and other industries. The potential of such reforms to underpin further economic growth is large in many of Asia’s middle-income economies. However, as US and EU experience shows, linkages between mortgage finance and derivative assets (such as mortgage based securities) can create substantial systemic risk.

Most countries are pursuing mortgage finance reform as part of a larger effort to strengthen their financial markets. In developing Asia, market reforms have mostly been orientated toward strengthening core areas, meeting international standards, and increasing prudential regulatory capacity, with less focus on reforming domestic mortgage finance markets. With housing clearly being a primary factor in domestic economic development, greater efforts must be undertaken regionally to initiate reforms that protect lenders and borrowers, and facilitate flows to finance transactions. Regulatory reform efforts in the housing finance sector must strike a balance between advancing homeownership, which supports the domestic economy, and preventing an inflated real estate bubble, which harms consumers and remains a real risk in a number of Asian countries.

Asian countries would do well to concentrate on following the advice in the FSB Guidelines. At one extreme, the overzealous establishment of income ceilings and checks on that income can restrict the flow of funds into residential housing. At the other extreme, lax regulations can encourage banks to over lend to classes of borrowers who cannot repay. East Asian nations are generally seeking to strengthen their legal, institutional and policy foundations, and this may well be the most useful contribution that can be made to mortgage finance reform. Perhaps the primary focus
to promote mortgage markets in our region should be upon the strength of their foundations, much as it is when one is building a home.

6 SME AND NON-BANK FINANCE

Most of the region’s financial systems are characterized by a small number of domestically large banks (Weber and Arner 2007). Large domestic banks are often quite effective at funding government and large corporations. However, they tend to be less effective in funding other forms of economic activity. At the same time, while equity markets across the region are likewise at varying levels of development, as a general matter, equity markets are effective across the more developed economies in the region in supporting large enterprises. Finally, while bond markets were underdeveloped at the time of the Asian financial crisis, now they are generally functional across the more developed economies in the region. Bond markets likewise; though these tend to be most effective in funding government and large enterprises. Thus, there is a particular need in the region to focus on innovation in supporting provision of finance other than to governments and large firms, and particularly to SMEs.

6.1 The Challenge of SME Finance

In many ways, SME finance is one of the more significant aspects of financial development for supporting the real economy and growth. It has also been among the more difficult to achieve. The important role SMEs play at the domestic and international levels is well documented. At the same time, SMEs face a variety of financial challenges in Asian economies. While factors such as inflation and exchange rate fluctuations affect SMEs to a far greater extent than their larger corporate counterparts, the largest single challenge for an SME in a developing economy is securing a bank as a funding source (Schiffer and Weder 2001). A report by the World Bank (2008) showed few SMEs had a formal bank loan (only about 20 percent in the PRC, 30 percent in Russia, and 55 percent in India). The number of SMEs within those countries that had not applied for loans was very high. For instance, of SMEs without a bank loan in the PRC, 85 percent had never applied for one (World Bank 2008). Likewise in India, 96 percent of SMEs without a loan had never sought one (World Bank 2008). Accessing finance is disproportionately more difficult for SMEs in developing countries. The International Finance Corporation (IFC) found in 2011 that some 41 percent of SMEs in least developed countries (LDCs) cited a lack of finance as a major constraint on their growth and development,
compared with 30 percent in middle-income countries, and 15 percent in the most advanced high-income countries (IFC 2011).

The early stages of SME growth and evolution are particularly critical. Businesses are financially at their most vulnerable during their launch and early growth stages. During the early stages of development, SMEs do not typically have formal funding options and instead rely heavily on self-funded and internal sources. This most often includes savings of principals or, less commonly, funding through the sale or pledging of privately owned assets (rare in developing economies). When self-funding has been exhausted, the availability of external sources of funding often becomes the factor limiting the firms’ growth and productivity (Beck et al. 2005).

The lack of funding may stem from a number of factors, such as a lack of legislation supporting credit and allowing security interests to be created in the types of collateral that SMEs typically have. Underdeveloped or unenforceable property rights, or weak banking and institutional structures, may also further inhibit funding options.

Small and medium-sized enterprises in developing and emerging economies are faced with bias within the formal banking sector, where banks prefer to limit their exposure to risk by lending to large corporations and governments, rather than to small business entities, effectively squeezing SMEs out of the loan market. When SMEs are able to secure formal funding through a bank, they are often subjected to inordinately high interest rates or overly burdensome terms. Nevertheless, a recent report by the IFC and McKinsey found that traditional banks are still the most important source of formal external financing for SMEs (Stein et al. 2010). This, in large part, is because capital market access is very difficult for SMEs. This is the case even in developed nations and is even more so in developing ones where capital markets are usually unsophisticated and underdeveloped.

The financial climate became considerably more challenging for SMEs during the recent global financial crisis, when SMEs had fewer options than their larger, more internationally integrated counterparts. Higher interest rates and increased collateral requirements were but some of the tightened credit conditions SMEs faced. The subsequent recovery has been globally uneven and sector sensitive in much of the world. For example, the requirements of Basel III are likely to have an impact on SMEs more than some other borrowers. The extent of the impact will depend on how a country and its institutions implement the Basel reforms and international standards pertaining to banking supervision and capital requirements (Gottschalk 2007). Various Basel requirements could discourage formal banks from lending to the SME sector, exacerbating the already precarious
position of SMEs in accessing formal bank finance. This will have a significant impact on how SMEs perform and evolve.

The primary need of SMEs is for improved access to finance from the bank and non-bank sectors. Commentators often focus on the need to develop local capital markets but the highly developed institutional infrastructure needed for capital markets to function makes their development a major challenge. Furthermore, the high transaction costs associated with equity and bond issuances means that capital markets are not well adapted to meet the financing needs of SMEs. Governments should thus focus on expanding access to bank and non-bank credit.

Access to finance can be facilitated by expanding bank services in rural areas, where a large number of SMEs are located. For instance, India initiated a program between 1977 and 1990 which mandated that when a commercial bank wanted to open a branch in a primary location where it already had branches, it was required to open four branches in locations where it had no branches. This was based on the premise that commercial financial service providers needed incentives to move into underserved areas. In a later evaluation, it was found that the ‘1:4 rule’ was largely beneficial in providing increased banking presence in rural areas, and led to an increase in rural credit. While there were problems related to subsidized interest rates and larger than normal loan losses, the program was perceived as successful in expanding access to finance for SMEs and lowering the rate of poverty in the areas under study (World Bank 2008).

Expanding the physical presence of formal banks has generally been found to increase the use of banking services by the formerly unbanked.

Improving the secured transaction regime can significantly enhance SME finance options by reducing the risk for lenders (UNICITRAL 2007). Small and medium-sized enterprises typically do not have the types of assets that most readily serve as adequate collateral – immovable assets. To help facilitate SME growth, a secured transaction regime that can accommodate a broader range of assets is required (de la Campa 2010). Expanding the range of acceptable collateral has been correlated with enhanced economic growth and stability (Djankov et al. 2005).

Small and medium-sized enterprises’ access to finance can also be greatly increased through the expansion and utilization of leasing and factoring (the discount purchasing of account receivables). Factoring depends on the financial condition of the obligor, not the SME. It generates credit from the SME’s normal business operations rather than from the creditworthiness of the SME. Reverse factoring is particularly well suited where contract law is weak and credit information is unavailable or inaccurate. Leasing is also highly advantageous to SMEs in that it secures credit by giving the financier ownership of the leased equipment.
While various types of leasing and factoring strategies are employed in advanced nations, they are still greatly underutilized in developing economies (Klapper 2006). This is due primarily to weaker legal and regulatory regimes in developing countries. Small and medium-sized enterprises in the developing world will thus benefit greatly from programs which strengthen their nation’s legal and regulatory regimes, and introduce effective secured transaction regimes.

Finally, there is a bias within the traditional banking sector which makes it more difficult for SMEs to secure loans. The banking industry often perceives SMEs to be unstable, particularly in developing economies. This perception can be exacerbated by a lack of sound financial information about the loan applicant and by the fact that small transactions are generally more expensive to service for banking institutions. For SMEs to flourish, a change in how they are perceived by the banking industry is required. The state may need to incentivize lenders (as the Indian government did in the above example) to encourage them to offer their financial services to a wider market. Small and medium-sized enterprises can, with assistance, become valuable bank customers.

An important first step towards improving SMEs’ access to capital markets would be decreasing the fees associated with going public. Simplified listing and disclosure requirements for SMEs would also allow for increased participation.

To expand access to finance for SMEs, some jurisdictions have created SME stock exchanges or separate trading platforms that cater to the specific needs of SMEs. These dedicated stock exchanges or ‘junior markets’ have significantly less stringent eligibility requirements and considerably lower costs during the initial public offering (IPO) underwriting process. The success of these initiatives overall has been mixed. The performance of these markets in developing economies, for example, has not been strong, with many offerings in lower-income countries being unable to attract financial support. In many of these economies the general population does not have the capital to support IPOs. Institutional buyers within these same environments are unlikely to be participants, as very few SMEs will meet their investment grade criteria. Thus, few SMEs succeed in capital market raisings.

The results of such initiatives in middle-income and high-income countries have been better. The Malaysian Exchange of Securities Dealing and Automated Quotation (MESDAQ), London’s Alternative Investment Market (AIM), and the Market of the High-Growth and Emerging Stocks (MOTHERS) in Japan, have been consistently successful in bringing small-capital SMEs to market (IFC 2011). Such SME exchanges tend to succeed if: (1) there is a sufficiently sophisticated primary market from which the SME market may draw expertise, and (2) the general market has
a track record of supporting IPOs, thus suggesting investors who are qualified and economically able to support SME fundraising. These factors remain a major challenge in developing economies.

Access to finance is perhaps the largest single barrier to SME growth. While there are many other hurdles SMEs face, most challenges revolve around, and come back to, resolving the dilemma of financing. Government intervention, regulatory policy, and improvements in the legal and financial infrastructure are all needed to foster an environment that promotes financing options for SMEs.

6.2 Non-bank Finance

As noted in the previous section, non-bank finance provides a very important alternative to bank financing in supporting East Asia’s future development, particularly in the context of the limitations of existing banking systems. At the same time, the supply of credit by non-bank financial institutions is an area where Asian financial regulators will need to exercise vigilance. They will need to ensure that the positive impacts of their regulation exceed the risks of weakening the domestic financial sector.

Global shadow banking grew rapidly before the latest financial crisis (FSB 2012b). Rising from US$26 trillion in 2002 to US$62 trillion in 2007, the value of transactions conducted in the shadow banking sector represented about 90 percent of global GDP by 2007. The global value of transactions conducted by non-bank financial institutions (NBFIs) declined slightly with the onset of the global financial crisis in 2008 but increased subsequently to reach US$67 trillion in 2011 (or about 110 percent of GDP in the countries monitored by the FSB). Shadow banking transactions represent about half of the value of assets in the banking sectors of the countries providing information to the FSB exercise.

The amount of finance NBFIs provide differs markedly across Asian countries. Figure 7.2 shows NBFi assets as a share of total financial assets in six Asian countries (FSB 2012b). In Hong Kong, China, Singapore, and the Republic of Korea, NBFIs play an important role in intermediating the flow of investment and savings. Non-bank financial institutions in Indonesia and the PRC play a small role, with their share of total assets remaining below 10 percent. Indian NBFIs have increased the proportion of assets they manage from about 7 percent in 2002 to a high of about 15 percent in 2008.

Non-bank finance appears to have played an important role in promoting growth in high-growth jurisdictions such as Hong Kong, China, Singapore, and the Republic of Korea. Other Asian countries’ NBFi assets represent a relatively negligible share of GDP.
Changes in the growth rates of NBFIs relative to GDP tell us which Asian countries are increasing or decreasing their reliance on shadow banking (FSB 2012b). Several economies saw rapid declines in NBFIs after the global financial crisis. Growth among Indian NBFIs decreased from 40 percent to about 20 percent per annum after the crisis. Chinese NBFIs’ growth rates decreased radically from about 100 percent before the crisis to about 5 percent afterwards. Hong Kong, China NFBIs’ weight in the overall economy decelerated dramatically and growth in NBFIs in Singapore went from about 40 percent to 3 percent annual growth. In other countries, such as Japan and the Republic of Korea, the growth of NBFIs was far less affected by the crisis.

The growth of NBFIs provides opportunities for Asian countries’ economic development. Shadow banking has often provided finance that traditional banking institutions are unable or unwilling to provide. Many new business ventures have high levels of risk which banks in many Asian countries have often not felt comfortable servicing. Shadow banking may fill this need, and may free up resources – by providing credit extended on a wider range of collateral.

On the other hand, the risks posed by shadow banking arrangements are plentiful. There are many risks related to the supply of funds to NBFIs. First, depositors may suddenly withdraw their funds. Second, margins may be lower because NBFIs will need to pay higher interest to compensate savers for the risks of placing funds with these under-regulated financial intermediaries. Third, they may face certain types of counterparty and other risks on assets placed with regulated financial institutions, as they may not have the resources to recover funds on demand. As such, NBFIs may be the first to liquidate assets at a discount during periods of economic

Source: FSB (2012).

Figure 7.2 Non-bank financial institutions’ share of total assets varies across Asia.
Financial innovation and development in East Asia

shocks – further depressing asset prices. Fourth, regulatory changes may affect the supply of funds from traditional banks to NBFIIs. Regulators across Asia will apply their own interpretation of the rules promulgated by institutions like the FSB about shadow banking in upcoming years. Many of their responses may tend to restrict bank lending to NBFIIs (and lending by NBFIIs themselves). Such regulatory risk can cause a sudden decrease in liquidity in the shadow banking sector.

Lending by NBFIIs may also increase systemic risk in several ways. First, it may push up asset prices throughout the economy – such as in real estate, where prices often depend on the supply of available funds. Second, NBFI lending may lead to widespread maturity duration and other mismatches, as NBFI managers may not have the expertise to match the duration of funds received and funds lent. This is especially likely in developing parts of Southeast Asia. Third, macroeconomic changes may cause large classes of NBFI borrowers to disappear. Tightening credit causes interest rates to rise across all types of lending. Non-bank financial institutions charge higher interest rates, partly to cover their own cost of capital and partly to price in the extra risks of their borrowers. Higher interest rates often correspond to highly elastic demand for funds.

Regulators need to develop regulations that anticipate these risks and help mitigate their economic effects. However, regulators in many underdeveloped Asian financial markets have not done so appropriately. India, Indonesia, and Japan provide examples of regulations that have sought to respond (with greater or lesser success) to these benefits and risks.

In India, regulators have started to amend highly restrictive regulations with a view toward developing a range of credit markets, both formal and shadow. However, many of the recent amendments do not demonstrate a clear consideration of the risks seeking to be mitigated. In Indonesia, piecemeal law-making has scattered laws regulating NBFIIs across a range of legislative and regulatory instruments. Lack of a clear focus on the potential risks and benefits has resulted in an abstract action plan aimed at consolidating policy across the NBFI sector.14 As a counter-example, Japanese regulation of NBFIIs focuses on explicit outcomes rather than specific measures. This focus has led to the development of a vibrant NBFI sector. Such an approach also reflects the principles that the FSB has recently promulgated in relation to regulating shadow banking markets.

Japan’s regulatory treatment of the capitalization of these NBFIIs shows how Indian regulators could focus more sharply on the gains and losses they seek to manage. Indian regulators have sought to increase capitalization requirements of NBFIIs for several years. Currently, Indian legislation requires NBFIIs to have a capitalization of at least 2.5 million rupees (section 45IA of the Reserve Bank of India Act (1934) – Reserve Bank of
India (RBI) 2011). Recent recommendations aim (under section 45NC) to exempt all non-deposit taking NBFI s from registration requirements if their individual asset sizes fall below 500 million rupees.\textsuperscript{15} Such a focus on line-in-the-sand capitalization floors ignores the risk Indian regulators should target: the risk of default. As such risk depends on the type of lending, a more flexible approach should be adopted.

Recent proposals in India aim at taking a regulatory approach focused on balancing risks and returns. Previous regulation focused on minimum capitalization in order to obtain a registration certificate. Section 45IA(4)(d) of the Reserve Bank of India Act (1934) requires the Indian central bank to review an applicant’s capital structure before granting registration. The RBI may impose certain discretionary requirements with regard to capitalization and assets under management before registering an applicant (or providing an exemption to registration under section 45NC of the Act). Demonstrating a firm grip on the underlying rationale for such discretionary power, a recent RBI working group on reforming NBFI regulations notes, ‘the spirit behind such exemptions is not to create entry barriers for small innovative players from entering the NBFC sector especially for lending to small businesses, but to refocus regulatory resources to where the risks may lie’ (Reserve Bank of India 2011, p. 20). Nevertheless, India’s relatively underdeveloped shadow banking sector shows that either not enough entrants have come into the market, or they cannot attract enough capital.

Indonesia’s regulation also tends to overemphasize risk management at the possible expense of national economic development. While several laws substantially strengthen the regulatory framework governing NBFI s,\textsuperscript{16} legislation aimed at regulating Indonesian shadow banking is scattered across a range of different acts and regulations. Many of these laws do not directly regulate the credit-creating capacity of NBFI s. In response, the government has created the Capital Market and Non-Bank Financial Industry Master Plan 2010–14, which contains a 63-point action plan designed to harmonize these laws (Indonesian Ministry of Finance 2010).

The action plan aims to encourage the expansion of finance and guarantee institution networks and the development of finance and guarantee products so as to increase public accessibility (Indonesian Ministry of Finance 2010).\textsuperscript{17} The plan also seeks to increase the distribution and quality of information in the NBFI sector (Indonesian Ministry of Finance 2010).\textsuperscript{18} However, the plan is short on concrete details as to how the government intends to achieve these aims. It does not address the underlying risks in the Indonesian economy or the scattering of provisions across different legislative instruments. Indeed, it fails to address any of the fundamental risks facing NBFI s discussed at the beginning of this section.
There remains a strong need for a coherent institutional framework in Indonesia.

By contrast, Japan has focused on outcomes rather than details. Enshrined in three major pieces of legislation covering usury, the Japanese legislative framework has sought to focus on usurious practices—particularly in the NBFI sector. The Interest Rate Restriction Act (1954) subjected non-bank financial entities—which had hitherto done business virtually without restriction—to regulatory control. The Act capped interest rates at 15–20 percent, depending on the loan amount (Article 1(1) of the Interest Rate Restriction Act 1954). Other laws targeted potential risks coming from the NBFI sector by capping interest rates at 20 percent. By capping interest rates, the law addressed the risks of default coming from the non-payment of excessively high interest. It also moved the focus of regulation from the bank to the borrower and set new net asset requirements to ensure the viability of the lender. Such requirements basically made risk management self-enforcing. Instead of requiring banks to engage in complex risk management practices, these legal requirements provided strong economic incentives for banks and borrowers to engage in sustainable lending and borrowing practices.

Regulators in Asia still rely excessively on minimizing risks rather than capturing the development potential of shadow banking. This is particularly so in countries with rapidly developing NBFI sectors, such as the PRC, India, and Indonesia. Recent FSB guidelines, however, encourage regulators to focus on broad principles—mostly aimed at promoting the development of all kinds of finance (including non-bank finance). In their view, regulators should focus on five aspects in rulemaking: focus (target only externalities and risks while avoiding unintentional market deterioration); proportionality (introduce the lightest possible measures and not more); forward-looking and adaptable (predicting market reactions to things like Basel III); effectiveness (taking into particular account possible cross-border regulatory arbitrage); and assessment and review. Such a results-oriented focus on rulemaking would likely increase the viability of NBFIs in these developing markets.

The issue of shadow banking illustrates our thesis that regulation should strike a balance between the need for flexibility (so as to provide capital for development) and the need to respond rigorously when risks threaten financial sector development. As we explained, jurisdictions with larger shadow banking sectors have generally developed quickly (such as Hong Kong, China, Singapore, and South Korea). Many of the countries with underdeveloped financial markets have tried to tackle the regulation of shadow banking using an administrative approach. We find that financial regulation in much of developing Asia needs to do a better job of balancing
developmental needs and macroeconomic risks, such as those inherent in rapidly expanding NBFI sectors. Such risks pose a significant threat to the entire domestic financial sector of these economies. In developing markets such as the PRC, Malaysia, India and others, regulations on NBFIIs likely impede the growth of this pro-development financial sector. Regulators may want to promote the NBFI sector in these countries through further (though not unmitigated) financial liberalization. Lastly, the case study of Japan demonstrates how to focus on the objectives of NBFI regulation rather than micro-regulating. We think that Asian countries looking to expand their shadow banking sectors will do well to balance flexible regulations (which allow for such expansion) and rigorous regulation (which prevents systemic and other risks building).

7 MOBILE FINANCIAL SERVICES

Mobile financial services are provided through mobile phones. A typical transaction involves a customer going to an agent, such as a local shopkeeper, to convert some cash into e-money on their phone. This they would do by paying cash to the agent and seeing a credit appear on their phone, which is achieved by the agent using their own phone for this purpose. With this e-money, the customer can then pay bills or remit funds to others.

About 1.7 billion people worldwide have a mobile phone but no bank account. Mobile phones therefore provide a direct conduit to almost half of the world’s unbanked population. The potential of mobile financial services to assist in the alleviation of poverty and to increase efficiency across an economy has captured the attention of many international financial institutions, including the ADB and the Consultative Group to Assist the Poor (CGAP), a World Bank affiliate.

The ground-breaking success story in mobile financial services occurred in Kenya with the launch of M-PESA in 2007. Within three years, nearly 40 percent of Kenya’s adult population used M-PESA (Tiwari and Deepti 2013). A study of the community impact of M-PESA found that it allowed clients to remit money to family in times of financial distress, it made the conduct of business easier and safer, and it reduced transaction costs for business people (Plyler et al. 2010). M-PESA’s success has prompted policymakers in a range of nations to seek to emulate it. Mobile financial services are now broadly seen as a way to promote financial inclusion and reduce disadvantage.

The G20 has made financial inclusion a development priority and has established the Global Partnership for Financial Inclusion to implement the G20’s multi-year financial inclusion action plan. This is strong
evidence of how financial inclusion is gathering broad acceptance as a fundamental development principle.

In East Asia, mobile money is perhaps most advanced in the Philippines. Only two out of ten Filipino households have access to a basic savings account, but 80 percent of people have access to a mobile phone. So, the potential of mobile money is great. The Philippines’ experience has shown that enhancing financial inclusion through the provision of mobile money services can support political and financial stability and economic growth. Even the very poor still need to make payments to pay utilities and other bills and to remit money to families. Financial exclusion means that these payments have to be made in cash either by the payees traveling long distances themselves, or entrusting their cash to someone else with all the problems that entails. Either method is tremendously inefficient and time-consuming – time that could be used by the poor in earning an income or in other ways improving their lives.

Regulatory reform in the Philippines has opened up the opportunity for telecommunication companies to compete with banks to deliver mobile money services. This has been a major factor in reducing the prices of remittances, which is very important given that remittances are a substantial part of the country’s economy. The Philippines has enacted major regulatory changes to promote financial inclusion. The nation does not have a national identity (ID) card, so the regulations have liberalized ID requirements to the point of certification of identity from a local chieftain being acceptable in some circumstances. The Philippines has in place a targeted human development program as a core component of its poverty alleviation strategy. It helps the nation’s poorest families through cash assistance, provided they meet certain conditions, such as keeping children in school, attending regular health check-ups, and vaccinating their children. Grants were delivered through the banking system as over-the-counter payments and, in some cases, the government had to hire helicopters to physically bring the cash to beneficiaries in remote areas. Effective mobile money programs permit a far more efficient and effective way to distribute these relatively small payments and to accurately track their distribution. Beneficiaries in the past used to spend as much as 30 percent of their grants on the cost of traveling to collect them and this does not include the time engaged in travel and queuing to collect the actual grant.

Mobile money poses many regulatory challenges. The fact that it is often provided by telecommunication companies through a wide array of agents does not sit particularly comfortably with most prudential regulatory agencies. Has a customer who has deposited into their phone more than the amount needed to make an initial payment, actually made a
deposit with the telecommunication company of funds such that the telecommunication company needs to be licensed as a bank? What protects the customer against the risk of fraud on the part of the agent, or the risk of insolvency on the part of the telecommunication company? What ‘know your customer’ rules should apply to telecommunication companies operating in remote areas where customers have no formal identification papers? Should these regulatory risks be ameliorated by limiting the provision of e-money services to banks that are appropriately regulated?

What are the roles for banks in e-money services? Should telecommunication companies be required to place their net balance on deposit in a trust account with a bank each day, so that the funds on trust would survive the insolvency of the telecommunication company and be available for distribution to customers? Can the regulator be confident in the event of the insolvency of the telecommunication company that the company’s records would be in a sufficiently good state to permit return of these funds to their rightful owners?

As one can see, there are a host of unresolved regulatory issues that different nations are grappling with in different ways. The only clear consensus seems to be that financial inclusion really matters. The provision of very basic payments and other financial services to the poor offers them far more than was widely realized only a few years ago. Such financial services save time and save money, and allow the poor to spend their days working to better their situation, not merely effecting transactions that take people with access to a bank account just a few minutes.

India is likewise keen to promote the adoption of mobile financial services because some 40 percent of its people do not have bank accounts. In addition, the Indian government is, like the Philippines, implementing targeted human development programs under which specified payments are made to mothers when their children attain certain milestones, such as regularly attending school or health clinics. The biggest challenge India faces today in implementing such a program is the accurate and efficient transfer of funds to the poor. Without bank accounts, or some form of mobile e-money, a large proportion of such payments are lost to corruption or inefficiency. It is therefore ironic that the RBI has done a poor job of promoting mobile financial services. Since 2005, the RBI has recommended that banks increase access for the unbanked population using mobile payment systems. Nonetheless, regulations in India only permit mobile payments when they are linked to a registered bank account through which such transactions must take place.

Accordingly, in one stroke, the RBI has ensured that mobile money does not help the unbanked in their country. The intention of this regulation is to protect customers by subjecting mobile payments to the full panoply
of prudential regulation. This is an understandable and worthy regulatory goal but the price India is paying for it today is far too high. There is a clear need to rethink the regulation of mobile financial services to provide sufficient protection of customers while allowing this new technology to assist all Indians who already have access to a mobile phone but not a bank account.

Within the region, the approach of the Philippines should be preferred to that of India. The Philippines has encouraged financial inclusion for its poor and has been very effective in achieving it. India has prioritized the effective regulation of its system and has maintained regulation accordingly, but at a high human cost. In some nations in East Asia, e-money is not a pressing need. These include the more developed countries such as Japan, Korea, Hong Kong, China, and Singapore. But in their less-developed neighbors, e-money offers a great deal to the large, presently unbanked proportions of their population and it is recommended that the promotion of financial inclusion be a priority for the ASEAN and other regional organizations. Many of the regulatory challenges identified above could most usefully be addressed by a regulatory handbook that identifies the various regulatory challenges and analyses a range of potential responses to each challenge. This is an area in which national regulators need assistance now and which the ADB and other like organizations are ideally placed to deliver in a highly efficient way.

8 CONCLUSION

Financial liberalization has long been associated with economic growth and development. In the past decade, however, financial crises have demonstrated the significant risks posed by financial innovations in the absence of adequate regulation. Such sizable risks mean financial regulation needs to balance risk with innovation in order to maintain financial stability and support economic growth. This was the approach largely adopted in East Asia following the Asian financial crisis, which explains why the major financial centres in the region were much less affected by the global financial crisis than their Western competitors. East Asia’s pragmatic and grounded approach to financial regulation is arguably one of the greatest financial innovations of the past decade. It must be maintained in East Asia, and other regions should be encouraged to look to, and learn from, East Asia in this regard.

We have identified five central areas in which this approach is particularly needed to ensure ongoing financial stability and economic growth in East Asia. These include trade finance, mortgage markets, non-bank
finance, SME finance, and mobile financial services. While the region faces a number of challenges in these areas, such challenges can be overcome through carefully regulated financial innovation.

Trade finance in the region is currently suffering from a retreat by European banks and the implementation of the Basel reforms. We have outlined a number of possible solutions that involve collaborative innovations by both the public and private sector. In the area of mortgage markets, an important way forward for East Asia is the enhancement of institutional and legal frameworks that will support the development of a robust mortgage finance market. Regulatory reform must aim to strike a balance between promoting home ownership and preventing inflated real estate bubbles. Small and medium-sized enterprises and NBFIs play an important role in financial development yet both face numerous challenges. Regulators need to focus on enhancing the access of SMEs to finance, and developing a stable non-bank financial sector, to assist development and preserve financial sector stability. Finally, mobile financial services provide the opportunity to assist in the alleviation of poverty and to increase efficiency across many developing economies in Asia. While some challenges exist, with careful regulation mobile financial services can enhance the lives and productivity of the presently unbanked in the region.

East Asia’s balanced approach to financial innovation and regulation needs to be nurtured and applied across the region in all areas of finance, particularly those outlined above. In the wake of the global and Eurozone crises, it should also serve as an important example for other parts of the world. Financial regulation, after all, exists to ensure financial sectors serve the needs of the real economy, not the needs or desires of bankers.

NOTES

1. The definition of *hawala* is ‘[a] traditional system of transferring money used in Arab countries and South Asia, whereby the money is paid to an agent who then instructs an associate in the relevant country or area to pay the final recipient’ (Oxford Dictionaries 2014), available at: http://www.oxforddictionaries.com/definition/english/hawala) (accessed 8 August 2014).
2. In the same piece Volcker wrote the words one so often hears quoted: ‘the most important financial innovation that I have seen the past 20 years is the automatic teller machine’.
3. For a detailed analysis of the term ‘financial repression’ and its impact on growth, see Shaw (1973). In contrast, Reinhart and Sbrancia (2011) argue that the aftermath of the global financial crisis created optimal conditions where financial repression would be effective in reducing debt.
4. Bekaert et al. (2001), in their quantitative analysis, found liberalization of the equity market to have a statistically significant influence on per-capita GDP growth. Abiad
and Mody (2003) established a positive connection between financial liberalization and a state’s openness to trade.

5. Elliot (2013) calls it a ‘dangerous misconception’ that raising capital requirements will ensure a safer banking requirement and believes considerably more debate is needed.

6. We show pre-crisis levels on the supposition that markets will recover toward their long-term equilibrium levels of mortgage finance after adjusting to the temporary impact of the global financial crisis.


8. Share of GDP comes from authors based on nominal GDP in 2007 as reported by the World Bank.

9. We do not report assets managed by specific types of NBFIs, such as insurance companies or finance companies. Such data would not necessary provide any additional insight into our thesis that Asian policymakers need to balance pro-development financial policies with managing the risks of rapid growth in this relatively unregulated sector. We also do not discuss the role of relatively complex financial products (such as credit default swaps and special purpose vehicles) as mechanisms for non-bank financial intermediation. Such a discussion is beyond the scope of this chapter.

10. Korean bank assets have hovered at about 200 percent of GDP – illustrating a broader trend in the larger, developed countries such as Japan and Korea to which formal banking institutions have succeeded in providing funding more generally and thus reduced the need for NBFIs.

11. Risk premiums charged by Asian banks may vary not only according to the borrower’s risk of default but also by the bank’s own ability to price such risk. For a further description of this mechanism and data from Asia, see Lina et al. (2012).

12. For more on the impacts of NBFIs on labour and other markets, see Carmichael and Pomerleano (2002).

13. For a fuller discussion of these risks in an easy-to-digest form, see Luttrel et al. (2012).

14. As we describe below, the action plan presents a set of vague policies rather than concrete and specific rules. As such, recent changes to the Indonesian legal framework governing NBFIs remain at the policy level.


17. At point 1.2 of the plan, we have cited the original objectives from the text – explaining the rather jargon-laden construction of that sentence.

18. We take the wording from the plan (from the second part of point 1.2), again explaining the sentence’s clumsy wording.


20. The FSB provides 11 recommendations. We do not have the space to provide an assessment of each country’s performance in adopting each of these recommendations.

21. External remittances account for about 10 percent of Filipino GDP and internal remittances between workers in urban areas sending money to their family in rural areas are a common feature of life in the Philippines.

REFERENCES


Financial innovation and development in East Asia


872396390443571904577629250952177234.html (accessed 4 August 2014).

24052748703405704575014703152997616.html (accessed 4 August 2014).


bapepam.go.id/parmodal/publikasi_pm/info_pm/MASTERPLAN_BAPE

Interest Rate Restriction Act 1954 (Risoku Seigen Ho), No 100, unofficial translated version available at: http://www.asianfinancegroup.com/japan/law/interest.html; official version is available at: http://law.e-
.gov.go.jp/htmldata/S29/


realstate/29ht-rebali.1.119777791.html?_r=0 (accessed 9 August 2014).


Ozeki, K. (2009), ‘The Chinese real estate market: a comparison with Japan’s bubble’, PIMCO, December, available at: http://www.finance-inst.co.il/image/users/171540/ftp/my_files/articles/nadlan/%D7%A9%D7%95%D7%A7%20%D7%94%D7%A0%D7%93%D7%9C%D7%9F%20%D7%91%D7%A1%D7%99%D7%9F%20%D7%91%D7%94%D7%9A%D7%95%D7%95%D7%95%20%D7%94%D7%9C%D7%91%D7%95%D7%A2%D7%AA%20%D7%94%D7%A0%D7%93%D7%9C%D7%9F%20%D7%91%D7%99%D7%A4%D7%9F%20161209.pdf?Id=7714402 (accessed 9 August 2014).


8. Implications of global financial and regulatory policies on systemic risk in Asia

Fariborz Moshirian

1 INTRODUCTION

The global financial crisis provided many insights into issues left unaddressed in previous reforms. One of the most significant insights was the role of systemic risk in destabilizing financial markets. Systemic risk does not refer to a sudden massive financial shock. It is better understood as a process – the buildup of fragilities in a financial system over a period of many years, that comes unstuck through a normal shock.

Systemic risks originate from two primary causes – common exposures to aggregate risks, such as common exposures to the real estate market built up through the propagation of subprime mortgage related assets through the US financial system in the years leading up to the 2007–08 financial crisis, and/or the distress or failure of any large/complicated/highly interconnected financial institution that may lead to runs on other solvent institutions, fire-sale liquidations and heightened counterparty risk. These insights into systemic risk have underpinned global attempts to redress regulatory failures that allowed them to build up in the first place.

Under the aegis of the G20, the Financial Stability Board has coordinated international standard-setters to address issues underlying systemic risks. These developments include the identification and regulation of global systemically important financial institutions, and more recently domestic systemically important banks, which have attracted more regulatory attention than their non-G-SIFI and non-D-SIB counterparts owing to their importance to national and global financial systems because of their size, complexity and/or interconnectedness (Moshirian 2011, 2012). It also includes addressing the related too-big-to-fail (TBTF) issue, which contributes to excessive risk-taking. There has also been increased regulatory attention on developing macro-prudential frameworks to complement the traditional micro-prudential approach.
to regulation. In addition to these international developments, Asian
countries have also focused on issues that could be effectively addressed
through regional cooperation.

These global efforts towards mitigating systemic risk underscore the
importance of having measures to help regulators analyze financial sta-
bility indicators in place, in order to develop forward-looking policies to
address systemic risk. However, the identification and monitoring of sys-
temic risks is still in the early stage.

The purpose of this chapter is to discuss some of the issues related to
regional financial stability and systemic risk. To this end, section 2 dis-
cusses recent policy development and its implications for regional systemic
risk, including issues related to G-SIFIs, D-SIBs, the creation of resolution
regimes and macro-prudential policies, section 3 presents a conceptual
framework for measuring systemic risk, section 4 reports and compares
the bank systemic risk for the US, Europe and Asia, and section 5 reports
the analysis of banks systemic risk for the PRC, Japan and India. Section 6
discusses issues related to systemic risk with a focus on countries forming
ASEAN+3. Section 7 discusses aspects of new accounting standards
and their implications for measuring banks systemic risk, and section 8
concludes.

2 RECENT POLICY DEVELOPMENTS TOWARDS
THE REGULATION OF SYSTEMIC RISK

The 2007–08 financial crisis revealed that regulators paid scant attention
to the buildup of systemic risks during the financial cycle. Systemic risks
may arise from factors such as ‘runs’, fire-sale asset liquidations, counter-
party risk, and interconnectedness, factors which were at the heart of the
financial crisis. And the activities of G-SIFIs were at the heart of systemic
risk.

This section analyzes recent policy developments that have enhanced
our understanding of systemic risks, and enhanced our understanding
of how to appropriately address them. These developments include the
FSB’s identification of G-SIFIs, and the continuing debate over the too-
big-to-fail issue, as well as the establishment of a framework to identify
D-SIBs, which may be significant for domestic economies while not con-
sidered significant internationally. This section also examines develop-
ments and challenges in macro-prudential regulation, before examining
the greater need for regional cooperation and the challenges associated
with it.
2.1 The Identification of G-SIFIs and D-SIBs to Enhance Regulation of Systemic Risks

A G-SIFI is defined by the FSB (2011a) as a financial institution whose distress or failure would significantly impact on other financial institutions, the wider financial system and the domestic and international economies. Their distress or failure could significantly disrupt the financial system because these G-SIFIs are huge in size, and maintain a complex network of relationships with other important institutions in different economies. In other words, systemic risk from G-SIFIs arises from spillover effects of the actions of one financial institution on another. For example, if A owes B money, who owes C money, and A defaults on B, B would also default on C as B was relying on A's money in order to pay C back. This effect would ripple across borders among different financial institutions and it would mean that the distress of one institution can create serious consequences for stakeholders of a seemingly unrelated institution. Further, the distress or failure of G-SIFIs can generate systemic risks through fire sale liquidations that may lead to large system-wide market-to-market losses, or through runs on solvent institutions, such as the runs on money market funds and investment banks caused by the collapse of Lehman Brothers during the GFC. While systemic risk is not unique to G-SIFIs, with any financial institutions sufficiently large and interconnected potentially contributing to systemic risk, G-SIFIs are a subset of financial institutions that the FSB has determined pose an acute threat to financial stability that require additional regulatory attention.

In identifying SIFIs, the FSB largely used three factors to determine whether institutions were SIFIs (Gopinath 2011):

1. Size – volume of financial services provided and market capitalization;
2. Lack of substitutability – determining the financial system’s relative dependence on services provided by that financial institution; and
3. Interconnectedness – identifying the direct and non-direct links with other stakeholders across multiple jurisdictions.

In November 2013, there were 29 designated G-SIFIs by the FSB, shown in Table 8.1 (which are all G-SIBs). This list will be updated annually every November. As a G-SIFI, these institutions are required to maintain greater loss absorbency capabilities under Basel III. This additional requirement, which applies on top of the Basel III capital requirements, is intended to reduce the ‘cross-border negative externalities’ of the global financial system and to reduce systemic risk. (Bank for International Settlement 2012). These G-SIFIs will be required to hold an additional 1 percent to
2.5 percent of risk weighted assets, which will be phased in between 2016 and 2019, depending on the systemic significance of the firm. The FSB has currently released a provisional list of predicted categories of loss absorbency that is required of each firm.

These G-SIFIs are institutions that are seen as too big, or too interconnected, to fail owing to their size, complexity, and interconnectedness.
which would too greatly affect other stakeholders in the economy. As a result, governments often have to fund these G-SIFIs with taxpayers’ money in a period of distress. This takes place in the form of an explicit deposit insurance regime (such as in the US) or an implicit too-big-to-fail guarantee. This generates significant moral hazards that allow management and boards of G-SIFIs to take excessive risk, as their downside risks are covered by the government. This situation is similar to the G-SIFI holding a call option on the value of its equity against the government, much like the common analogy of management holding a call option in a distressed firm against its debt holders. This will invariably lead to excessive risk taking by these institutions, which contribute to greater systemic risk. Demirgüç-Kunt and Detragiache (2002) looked at a large cross-section of countries in the post-1980s period and concluded that deposit insurance increases the likelihood of a banking crisis. Furthermore, the authors also found that the greater the coverage of these guarantees, the greater the severity of the banking crisis. This issue is explored further below.

To supplement G-SIFIs, the Basel Committee recognized that there are banks that are significant to the domestic economy while not being considered as a G-SIFI. The Basel Committee developed a framework in August 2012 that set out guidelines by which domestic regulatory authorities can evaluate whether a local bank is a D-SIB. This is designed to give flexibility for domestic authorities as they are in a better position than the Basel Committee to determine whether an institution is considered significant to the domestic economy. Furthermore, the local authorities also have discretion to determine the levels of additional capital required for the D-SIBs in order to be deemed as satisfying the regulatory requirements. This is different from the identification of G-SIFIs, where the Basel Committee produces and updates a tangible list of relevant financial institutions annually. In line with this flexible mindset, the identification of D-SIBs is based on 12 principles (Bank for International Settlements 2012), with a focus on assessment methodology (principles 1–7) and building higher loss absorbency capabilities (principles 8–12).

The identification of G-SIFIs and D-SIBs are designed to further insulate the global financial system from systemic shocks on top of the Basel III capital and liquidity requirements. This is one attempt to address the incentives problem where banks that are too big to fail take far too much risk without fear of losing because the government would always support them. The G-SIFI framework explicitly prevents banks from taking too much risk by specifying capital requirements that are much higher than Basel II. Furthermore, the existence of the D-SIBs framework provides an additional layer of assurance, where banks that may have been missed by the Basel Committee, or considered to be a borderline G-SIFI, may still be
subjected to additional supervision and capital requirements by its domestic regulatory authority.

2.2 Government Guarantees, Risk-taking, Moral Hazards, and Ending Too-big-to-fail

Excessive risk-taking was at the heart of the financial crisis. There is consensus that both explicit and implicit government backing of financial firms encouraged excessive risk-taking in these institutions. These government guarantees may either be in the form of an explicit guarantee where the government guarantees deposits (for example, the US federal deposit insurance system administered under the Federal Deposit Insurance Corporation – FDIC), or implicit guarantees where an expectation arises in relation to a particular financial firm, that because of its systemic importance (for example, because it is ‘too big’, or interconnected), the government will not allow it to fail. Without sufficient safeguards, these guarantees give rise to moral hazard, as creditors of these financial institutions are protected from the consequences of the riskier bets they make, eroding incentives to monitor these financial firms and avoid excessive risk-taking.

The moral hazard problem stemming from explicit and implicit guarantees was not new. Little was done to address it in the lead-up to the crisis in US financial regulation. A brief understanding of the history of US financial reform will help in exploring this point. Federal deposit insurance was introduced after the series of banking panics in the 1930s where trouble at one bank led to runs on other solvent banks. The fundamental problem was asymmetric information. The nature of credit intermediation is risky, involving borrowing short and investing long. Without knowing those risks, consumer depositors would rather choose to be safe than sorry. The US Government in response, introduced deposit insurance through the Banking Act 1933, to be administered by the FDIC. Importantly, to limit risk-taking activities, the Glass-Geagall provisions of the Banking Act separated investment banking and traditional banking activities, to prevent consumer savings being used to finance risky investments. Firms engaged in both commercial and investment banking were forced to separate. Also banks insured by the FDIC had to pay premiums based on the size of the insured deposits. Acharya et al. (2011) regard the creation of the FDIC as one of the most successful innovations in financial regulation, effectively ending the threat of bank depositor runs to solvent banks caused by financial distress at one bank.

So what changed? The introduction of federal deposit insurance in the US contributed to decades of financial stability. However, during these
decades, the safeguards – the separation of traditional banking from the riskier investment banking, and the premiums, restrictions, capital charges and supervision on lending required in exchange for deposit insurance eroded. Once the protections in the Banking Act separating traditional and the much riskier investment banking activities were repealed, allowing commercial banks to engage in risky investment acts, the only real protection against excessive risk-taking were capital requirements, which the banks found regulatory loopholes for, allowing them to avoid capital charges designed to inhibit excessive risk-taking. Thus the erosion of these safeguards removed any disincentive to engaging in risky activities. Leading up to the financial crisis, banks exploited loopholes in capital regulatory requirements to make a massive, highly leveraged and highly risky US$2–3 trillion bets tied mainly to US residential real estate (Acharya et al. 2011). It was funded through off-balance sheet vehicles and conduits that required only one-tenth of the capital as on balance sheet exposures, but in 95 percent of cases, there was full recourse back to their sponsoring institutions (Acharya et al. 2011).

In relation to implicit government guarantees, the problem received wide attention as early as the 1980s. In 1984, the Continental Illinois National Bank and Trust Company had to be rescued with liquidity support from the Federal Reserve and guarantees from FDIC when it ran into difficulty in wholesale funding markets (paralleling the credit freeze in wholesale markets in the 2007–08 financial crisis). The expression ‘too big to fail’ is said to have gained parlance from this event (Dash 2009). Following this, the 1991 Federal Deposit Insurance Corporation Improvement Act provided an enhanced special resolution regime for commercial banks. The FDIC, however, has only resolved relatively small institutions under this power, and has not used it for systemically important financial institutions (Goldstein and Veron 2011). The following crisis caused by the collapse of the fabled Long Term Capital Management (LTCM) in 1998 demonstrates another aspect of this issue – ‘too interconnected to fail’ (Goldstein and Veron, 2011).

Little was done prior to 2007. The crisis, however, has refocused attention on the issue, and hopefully the devastating consequences may prompt more meaningful financial reform in the future. To this end, commentators have made various proposals to address the excessive risk-taking engaged in by financial firms covered by the government safety net. These include proper risk-weighted pricing of government guarantees, and ‘prompt corrective action’.

Before discussing these proposals though, it is worth noting that the FSB has designated specific international financial institutions as G-SIFIs. An initial list was announced in November 2011, and was gathered based on a
methodology developed by the Basel Committee for Banking Supervision. In essence, the FSB (2011a) defines a SIFI as a financial institution that would cause significant disruption to financial activity if it were to fail because of its size, complexity and/or interconnectedness. However, though several banks have been designated as G-SIFIs, Goldstein and Veron (2011) note this does not necessarily indicate they have TBTF status. Particularly if resolution regimes (discussed later) are credible and will not impair the functioning of the financial system, and resolution is not overly expensive for taxpayers, then SIFIs may be allowed to fail. Conversely, they note the cases of LTCM in 1998 and of IKB Deutsche Industriebank and Northern Rock which indicate that institutions not included within an official list can be considered TBTF and be bailed out.

Commentators have highlighted that mispriced government guarantees encouraged excessive risk-taking in the lead up to the financial crisis. While another important feature of the 1991 Federal Deposit Insurance Corporation Improvement Act was to have more risk-based setting of deposit insurance premiums, in reality 90 percent of the banks fell into a single risk category, and many large US banks paid no premiums at all, effectively amounting to what was a free deposit insurance system covering commercial banks that were now, with the Glass-Steagall provisions repealed, free to engage in investment banking activities (Acharya et al. 2011). Moreover, the implicit government guarantee for TBTF institutions, who collectively hold the majority of assets in the US financial system, requires no premium to be paid by those institutions. Acharya et al. (2011) suggest that financial firms must pay proper premiums for the guarantees they receive (both explicit and implicit for TBTF institutions) based on a normal premium for their expected losses on default, and a premium for their contribution to systemic risk, or their expected marginal loss in a crisis, which will internalize costs associated with engaging in activities that generate systemic risk. Creating proper incentives will then naturally lead to efficiency in financial markets. There would be significant practical implementation issues however, including building the regulatory expertise to monitor systemic risks and building the required capacity for pricing guarantees over large complex financial institutions, as well as surmounting the difficulties associated with changing behaviour using ex ante contracting (Acharya et al. 2011).

A related idea is requiring additional capital surcharges on TBTF financial institutions to internalize costs associated with TBTF (Goldstein and Veron 2011). The BCBS has proposed an additional capital surcharge of 1 percent–2.5 percent risk-weighted assets for institutions deemed G-SIFIs. However, Acharya (2012) notes that such an approach is flawed because Basel III capital requirements are focused on the individual risk
of individual firms rather than their systemic risk contributions, and such an approach further ignores the dynamic evolution of risks of assets over time.

Another proposal advocates subjecting financial firms to ‘prompt corrective action’ if capital ratios fall below predetermined ratios. They argue this would act as a disincentive to excessive risk-taking and subsequently reduce systemic risk (Bullard et al. 2009). Financial firms subject to ‘prompt corrective action’ could involve limits to growth, and limits to executive compensation and dividend payments, which would act as sufficient disincentives for executives to take risks.

This would also involve the power to shut down large financial firms that become insolvent, to be administered by a special resolution authority. Special resolution regimes administered by an out-of-court resolution authority would better suit the winding down of large financial firms, rather than corporate bankruptcy procedures, because they would have better control over third-party effects that would otherwise generate systemic risks (for example, delays and uncertainties in bankruptcy procedures) (Goldstein and Veron 2011). If large and important financial institutions could be wound down without strain to the rest of the financial system and with losses borne by shareholders and creditors, it would end the moral hazard created by implicit guarantees for TBTF institutions.

The creation of resolution regimes, their institutional underpinnings, and the development of resolution plans by institutions designated G-SIFIs has progressed considerably since the adoption of the FSB’s Key Attributes of Effective Resolution Regimes for Financial Institutions. However it is too early to rule out the TBTF problem as there are many issues to iron out to achieve the effective implementation of resolution regimes. In the US, the Dodd–Frank Act, passed in July 2010, provides for unprecedented powers to resolve SIFIs and requires them to prepare resolution plans. Whether these powers will actually be used to impose losses on creditors remains to be seen. Others highlight the near impossibility of resolving a large multinational financial institution under this regime (Lubben 2012). Moreover, the FSB (2012a) comments that mandates for national resolution authorities that do not have a clear commitment to international cooperation may undermine resolution of large international financial institutions.

The international dimension of resolution regimes is worth further attention. Almost all financial institutions that bear the G-SIFI designation (and likely the TBTF status) and pose systemic risks have large international operations. These global financial institutions have a large presence in many emerging economies, and are heavily involved in credit intermediation in their financial markets. Therefore any resolution regime may potentially have large cross-border effects on emerging economies.
This has prompted concern among emerging economy policymakers that they may not always be involved with the resolution planning of these G-SIFIs, although these firms may be systemically important, adversely affecting the financial stability of emerging economies (FSB, 2012b). The need for international cooperation is vital, and the lack of clear mandates for national resolution authorities for international cooperation is worrying.

2.3 The Emerging Contours of Macro-prudential Regulation

Another major focus since the GFC was to implement changes that shifted the focus of regulation from bottom-up micro-prudential regulation to a broader macro focus on systemic risks – macro-prudential regulation. The traditional micro-prudential approach to regulation conceived of the health of the financial system as the health of its constituent institutions. However, the financial crisis revealed the extreme risk of not focusing on broader systemic risks – it did not recognize the danger posed by many financial institutions becoming exposed to the same risks, such as real estate risk through common exposures to subprime mortgage related assets, nor did they recognize that the failure of systemically important financial institutions (for example, Lehman Brothers and AIG) could lead to a freeze in financial markets through heightened counterparty risks. The crisis provided the impetus for national regulators to develop a macro-prudential framework, but it is important to bear in mind that macro-prudential regulation does not replace micro-prudential regulation when monitoring G-SIFIs. Instead, macro-prudential policy can be seen as an extra layer on top of traditional micro-prudential policies that aims to capture the spillover effects that were not addressed previously.

Currently, the development of macro-prudential tools and frameworks is still in an early stage (Arnold et al. 2012). There are four main areas of development proceeding under the supervision of the FSB. Since macro-prudential regulation involves mitigating systemic risks, the first is developing measures to identify and monitor systemic risks, including in both regulated banking and shadow banking, an area to which this chapter contributes. Although recent efforts have closed some data gaps, the identification and measurement of systemic risks remains a nascent field and there are no indicators sufficient to guide forward-looking policymaking (FSB, 2011b).

The second area is developing the instruments and tools to be used to diffuse systemic risks. There are currently a range of tools used by various countries to address systemic risks, and they fall roughly into three categories (FSB, 2011b):
Global shock, risks, and Asian financial reform

1. Tools to address financial stability risks arising from rapid credit expansion. These include:
   (a) The dynamic, or countercyclical capital buffer, recently proposed by the BCBS. The intuition behind the buffer is to raise it and increase capital requirements during times of rapid credit growth, when it is relatively easier for financial institutions to raise capital, to be drawn down in times of financial distress, making them more resilient. Moreover, the higher capital requirements will also lean against credit growth.
   (b) Variation in sectoral risk weights – this forces institutions to increase capital to cover exposure to sectors that are building up systemic risks.
   (c) Loan to value ratios – this is being increasingly used to reduce risks arising from rapidly growing real estate bubbles by limiting risky lending through limiting the maximum loan amount well below the value of the property.

2. Tools to address amplification mechanisms of systemic risk such as leverage and maturity mismatches. These include:
   (a) Leverage ratios, such as the one in Basel III.
   (b) Liquidity requirements – a significant development in Basel III was the introduction of liquidity requirements. Specifically, there are two ratios. First, there is the LCR, which is the ratio of a bank’s high-quality liquid assets to its hypothetical net cash outflows over a 30-day stress period. An LCR of greater than 100 percent is likely. The second component is the NSFR, which is the ratio of a bank’s available stable funding to its required amount of stable funding over a one-year period. These two ratios will increase the costs associated with short-term funding and require setting aside liquid reserves that can be drawn upon when funding dries up, thus addressing risks associated with maturity mismatches.

3. Tools to limit spillover effects from failures of SIFIs. The BCBS has since 2011 established a list of G-SIFIs, and organized them into buckets requiring additional capital requirements of 1 percent–2.5 percent depending on their systemic risks. The additional capital requirements will help restrain their growth, and improve their resilience during financial distress, mitigating spillover effects to the rest of the financial system. There is also a strong case for requiring greater transparency of exposures to G-SIFIs and requiring institutions exposed to G-SIFIs to hold additional capital, which will mitigate the effects in the event of their failure (Jacome and Neir n.d.), as well as resolution regimes and resolution planning discussed earlier.
The third area is in establishing the institutional arrangements of macro-prudential regulators in the domestic and regional contexts. This involves managing a concoction of variables, including ensuring establishing a clear objective for macro-prudential institutions, giving them appropriate tools and powers to address macro-prudential issues, providing appropriate incentives in line with achieving those objectives, ensuring accountability of macro-prudential regulators, and ensuring coordination of policy areas that relate to macro-financial stability (FSB, 2011b). Currently there is a wide variation in institutional setups between countries, which allows for tailoring of the institutions to the specific financial context of each country. It remains to be seen what elements will prove most effective.

There is a strong case for the government and central bank to be involved in any macro-prudential arrangement, given the affinity of monetary policy with controlling credit, and the need for legislative support from government to institute the tools and powers required by the macro-prudential authority. In relation to the central bank, they have expertise in analyzing the macroeconomy and identifying risks, and they control monetary policy which sets the overall conditions underlying credit in the economy. In relation to the government, their legislative support is needed. However, Jacome and Neir (n.d) note that too much government involvement may be suboptimal, given their political reluctance to take macro-prudential measures during good times.

The fourth area is in achieving regional and international cooperation to address the supranational dimensions of systemic risk. The globalization of finance means that financial instability in any one country or region will spill over to others. There is also a high risk of regulatory arbitrage if national macro-prudential frameworks are not consistent. Thus there is a need to establish strong mechanisms to ensure consistent action by countries to contain risks, and to ensure national regulatory frameworks are consistent (FSB, 2011b). In relation to the latter, the ‘reciprocity’ arrangements underlying the countercyclical capital buffer facilitating cooperation between authorities in the host jurisdiction of the financial institution, and the institution’s home jurisdiction. There is a need to explore the use of cooperative mechanisms such as this for other macro-prudential tools.

### 2.4 The Need for Greater Cross-border Cooperation and Coordination in Asia

Given the degree of global integration among G-SIFIs, cross-border cooperation and coordination is becoming increasingly important in having an effective top-down view from a macro-prudential perspective. One step
that has been taken by the EU was establishing and strengthening the role of the College of Supervisors that act across jurisdictions. The College of Supervisors is a multilateral group of relevant supervisors that are formed in order to promote effective and consistent monitoring and oversight of financial institutions across borders. On the one hand, the colleges act as a platform for the exchange of information across the equivalent regulators in different countries. This allows for a more consistent method of addressing issues in G-SIFIs. On the other hand, the members of colleges participate in more functional activities, such as reaching joint decisions on capital adequacy of cross-border groups, or emergency protocols in the event of the collapse of a G-SIFI.

However, mechanisms such as the college of supervisors work well in the EU owing to the high level of integration within its own monetary union. This model does not necessarily work in other parts of the world such as Asia, where the political climate is different and the level of national autonomy much higher. Given its environment and history, the formation of cooperative regulation has mainly occurred through market forces based on the rise of specific needs (that is, the Asia-Pacific Economic Cooperation Conference – APEC – focuses on trade liberalization, whereas the ASEAN Regional Forum promotes cooperative security and confidence building with the ASEAN’s other partners) of uncoordinated processes. There has been no particular focus on addressing systemic risk or financial regulation as a region. As a result, there is now a dense web of intertwined regional and subregional institutions and arrangements with overlapping membership and sometimes similar purposes such as the ASEAN+3, the APEC and many FTAs across different countries (Capannelli and Tan 2012).

The institutionally light system of regulation in Asia arises out of a general preference for non-binding commitments that operate under few explicit rules. Even when they exist, their mandates are largely deliberative and advisory, as opposed to being distributive or regulatory. Most of the monitoring and enforcement powers are being kept in the hands of their respective national regulators (Capannelli and Tan 2012). Given the geographical nature of these regional institutions, many countries in an area are automatically included in these institutions without having to take on additional measures or policy changes. This offers few incentives for countries to ‘keep up’ to the standards of the leading economies in the region. Furthermore, different fields are compartmentalized into different institutions. This means that although they are all intertwined as a dense web of institutions, there is often a lack of communication, gaps in coverage and an inefficient use of resources.

One highlight of the recent development of institutions in Asia is the
CMIM of the ASEAN+3 members, which will reduce the destabilizing effects of sudden surges in capital outflows. The CMIM operates as a common USD liquidity pool between all its members where member states can swap its local currency for USD in the event of a liquidity crisis, such as one arising out of a banking collapse. The borrowing limit is calculated via each member’s contribution amount and a borrowing multiplier that favours smaller countries in the ASEAN+3 region. Given its operation as a reserve pool, no currency is set aside in a central fund. Instead, each country has simply entered into an agreement that they will honour a swap request up to their contributory amount when requested. This reserve will be controlled by their respective central banks. This provides a distinct advantage over the use of a common fund on standby, where there is less inefficiency as there are no idle resources that are stored up when they have better use elsewhere (Hill and Menon 2012).

Moving forward, there are four major problems the CMIM needs to overcome before it can prove itself as an effective mechanism for preserving financial stability in the region:

1. The ASEAN+3 Macroeconomic Research Office (AMRO) is a regional surveillance agency under the CMIM that was set up in May 2010. Its mandate is to ‘monitor and analyze regional economies and to contribute to early detection of risks, swift implement of remedial actions and effective decision-making of the CMIM’ (AMRO Office, 2013). Before it can effectively perform its mandate, the AMRO needs to build up its reputation and capabilities to provide effective oversight of systemic risks in the region. Currently, the AMRO only has 11 permanent staff members, which casts doubt on its capabilities to perform its mandate given its large scope.

2. The CMIM needs to address the speed and efficiency with swap requests. Currently, it takes a minimum of two weeks before swap requests can be processed, by which time a banking crisis could have deepened significantly (Hill and Menon 2012). The fact that the CMIM is a reserve pool where individual central banks control the funds means that there are more layers of bureaucracy to go through before being able to obtain the funds. This means that countries often prefer turning to bilateral swaps, which are quicker and does not usually require explicit covenants.

3. Japan and the PRC have each made large contributions to the CMIM, with each one of them holding a 32 percent voting share in the course of its decision making. Since lending decisions require two-thirds of votes, it is nearly impossible for a proposal to go through if the PRC or Japan refuses (Hassdorf 2011). Furthermore, given the often tense
political climate between the PRC, Japan and the Republic of Korea, it is difficult to have an effective functioning economic cooperation between these nations, particularly over sensitive economic issues regarding national banks and policy coordination.

4. The IMF-link from the old CMI initiative is maintained. This means that if a country wishes to borrow more than 20 percent of its borrowing limit, it would be subject to an IMF program. This carries with it the adverse signaling effects and strict covenants that small economies would often like to avoid.

Systemic risk is a negative externality of the global financial system and cannot be corrected through market forces. (Archaya et al. 2011). Given the interconnectedness of multinational financial institutions, relaxed regulation in one country could produce systemic risk that could expose other jurisdictions to this risk. Naturally, these G-SIFIs would have an incentive to perform regulatory arbitrage where they concentrate their activities in a less regulated jurisdiction. (Archaya et al. 2011). Given the institutionally light regulatory context of Asia, it is important that national regulators within the region join forces and agree on a set of standards that would reduce regulatory arbitrage and thus reduce systemic risk across all the countries within the region.

Though the ad hoc system has served Asia well in the past, the more interrelated networks and relationships among Asian countries call for a more coordinated regional approach. Asia should move beyond ‘bottom-up regionalism’, remove duplicate or inefficient institutions and aim towards institutions that take a pan-Asia perspective with a heavier handed role in monitoring and regulating G-SIFIs, D-SIBs and systemic risk.

3 A CONCEPTUAL FRAMEWORK FOR MEASURING SYSTEMIC RISK

In the first instance, we focus on individual measures of systemic risk which predict how much a stock is expected to lose in a market downturn. Acharya and Richardson (2009), and Acharya et al. (2010, 2012) lay the theoretical foundations of such an approach. In a downturn, financial institutions may fall short of capital, which can either lead to a shutdown, (possibly) causing contagion, or the regulator will need to replenish capital. On an \textit{ex ante} basis, a regulator is concerned with minimizing this payout, which the authors show to be a function of size, leverage and expected equity losses during a crisis. While the first two components are easily available, we propose using three different econometric techniques
In this project to predict the expected equity loss in a crisis. Acharya et al. (2010, 2012) propose a simple historical estimator. Brownlees and Engle (2010) suggest a bivariate model of returns which uses asymmetric generalized autoregressive conditional heteroskedasticity (GARCH) for volatility and an asymmetric dynamic conditional correction (DCC) model for correlation. The third method eschews modeling the entire return process and only models the tail as in De Jonghe (2010) and Hartmann et al. (2005).

\section{Description of Quantitative Measures of Systemic Risk}

The theoretical foundations of the systemic risk measures we consider are well articulated by Acharya and Richardson (2009) and more importantly by Acharya et al. (2010, 2012) who propose systemic expected shortfall (SES) as the shortfall one can expect from an individual financial institution in the midst of a crisis. The sum of all the individual shortfalls is the total expected shortfall of the financial sector. SES is taken to be the sum of two components shown in equation (8.1):

\begin{equation}
\frac{\text{SES}_i}{w_0^i} = \frac{z\alpha_i}{w_0^i} - 1 - E\left[\frac{w_1^i}{w_0^i} - 1|W_i < zA\right]
\end{equation}

The first part, \(z\alpha_i/w_0^i - 1\) measures whether the initial leverage \(\alpha_i(\text{assets})/w_0^i(\text{equity})\) is already too high; \(z\) is the initial target level of assets to be maintained by the financial institution. The second term is the expected equity return conditional on the occurrence of the crisis. Given that an actual crisis may not necessarily be available, tail events that we observe during regular times are extrapolated to measure the capital shortfall during an actual crisis. This second term is the key pointer to which firms will be at risk in the midst of a crisis. Regulators and market participants will be able to either impose policy changes or market discipline respectively on these weak firms which will not be able to withstand a systemic crisis.

The expected equity return component is calculated using three different techniques to determine which will perform better. The first technique is a simple historical estimator proposed by Acharya et al. (2010) where tail events are defined to be the worst 5 percent market outcomes at a daily frequency which is denoted by \(I_{5\%}\):

\begin{equation}
\text{MES}_{I_{5\%}} = -E\left[\frac{w_1}{w_0} - 1|I_{5\%}\right]
\end{equation}

The second technique is based on Brownlees and Engle (2010) who rely on a multistage modeling approach where the bivariate process of firm and
market returns are described by marginal expected shortfall, or MES (the expected equity losses for a firm from a modest decline in overall returns):

\[ MES_{it-1} = E_{t-1}(r_{it} | r_{mt} < C) \]  

(8.3)

\[ r_{mt} = \sigma_{mt} e_{mt} \]  

(8.4)

\[ r_{it} = \sigma_{it} q_{it} e_{mt} + \sqrt{1 - \rho_{it}^2} \xi_{it} \]  

(8.5)

The standard deviations \( \sigma_{it} \) and \( \sigma_{mt} \) are modeled using asymmetric GARCH while the \( \rho_{it} \) is modeled by asymmetric DCC.

Brownlees and Engle (2010) and Acharya et al. (2010) propose the use of market data to estimate systemic risk contributions of firms. One of the key questions is – How much capital would a firm need if we have another financial crisis? This could be supplied by taxpayers or spill into the economy with all the externalities that a failure causes. One could estimate for each firm the expected capital shortfall in a future crisis. As one finds little data on crises, it is necessary to carefully structure the problem. This is done by estimating MES, that is, the expected equity losses for a firm from a modest decline in overall returns. From MES, long-term MES (LRMES) that captured the full financial crisis is measured. On this basis, the New York University Volatility-Laboratory calculates capital shortage based on liabilities, which is called SRISK. As equity values fall in a crisis, leverage increases until the firm is in distress. Nominal debt is taken from Bloomberg and changes little over time. It is from 10 – K and 10 – Q filings. SRISK = kD – (1 – k)(1 – LRMES)E where SRISK is capital shortages based on liabilities and \( k \) is a prudential standard ratio of equity to assets = 8 percent

The third technique (Tail – \( \beta \)) is based on a systemic risk measures used by De Jonghe (2010) and initially proposed by the current head of research at the ECB, Hartmann et al. (2005). It is based on a semi parametric probability estimator by de Haan (1994).

\[ Tail - \beta = \frac{m(z_{a-m,n})^{\alpha}}{p^{1-\alpha}} \]  

(8.6)

Here \( Z \) is the minimum return series between the return series of an individual firm and the market. \( \alpha \) is the tail index which captures the decay in the probability with which ever more extreme events occur (jointly) and is computed using a modified Hill estimator methodology first proposed by Huisman et al. (2001). This probability estimator can then be used to calculate expected equity return in the midst of a crisis.
In this chapter, we only use the measures of systemic risk based on SRISK. We do not report a comparison of MES or SRISK with other measures of systemic risk including Tail – β, in this particular research work. The next section intends to provide the micro-foundedness of the studies by Acharya et al. (2010, 2012).

3.2 The Micro-foundedness of Systemic Risk

The financial sector imposes real costs only when it is undercapitalized as a whole, and these costs are a linear multiple of the extent of undercapitalization of the financial sector. Then, each firm’s contribution to the real-sector costs is related to its own undercapitalization in those states of the world where the financial sector is undercapitalized as a whole. Systemic risk calculates this contribution, proxying for the relevant ‘states’ of the world as a –40 percent shock to the global market economy.

What matters in the proposed model of Acharya et al. (2010, 2012) is when the financial sector is unable to intermediate all of its service provisions to the real economy. One can assume that this is when it finds itself strapped of private funding capital (in a world without any interventions). In turn, private markets will not lend to financial firms when their market equity as a whole (regardless of whether it is called enterprise value or asset value) is not high enough to raise other sources of funding, and also not high enough to ensure that monies lent will be well managed by the bankers/shareholders (one should note that they have little at stake and may gamble for resurrection rather than go for net present value, NPV, projects).

Therefore, one could argue that the market value of a financial firm is not just the market value of assets but also of intangible assets, including issues such as relationships. However, what matters in the model proposed by Acharya et al. (2010, 2012) is that the market value of a financial firm is what determines banker/shareholder incentives, and in turn, the private funding capacity of the financial firm. In Acharya et al.’s (2012) model, factors such as the nature of assets, the nature of bank intangibles and relationships, monopoly rents, and so on, are all captured in market value and in turn also in their market-value based measure of downside risk. It should be noted that in Acharya et al.’s 2012 model ‘local’ downside risk measures, based on –2 percent shocks, may not capture all of the ‘global’ downside risk in the case of –40 percent shocks, but this is still likely to be superior to pure book-value accounting.

It should be noted that shifts in pricing kernels are relevant to the downside risk of a financial firm if they affect the firm’s funding capacity in private markets. A chief executive officer (CEO) or a regulator cannot
blame the market value of equity collapse on risk premium and let the financial firm be run aground to bankruptcy and let a credit crunch ensue when this happens to many financial firms. So risk premium fluctuations are something regulators should guard the system against as they can cause financial firms to fail or be strapped of private funding.

Furthermore, it should be noted that while it is true that some may like magical early warning signals of crises, other factors should also be considered as part of the process of identifying financial risk in the system. For instance the recent studies at New York University (NYU) including the recent work by Acharya et al. (2013) attempt to identify under what kind of market shock the financial sector would become undercapitalized as a whole (rather than defining this scenario to be a –40 percent shock to the market). Nevertheless, regulators and researchers would like to ensure that capital requirements at a minimum react to concurrent signals. For instance, if we had recapitalized the banking sector in March of 2008, it would have been far better than after the failure of Lehman Brothers. If we had recapitalized European banks in 2010 or the summer of 2011, it would have been far better than not at all. Therefore, while the model in Acharya et al. (2010, 2012) attempts to develop early warning signals, it is equally important to pick up when regulatory capital is far short of the market assessment of capitalization of banks, and when the latter is ignored, the financial system may run the risk of letting insolvent banks continue to operate in the economy. The importance of timeliness of market value signals in recapitalizing banks – relative to current regulatory methods such as risk weights – can be found in the study by Acharya et al. (2013).

4 EMPIRICAL RESULTS OF BANKS’ SYSTEMIC RISK FOR THE US, EUROPE, AND ASIA

In this section, we present the SRISK measures for the top 20 banks located in the US, Europe and Asia, and provide a comparison.

Table 8.2 shows the top 20 banks in the US ranked according to SRISK. We see the top three banks are Bank of America, Citigroup and JP Morgan Chase respectively. The other top tier investment banks, Morgan Stanley and Goldman Sachs, which were at the heart of the financial crisis, are ranked sixth and seventh respectively. The former banks are designated GSIFIs by the BCBS. The American International Group is ranked tenth, reflecting its stronger position after the major systemic risk it caused, writing credit default swaps in the crisis.

Of the other top ten, there is the Metropolitan Life Insurance Company (MetLife), one of the largest providers of insurance and employee benefit
<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of America</td>
<td>19.03</td>
<td>1</td>
<td>97089</td>
<td>3.90</td>
<td>1.58</td>
<td>0.62</td>
<td>34</td>
<td>16.38</td>
<td>125,349.0</td>
</tr>
<tr>
<td>Citigroup</td>
<td>15.82</td>
<td>2</td>
<td>80,740</td>
<td>3.70</td>
<td>1.50</td>
<td>0.68</td>
<td>25.2</td>
<td>15.03</td>
<td>124,162.9</td>
</tr>
<tr>
<td>JP Morgan Chase</td>
<td>13.77</td>
<td>3</td>
<td>70,296</td>
<td>2.69</td>
<td>1.09</td>
<td>0.70</td>
<td>17.1</td>
<td>13.10</td>
<td>175,396.7</td>
</tr>
<tr>
<td>MetLife</td>
<td>8.57</td>
<td>4</td>
<td>43,710</td>
<td>3.67</td>
<td>1.49</td>
<td>0.68</td>
<td>24.5</td>
<td>20.72</td>
<td>39,648.5</td>
</tr>
<tr>
<td>Prudential Financial</td>
<td>7.40</td>
<td>5</td>
<td>37,764</td>
<td>3.64</td>
<td>1.46</td>
<td>0.73</td>
<td>21.8</td>
<td>24.56</td>
<td>26,841.6</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>7.24</td>
<td>6</td>
<td>36,955</td>
<td>3.74</td>
<td>1.52</td>
<td>0.67</td>
<td>26.4</td>
<td>18.47</td>
<td>39,822.0</td>
</tr>
<tr>
<td>Goldman Sachs</td>
<td>7.11</td>
<td>7</td>
<td>36,294</td>
<td>3.32</td>
<td>1.35</td>
<td>0.69</td>
<td>23.1</td>
<td>14.15</td>
<td>66,455.0</td>
</tr>
<tr>
<td>Hartford Financial Services</td>
<td>3.57</td>
<td>8</td>
<td>18,237</td>
<td>4.08</td>
<td>1.65</td>
<td>0.68</td>
<td>25.7</td>
<td>28.38</td>
<td>10,427.8</td>
</tr>
<tr>
<td>Lincoln National Corp</td>
<td>2.49</td>
<td>9</td>
<td>12,711</td>
<td>4.20</td>
<td>1.70</td>
<td>0.71</td>
<td>25.4</td>
<td>27.15</td>
<td>76,564.4</td>
</tr>
<tr>
<td>American International Group</td>
<td>1.87</td>
<td>10</td>
<td>9,519</td>
<td>3.32</td>
<td>1.35</td>
<td>0.57</td>
<td>24.8</td>
<td>9.62</td>
<td>52,010.2</td>
</tr>
<tr>
<td>SLM Corporation</td>
<td>1.81</td>
<td>11</td>
<td>9,234</td>
<td>2.05</td>
<td>0.83</td>
<td>0.49</td>
<td>19.9</td>
<td>23.33</td>
<td>8,027.7</td>
</tr>
<tr>
<td>Bank of New York Mellon</td>
<td>1.46</td>
<td>12</td>
<td>7,456</td>
<td>3.00</td>
<td>1.22</td>
<td>0.68</td>
<td>22.7</td>
<td>10.68</td>
<td>31,295.3</td>
</tr>
<tr>
<td>Corp/The Principal Financial Group</td>
<td>1.40</td>
<td>13</td>
<td>7,145</td>
<td>2.76</td>
<td>1.11</td>
<td>0.68</td>
<td>17.7</td>
<td>18.41</td>
<td>8,572.7</td>
</tr>
<tr>
<td>Genworth Financial</td>
<td>1.22</td>
<td>14</td>
<td>6,227</td>
<td>4.92</td>
<td>1.94</td>
<td>0.58</td>
<td>36.5</td>
<td>25.25</td>
<td>39,888.8</td>
</tr>
<tr>
<td>Suntrust Banks</td>
<td>0.88</td>
<td>15</td>
<td>4,467</td>
<td>3.29</td>
<td>1.34</td>
<td>0.64</td>
<td>24.9</td>
<td>11.02</td>
<td>15,254.2</td>
</tr>
<tr>
<td>Ameriprise Financial</td>
<td>0.71</td>
<td>16</td>
<td>3,644</td>
<td>3.42</td>
<td>1.35</td>
<td>0.75</td>
<td>22.6</td>
<td>10.61</td>
<td>13,392.5</td>
</tr>
<tr>
<td>Regions Financial</td>
<td>0.69</td>
<td>17</td>
<td>3,497</td>
<td>3.45</td>
<td>1.40</td>
<td>0.59</td>
<td>25.1</td>
<td>11.45</td>
<td>10,230.1</td>
</tr>
<tr>
<td>Capital One Financial</td>
<td>0.59</td>
<td>18</td>
<td>3,004</td>
<td>3.40</td>
<td>1.38</td>
<td>0.58</td>
<td>27.1</td>
<td>8.27</td>
<td>36,058.6</td>
</tr>
<tr>
<td>Protective Life Corp</td>
<td>0.55</td>
<td>19</td>
<td>2,812</td>
<td>2.97</td>
<td>1.21</td>
<td>0.57</td>
<td>23.4</td>
<td>22.34</td>
<td>24,066.6</td>
</tr>
<tr>
<td>E-Trade Financial</td>
<td>0.48</td>
<td>20</td>
<td>2,467</td>
<td>4.34</td>
<td>1.76</td>
<td>0.60</td>
<td>28.9</td>
<td>17.52</td>
<td>2,740.4</td>
</tr>
</tbody>
</table>

*Source:* Estimated by New York University Volatility-Laboratory, using data mainly from Bloomberg.
programs, which is ranked fourth. Prudential Financial, a major provider of insurance, investment management and other financial products and services in the US (and over 30 other countries), is ranked fifth. Hartford Financial Services (one of the US’s largest investment and insurance companies) is ranked eighth, while Lincoln National Corporation (also one of the US’s largest investment and insurance companies) is ranked ninth and rounds up the top ten.

Table 8.3 presents the top 20 banks in Europe by systemic risk. We see immediately that for many European banks, their SRISK is much larger than their market value, in some cases as much as five times (Crédit Agricole), reflecting the ongoing volatility generated by the European debt crisis. We see that the largest European banks by asset size – Deutsche Bank, Crédit Agricole, Barclays, BNP Paribas, RBS, Société Générale, ING Groep and UniCredit make up the top eight, and are identified G-SIFIs. Credit Suisse, Santander and Nordea are also G-SIFIs and are ranked twelfth, thirteenth, and eighteenth respectively.

Table 8.4 presents the top 20 banks in Asia ranked according to SRISK. We see the Japanese banks are by far the largest contributors to systemic risk in Asia. As Table 8.4 shows, the top three contributors are the Mitsubishi UFJ FG, the Mizuho FG, and the Sumitomo Mitsui FG, respectively, which collectively account for 35.88 percent of systemic risk in Asia. These three Japanese banks were also identified as G-SIFIs by the Basel Committee, with the Bank of China being the only other G-SIFI identified in Asia.

Comparing these banks now, the US banks contribute far less systemic risk measured according to SRISK. This reflects the recapitalizations following the financial crisis, and the improving macroeconomic conditions in the US economy. Between European banks and Asian banks, Asia’s top banks contribute far more systemic risk. This may appear odd given the continuing European debt crisis. However, we see that the bulk of SRISK is due to the three Japanese banks, which have especially large holdings of Japanese government debt, while there are concerns about the sustainability of the Japanese government’s borrowing given its weak economic conditions and the rising yen, which may explain the higher SRISK.

5 EMPIRICAL RESULTS OF BANKS’ SYSTEMIC RISK FOR THE PRC, JAPAN, AND INDIA

In this section, we present the most recent figures of the systemic risk of banks domiciled in the PRC, Japan, and India, using the New York University Volatility-Laboratory data and measures of systemic risk.
Table 8.3  Europe SRISK top 20

Systemic Risk Rankings for 2013–01–11 (MES is equity loss for a 2% daily market decline)

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deutsche Bank AG</td>
<td>8.05</td>
<td>1</td>
<td>131404</td>
<td>4.53</td>
<td>1.84</td>
<td>0.62</td>
<td>30.5</td>
<td>60.37</td>
<td>46158.1</td>
</tr>
<tr>
<td>Crédit Agricole AG</td>
<td>7.53</td>
<td>2</td>
<td>122872</td>
<td>4.75</td>
<td>1.91</td>
<td>0.51</td>
<td>34.1</td>
<td>102.27</td>
<td>23775.3</td>
</tr>
<tr>
<td>Barclays PLC</td>
<td>6.67</td>
<td>3</td>
<td>108849</td>
<td>4.18</td>
<td>1.70</td>
<td>0.51</td>
<td>26.5</td>
<td>42.52</td>
<td>59209.7</td>
</tr>
<tr>
<td>BNP Paribas</td>
<td>5.83</td>
<td>4</td>
<td>95247</td>
<td>3.91</td>
<td>1.59</td>
<td>0.55</td>
<td>24.1</td>
<td>32.25</td>
<td>76099.0</td>
</tr>
<tr>
<td>Royal Bank of Scotland Group PLC</td>
<td>4.96</td>
<td>5</td>
<td>80905</td>
<td>3.15</td>
<td>1.28</td>
<td>0.47</td>
<td>25.3</td>
<td>33.39</td>
<td>64978.7</td>
</tr>
<tr>
<td>Société Générale</td>
<td>4.51</td>
<td>6</td>
<td>73696</td>
<td>4.96</td>
<td>2.01</td>
<td>0.56</td>
<td>31.6</td>
<td>47.12</td>
<td>34291.1</td>
</tr>
<tr>
<td>ING Groep NV</td>
<td>4.14</td>
<td>7</td>
<td>67560</td>
<td>4.47</td>
<td>1.81</td>
<td>0.57</td>
<td>25.9</td>
<td>39.58</td>
<td>39753.9</td>
</tr>
<tr>
<td>UniCredit SpA</td>
<td>3.03</td>
<td>8</td>
<td>49431</td>
<td>4.26</td>
<td>1.73</td>
<td>0.47</td>
<td>35</td>
<td>36.14</td>
<td>33089.9</td>
</tr>
<tr>
<td>Lloyds Banking Group PLC</td>
<td>2.99</td>
<td>9</td>
<td>48872</td>
<td>3.47</td>
<td>1.41</td>
<td>0.44</td>
<td>28.7</td>
<td>24.67</td>
<td>61424.0</td>
</tr>
<tr>
<td>UBS AG REG</td>
<td>2.79</td>
<td>10</td>
<td>45486</td>
<td>3.87</td>
<td>1.57</td>
<td>0.48</td>
<td>27.2</td>
<td>21.97</td>
<td>66653.2</td>
</tr>
<tr>
<td>Commerzbank AG</td>
<td>2.52</td>
<td>11</td>
<td>41116</td>
<td>5.15</td>
<td>2.09</td>
<td>0.53</td>
<td>43.4</td>
<td>66.44</td>
<td>12749.3</td>
</tr>
<tr>
<td>Credit Suisse Group AG</td>
<td>2.50</td>
<td>12</td>
<td>40764</td>
<td>4.02</td>
<td>1.62</td>
<td>0.50</td>
<td>27.1</td>
<td>29.73</td>
<td>36353.7</td>
</tr>
<tr>
<td>Banco Santander SA</td>
<td>2.43</td>
<td>13</td>
<td>39614</td>
<td>3.41</td>
<td>1.38</td>
<td>0.57</td>
<td>21.1</td>
<td>18.23</td>
<td>90883.9</td>
</tr>
<tr>
<td>Natixis</td>
<td>2.00</td>
<td>14</td>
<td>32600</td>
<td>4.36</td>
<td>1.72</td>
<td>0.49</td>
<td>30.5</td>
<td>58.83</td>
<td>11858.3</td>
</tr>
<tr>
<td>AXA SA</td>
<td>1.91</td>
<td>15</td>
<td>31245</td>
<td>4.70</td>
<td>1.89</td>
<td>0.63</td>
<td>23</td>
<td>21.32</td>
<td>43894.7</td>
</tr>
<tr>
<td>Intesa Sanpaolo SpA</td>
<td>1.82</td>
<td>16</td>
<td>29756</td>
<td>4.32</td>
<td>1.75</td>
<td>0.52</td>
<td>35.9</td>
<td>25.59</td>
<td>32404.8</td>
</tr>
<tr>
<td>Dexia SA</td>
<td>1.80</td>
<td>17</td>
<td>29432</td>
<td>11.54</td>
<td>4.64</td>
<td>0.22</td>
<td>269.9</td>
<td>5141.00</td>
<td>104.2</td>
</tr>
<tr>
<td>Nordea Bank AB</td>
<td>1.61</td>
<td>18</td>
<td>26358</td>
<td>3.21</td>
<td>1.30</td>
<td>0.56</td>
<td>20</td>
<td>22.16</td>
<td>41593.9</td>
</tr>
<tr>
<td>Danske Bank A/S</td>
<td>1.36</td>
<td>19</td>
<td>22253</td>
<td>2.92</td>
<td>1.19</td>
<td>0.40</td>
<td>27.9</td>
<td>32.25</td>
<td>19173.3</td>
</tr>
<tr>
<td>Legal &amp; General Group PLC</td>
<td>1.24</td>
<td>20</td>
<td>20311</td>
<td>3.00</td>
<td>1.22</td>
<td>0.53</td>
<td>17.1</td>
<td>36.63</td>
<td>14419.8</td>
</tr>
</tbody>
</table>

Source: Estimated by New York University Volatility-Laboratory, using data mainly from Bloomberg.
Table 8.4  Global systemic risk by country: Asia SRISK top 20

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi UFJ Financial Group</td>
<td>14.93</td>
<td>1</td>
<td>167783</td>
<td>2.51</td>
<td>1.00</td>
<td>0.15</td>
<td>27.6</td>
<td>35.88</td>
<td>76073.6</td>
</tr>
<tr>
<td>Mizuho Financial Group Inc</td>
<td>11.92</td>
<td>2</td>
<td>134017</td>
<td>2.05</td>
<td>0.80</td>
<td>0.15</td>
<td>25</td>
<td>45.63</td>
<td>45675.1</td>
</tr>
<tr>
<td>Sumitomo Mitsui Financial Group</td>
<td>9.03</td>
<td>3</td>
<td>101463</td>
<td>1.96</td>
<td>0.76</td>
<td>0.15</td>
<td>20.5</td>
<td>33.10</td>
<td>52818.9</td>
</tr>
<tr>
<td>Bank of China Ltd-H</td>
<td>6.94</td>
<td>4</td>
<td>77969</td>
<td>2.77</td>
<td>1.07</td>
<td>0.31</td>
<td>22.7</td>
<td>15.40</td>
<td>131525.5</td>
</tr>
<tr>
<td>Agriculture Bank of China-A</td>
<td>3.63</td>
<td>5</td>
<td>40822</td>
<td>0.87</td>
<td>0.35</td>
<td>0.19</td>
<td>20.3</td>
<td>14.29</td>
<td>147709.3</td>
</tr>
<tr>
<td>China Construction Bank-H</td>
<td>3.28</td>
<td>6</td>
<td>36808</td>
<td>2.55</td>
<td>1.03</td>
<td>0.30</td>
<td>22.3</td>
<td>10.49</td>
<td>207492.7</td>
</tr>
<tr>
<td>Resona Holdings Inc</td>
<td>3.00</td>
<td>7</td>
<td>33673</td>
<td>1.56</td>
<td>0.62</td>
<td>0.11</td>
<td>26.1</td>
<td>46.44</td>
<td>11453.4</td>
</tr>
<tr>
<td>Bank of Communications Co-H</td>
<td>2.70</td>
<td>8</td>
<td>30385</td>
<td>3.09</td>
<td>1.20</td>
<td>0.32</td>
<td>25.4</td>
<td>14.13</td>
<td>58172.1</td>
</tr>
<tr>
<td>Dai-Ichi Life Insurance</td>
<td>2.40</td>
<td>9</td>
<td>26930</td>
<td>3.89</td>
<td>1.56</td>
<td>0.18</td>
<td>38.7</td>
<td>29.50</td>
<td>14773.1</td>
</tr>
<tr>
<td>Ind &amp; Comm Bank of China-A</td>
<td>2.39</td>
<td>10</td>
<td>26835</td>
<td>1.16</td>
<td>0.45</td>
<td>0.20</td>
<td>23.1</td>
<td>11.71</td>
<td>242051.9</td>
</tr>
<tr>
<td>Sumitomo Mitsui Trust Holdings</td>
<td>2.26</td>
<td>11</td>
<td>24517</td>
<td>2.84</td>
<td>1.13</td>
<td>0.17</td>
<td>30.9</td>
<td>30.12</td>
<td>14303.1</td>
</tr>
<tr>
<td>Nomura Holdings Inc</td>
<td>2.19</td>
<td>12</td>
<td>24611</td>
<td>4.08</td>
<td>1.64</td>
<td>0.15</td>
<td>42.5</td>
<td>21.16</td>
<td>21010.2</td>
</tr>
<tr>
<td>Shinkin Central Bank</td>
<td>2.02</td>
<td>13</td>
<td>22696</td>
<td>-0.13</td>
<td>-0.05</td>
<td>-0.06</td>
<td>10</td>
<td>45.02</td>
<td>8798.5</td>
</tr>
<tr>
<td>National Australia Bank Ltd</td>
<td>2.00</td>
<td>14</td>
<td>22527</td>
<td>2.47</td>
<td>1.00</td>
<td>0.34</td>
<td>15.9</td>
<td>12.83</td>
<td>63154.3</td>
</tr>
<tr>
<td>China Citic Bank Corp Ltd-H</td>
<td>1.59</td>
<td>15</td>
<td>17832</td>
<td>2.96</td>
<td>1.21</td>
<td>0.30</td>
<td>28</td>
<td>15.06</td>
<td>30493.3</td>
</tr>
<tr>
<td>Shanghai Pudong Development Bank-A</td>
<td>1.46</td>
<td>16</td>
<td>16436</td>
<td>1.32</td>
<td>0.54</td>
<td>0.21</td>
<td>31.9</td>
<td>17.04</td>
<td>29464.8</td>
</tr>
<tr>
<td>Industrial Bank Co Ltd-A</td>
<td>1.38</td>
<td>17</td>
<td>15558</td>
<td>1.34</td>
<td>0.56</td>
<td>0.16</td>
<td>33.6</td>
<td>16.62</td>
<td>28246.5</td>
</tr>
<tr>
<td>Daiwa Securities Group Inc</td>
<td>1.23</td>
<td>18</td>
<td>13770</td>
<td>3.64</td>
<td>1.46</td>
<td>0.16</td>
<td>35.6</td>
<td>25.88</td>
<td>9105.0</td>
</tr>
<tr>
<td>China Everbright Bank Co Ltd</td>
<td>1.13</td>
<td>19</td>
<td>12673</td>
<td>1.23</td>
<td>0.49</td>
<td>0.20</td>
<td>27.2</td>
<td>18.47</td>
<td>19187.1</td>
</tr>
<tr>
<td>Fukuoka Financial Group Inc</td>
<td>0.87</td>
<td>20</td>
<td>9741</td>
<td>1.38</td>
<td>0.56</td>
<td>0.09</td>
<td>19.9</td>
<td>45.04</td>
<td>3471.8</td>
</tr>
</tbody>
</table>

Source: Estimated by New York University Volatility-Laboratory, using data mainly from Bloomberg.
These are the three largest economies respectively in Asia. Figure 8.1 shows that the banks of the PRC, Japan, and India contribute the most to systemic risk from the Asian region. Japan contributes the most to systemic risk in the region out of the three countries, with SRISK nearly USD700 billion. This is more than twice the systemic risk of the PRC at just above USD300 billion. Together, Chinese and Japanese banks account for nine of the top ten financial institutions ranked according to systemic risk in the Asian region, as shown in Table 8.4. Dai-Chi Life Insurance, a Japanese life insurance company, is ranked ninth. India’s systemic risk is far lower at around USD50 billion.

As discussed earlier, Japanese banks are by far the largest contributors to systemic risk in Asia. As Table 8.4 shows, the top three contributors are the Mitsubishi UFJ FG, the Mizuho FG, and the Sumitomo Mitsui FG, respectively, which collectively account for 35.88 percent of systemic risk in Asia. These three Japanese banks were also identified as G-SIFIs by the Basel Committee, with the Bank of China being the only other G-SIFI identified in Asia. These three banks are also the largest contributors to global systemic risk, with Mitsubishi UFJ FG ranked first, Mizuho FG ranked second, and Sumitomo Mitsui FG ranked sixth globally in terms of SRISK. It is also interesting to note the State Bank of India, which is the largest contributor to national systemic risk in India, is ranked thirty-second in Asia.
The following subsections examine contributions to national bank systemic risk in each of Japan, the PRC and India.

5.1 Japanese Banks and their Role in Containing Banks’ Systemic Risk

In Japan, its largest banks, the Mitsubishi UFJ FG, Mizuho FG and Sumitomo Mitsui FG are respectively the top contributors to national systemic risk. The other Japanese financial institutions in the top ten ranked according to systemic risk are Resona Holdings, Dai-Chi Life Insurance, Sumitomo Mitsui Trust Holdings, Nomura Holdings, Shinkin Central Bank and Fukuoka Financial Group respectively, as shown in Table 8.5. An interesting feature is that their SRISK is more than their market values, and in some cases more than twice their market values, while for their Chinese and Indian counterparts SRISK is lower than market value.

Since around 2007, the SRISK of the Japanese ‘megabanks’ (Mitsubishi UFJ FG, Mizuho FG, and Sumitomo Mitsui FG) have steadily grown, as shown in Figure 8A.1 in the appendix to this chapter. Recently, strong concerns have arisen regarding the very high and growing concentration of Japanese government debt in its domestic banking system which may contribute to the rising systemic risk (Figure 8.2; IMF, 2012). Although these risks have persisted for a while, the Japanese government continues to enjoy confidence reflected in the low yields for its debt. This confidence stems from many factors – its ability to raise taxes, its stable domestic investor base, its debt being denominated in yen, and recently, the ‘flight to quality’ of capital to Japan to escape Eurozone troubles (IMF 2012). However a rise in yields across maturities could destabilize Japan’s banks.

In recently conducted stress tests, the Bank of Japan estimates a 1 percent increase in interest rates across the yield curve would lead to mark-to-market losses equivalent to 20 percent of Tier 1 capital for regional banks, and 10 percent for major banks (Figure 8.3) (IMF 2012). While the Bank of Japan remains a key determinant in interest rates, rate rises could also be triggered by a loss of confidence by investors owing to Japan’s very high public debt, where Japan’s debt-to-GDP level is currently at 250 percent, or heightened fears of weak growth resulting from weak exports due to its appreciating currency. On the former issue, many do not expect a major crisis due to more than 90 percent of Japanese government bonds being held by domestic investors (Jenkins and Nakamoto 2012). On the latter issue however, the strong signals sent by Japan’s newly elected Prime Minister that he would take steps to depreciate the yen may ease such fears, although the former risk remains.
<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK (Sm)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi UFJ Financial Group</td>
<td>24.75</td>
<td>1</td>
<td>167783</td>
<td>2.51</td>
<td>1.00</td>
<td>0.15</td>
<td>27.6</td>
<td>35.88</td>
<td>76073.60</td>
</tr>
<tr>
<td>Mizuho Financial Group Inc.</td>
<td>19.77</td>
<td>2</td>
<td>134017</td>
<td>2.05</td>
<td>0.80</td>
<td>0.15</td>
<td>25.0</td>
<td>45.63</td>
<td>45675.10</td>
</tr>
<tr>
<td>Sumitomo Mitsui Financial Group</td>
<td>14.97</td>
<td>3</td>
<td>101463</td>
<td>1.96</td>
<td>0.76</td>
<td>0.15</td>
<td>20.5</td>
<td>33.10</td>
<td>52818.90</td>
</tr>
<tr>
<td>Resona Holdings Inc.</td>
<td>4.97</td>
<td>4</td>
<td>33673</td>
<td>1.56</td>
<td>0.62</td>
<td>0.11</td>
<td>26.1</td>
<td>44.64</td>
<td>11453.40</td>
</tr>
<tr>
<td>Dai-Ichi Life Insurance</td>
<td>3.97</td>
<td>5</td>
<td>26930</td>
<td>3.89</td>
<td>1.56</td>
<td>0.18</td>
<td>38.7</td>
<td>29.5</td>
<td>14773.10</td>
</tr>
<tr>
<td>Sumitomo Mitsui Trust Holdings</td>
<td>3.75</td>
<td>6</td>
<td>25417</td>
<td>2.84</td>
<td>1.13</td>
<td>0.17</td>
<td>30.9</td>
<td>30.12</td>
<td>14303.10</td>
</tr>
<tr>
<td>Nomura Holdings Inc.</td>
<td>3.63</td>
<td>7</td>
<td>24611</td>
<td>4.08</td>
<td>1.64</td>
<td>0.15</td>
<td>42.5</td>
<td>21.16</td>
<td>21010.20</td>
</tr>
<tr>
<td>Shinkin Central Bank</td>
<td>3.35</td>
<td>8</td>
<td>22696</td>
<td>-0.13</td>
<td>-0.05</td>
<td>-0.06</td>
<td>10.0</td>
<td>45.02</td>
<td>8798.50</td>
</tr>
<tr>
<td>Daiwa Securities Group Inc.</td>
<td>2.03</td>
<td>9</td>
<td>13770</td>
<td>3.64</td>
<td>1.46</td>
<td>0.16</td>
<td>35.6</td>
<td>25.88</td>
<td>9105.00</td>
</tr>
<tr>
<td>Fukuoka Financial Group Inc.</td>
<td>1.44</td>
<td>10</td>
<td>9741</td>
<td>1.38</td>
<td>0.56</td>
<td>0.09</td>
<td>19.9</td>
<td>45.04</td>
<td>3471.80</td>
</tr>
<tr>
<td>Hokuhoku Financial Group Inc.</td>
<td>1.35</td>
<td>11</td>
<td>9162</td>
<td>1.98</td>
<td>0.77</td>
<td>0.11</td>
<td>28.2</td>
<td>63.40</td>
<td>2107.30</td>
</tr>
<tr>
<td>T&amp;D Holdings Inc.</td>
<td>1.19</td>
<td>12</td>
<td>8065</td>
<td>3.06</td>
<td>1.19</td>
<td>0.16</td>
<td>38.9</td>
<td>19.13</td>
<td>8767.90</td>
</tr>
<tr>
<td>The Bank of Yokohama Ltd</td>
<td>1.15</td>
<td>13</td>
<td>7806</td>
<td>1.48</td>
<td>0.59</td>
<td>0.10</td>
<td>25.1</td>
<td>24.93</td>
<td>6456.80</td>
</tr>
<tr>
<td>Yamaguchi Financial Group Inc.</td>
<td>1.04</td>
<td>14</td>
<td>7057</td>
<td>1.20</td>
<td>0.49</td>
<td>0.07</td>
<td>20.5</td>
<td>46.99</td>
<td>2401.90</td>
</tr>
<tr>
<td>The Chiba Bank Ltd</td>
<td>1.02</td>
<td>15</td>
<td>6923</td>
<td>1.48</td>
<td>0.59</td>
<td>0.13</td>
<td>25.2</td>
<td>26.35</td>
<td>5234.50</td>
</tr>
</tbody>
</table>

Source: Estimated by New York University Volatility-Laboratory, using data mainly from Bloomberg.
Global shock, risks, and Asian financial reform

Note: Includes all claims of domestic institutions (excluding the central bank) on general government. UK figures are for claims on the public sector.


Figure 8.2 Bank holdings of government debt for selected advanced economies (percentage of bank assets)

Note: Mark-to-market losses in bond holdings due to a 100 basis point parallel rise in material yields. Projections for 2012–17 assume that banks cover the same share of government funding as in 2008–11, keep the duration of their bond holdings constant, and bank assets and Tier 1 capital grow in line with nominal GDP.

Sources: Bank of Japan, and IMF staff estimates.

Figure 8.3 Sensitivity of Japanese banks to a 100 basis point increase in interest rates (losses as percentage of Tier 1 capital)
5.2 Chinese Banks and their Role in Containing Banks’ Systemic Risk

In the PRC, the state-owned commercial banks – the Bank of China, the Agricultural Bank of China, the China Construction Bank and the Industrial and Commercial Bank of China, based on the New York University Volatility-Laboratory’s measures of systemic risk, are ranked first, second, third, and fifth in terms of national systemic risk, as shown in Table 8.6. The Bank of Communications, ranked fourth, is a second-tier commercial bank, and completes the top five. The next five financial institutions ranked in terms of systemic risk are second-tier commercial banks, and are China Citic Bank, Shanghai Pudong Development Bank, Industrial Bank, China Everbright Bank and Huaxia Bank.

Figure 8A.2 in the appendix presents a time-series of the systemic risk of the top five banks in the PRC. Though the patterns for the five banks differ in many ways, two trends are clear. Generally over the beginning of 2010 to the end of 2011, systemic risk rose across the Chinese banks. From the end of 2011 to January 2013, systemic risk had declined.

This is at odds with recent concerns over the rapid growth in unregulated lending in the PRC. Coupled with weaker macroeconomic conditions, and declining real estate prices, this signals potential financial instability as a large part of this unregulated lending was channeled to private property developers. It is also at odds with the rising concern over bad loans for Chinese banks. Nonetheless these factors may in the future lead to rising SRISK.

Two of the channels through which unregulated lending has rapidly grown are wealth management products (WMPs) and trust products. Wealth management products are created by third parties and are sold directly through banks under the bank’s name. The majority of WMPs are short term in nature, with maturities typically less than a year, and are used to invest in the equity and debt markets and money market funds, with a large portion funneled to fund long-term projects that are usually highly risky, such as property developments. These products offer higher interest rates than the regulated rates offered on bank deposits, making the attraction for consumers clear. They are also a highly attractive source of financing for private businesses, which face difficulty receiving lending due to the over-regulated commercial banking practices. These factors underpin their rapid growth, where estimates indicate the value outstanding of WMPs could reach 13 trillion yuan by year end, equal to 14.5 percent of deposits, and up significantly from 8.5 trillion yuan in 2011 (Orlik 2013). Analysts suggest the opacity of such products may contribute to systemic risks. Detailed information on WMPs is not disclosed, making it difficult to gauge credit risk. Any default on one WMP may lead to runs on other
Table 8.6  Global systemic risk by country: the PRC SRISK

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of China Ltd-H</td>
<td>24.13</td>
<td>1</td>
<td>77969</td>
<td>2.77</td>
<td>1.07</td>
<td>0.31</td>
<td>22.7</td>
<td>15.40</td>
<td>131525.50</td>
</tr>
<tr>
<td>Agricultural Bank of China-A</td>
<td>12.63</td>
<td>2</td>
<td>40822</td>
<td>0.87</td>
<td>0.35</td>
<td>0.19</td>
<td>20.3</td>
<td>14.29</td>
<td>147709.30</td>
</tr>
<tr>
<td>China Construction Bank-H</td>
<td>11.39</td>
<td>3</td>
<td>36808</td>
<td>2.55</td>
<td>1.03</td>
<td>0.30</td>
<td>22.3</td>
<td>10.49</td>
<td>207492.70</td>
</tr>
<tr>
<td>Bank of Communications Co-H</td>
<td>9.40</td>
<td>4</td>
<td>30385</td>
<td>3.09</td>
<td>1.20</td>
<td>0.32</td>
<td>25.4</td>
<td>14.13</td>
<td>58172.10</td>
</tr>
<tr>
<td>Ind &amp; Comm Bank of China-A</td>
<td>8.30</td>
<td>5</td>
<td>26835</td>
<td>1.16</td>
<td>0.45</td>
<td>0.20</td>
<td>23.1</td>
<td>11.71</td>
<td>242051.90</td>
</tr>
<tr>
<td>China Citic Bank Corp Ltd-H</td>
<td>5.52</td>
<td>6</td>
<td>17832</td>
<td>2.96</td>
<td>1.21</td>
<td>0.30</td>
<td>28.0</td>
<td>15.06</td>
<td>30493.30</td>
</tr>
<tr>
<td>Shanghai Pudong Development Bank-A</td>
<td>5.09</td>
<td>7</td>
<td>16436</td>
<td>1.32</td>
<td>0.54</td>
<td>0.21</td>
<td>31.9</td>
<td>17.04</td>
<td>29464.80</td>
</tr>
<tr>
<td>Industrial Bank Co Ltd-A</td>
<td>4.81</td>
<td>8</td>
<td>15558</td>
<td>1.34</td>
<td>0.56</td>
<td>0.16</td>
<td>33.6</td>
<td>16.92</td>
<td>28246.50</td>
</tr>
<tr>
<td>China Everbright Bank Co Ltd</td>
<td>3.92</td>
<td>9</td>
<td>12673</td>
<td>1.23</td>
<td>0.49</td>
<td>0.20</td>
<td>27.2</td>
<td>18.47</td>
<td>19187.10</td>
</tr>
<tr>
<td>Huaxia Bank Co Ltd</td>
<td>3.01</td>
<td>10</td>
<td>9728</td>
<td>1.45</td>
<td>0.56</td>
<td>0.18</td>
<td>34.8</td>
<td>20.94</td>
<td>10974.00</td>
</tr>
<tr>
<td>Shenzhen Development Bank Co</td>
<td>2.54</td>
<td>11</td>
<td>8210</td>
<td>1.16</td>
<td>0.47</td>
<td>0.14</td>
<td>40.5</td>
<td>18.34</td>
<td>12806.70</td>
</tr>
<tr>
<td>China Merchants Bank-A</td>
<td>2.52</td>
<td>12</td>
<td>8129</td>
<td>1.73</td>
<td>0.67</td>
<td>0.21</td>
<td>35.0</td>
<td>11.61</td>
<td>46595.50</td>
</tr>
<tr>
<td>Ping An Insurance Group Co-H</td>
<td>2.32</td>
<td>13</td>
<td>7482</td>
<td>4.89</td>
<td>1.90</td>
<td>0.28</td>
<td>36.9</td>
<td>7.30</td>
<td>61237.40</td>
</tr>
<tr>
<td>China Minsheng Banking Corp Ltd</td>
<td>2.10</td>
<td>14</td>
<td>6786</td>
<td>1.17</td>
<td>0.48</td>
<td>0.16</td>
<td>33.7</td>
<td>12.66</td>
<td>36161.30</td>
</tr>
<tr>
<td>Bank of Beijing Co Ltd</td>
<td>1.30</td>
<td>15</td>
<td>4208</td>
<td>1.26</td>
<td>0.52</td>
<td>0.19</td>
<td>33.6</td>
<td>14.38</td>
<td>12456.80</td>
</tr>
</tbody>
</table>

Source: Estimated by New York University Volatility-Laboratory, using data mainly from Bloomberg.
WMPs that may trigger system-wide shocks as lending unravels when borrowers are unable to roll-over their debt, and banks may be inclined to compensate investors for losses, though there is no formal liability to do so, for fear of losing customers (IMF 2012).

Recent reports indicate these risks may materialize not far off. Huaxia Bank’s customers recently demanded compensation for losses suffered on investments totaling 140 million yuan on WMPs. Moreover, the recent collapse of Wenzhou’s localized (and illegal) shadow banking system highlights the fragile condition of many regions. Long chains of underground financing collapsed due to weak exports and declining property prices (Financial Times 2012). The fallout was isolated however, but a collapse elsewhere may have a far more extensive impact. The risks involved in the surge in uncontrolled lending, however, have not gone unnoticed. The People’s Bank of China issued a statement following its 28 December 2012 quarterly monetary policy committee meeting stating it will focus on controlling risks in the financial system, of which the rapid growth in unregulated lending is one.

A second unregulated credit channel is trust products, which pose many of the same risks as WMPs. These offer higher interest rates than bank deposits, with a large part of the funds raised being channeled to highly risky ventures including property developers and local government investment vehicles. The IMF (2012) estimates the trust sector grew 90 percent over the past two years, with total assets under management reaching 5.3 trillion yuan, and on track to exceed the size of the PRC’s insurance industry. The IMF (2012) warns that aggressive selling patterns, years of strong returns, and potential artificial suppression of risks may lead investors to underestimate risks, and subsequently, any panic caused by defaults may lead to runs and spillover of losses to banks, who may compensate customers for reputational reasons.

The declining systemic risk is also at odds with the rising concern over bad loans that looms large over the PRC’s financial sector. Many commentators have highlighted the rising risk of bad loans that the PRC’s commercial banks are facing due to weak economic conditions. The bad loans stem in part from lending three years ago to local governments in order to fund the PRC’s massive stimulus, as well as loans to the real estate sector and its related industries, all of which have faced difficulty as a result of slow growth and declining real estate prices (Inman 2012). The China Banking Regulatory Commission reported that non-performing loans rose 22.4 billion yuan in the third quarter of 2012 from the previous quarter to 478.8 billion yuan.¹
5.3 Indian Banks and their Role in Containing Banks’ Systemic Risk

As noted from the New York University Volatility-Laboratory measures of systemic risk, Indian banks have much less impact on regional systemic risk than their Japanese and Chinese counterparts (Figure 8.1). The 20 banks that contribute most to national systemic risk in India are all nationalized as shown in Table 8.7. The State Bank of India is by far the largest in terms of systemic risk, followed by the Bank of India, Punjab National Bank, Canara Bank and the Central Bank of India shown in Table 8.7.

Figure 8A.3 in the appendix shows a time series of SRISK for these five Indian banks. The trend is similar to the Chinese banks, with systemic risk generally rising from the beginning of 2010 to the end of 2011, before declining. The systemic risk of the Central Bank of India, however, remained relatively stable from the end of 2011 to January 2013.

6 EMPIRICAL RESULTS OF BANKS’ SYSTEMIC RISK FOR THE ASEAN+3

The following section will examine systemic risk contributions of the rest of Asia, focusing on the ASEAN+3 countries with the exception of Brunei, Cambodia, Lao PDR and Myanmar given the relatively small sizes of their banking sectors. The ASEAN+3 countries comprise the ASEAN member nations Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Viet Nam, and the ‘+3’ countries the PRC, Japan, and the Republic of Korea. Their SRISKs of the New York University Volatility-Laboratory measures of systemic risk are presented in Table 8A.1 in the appendix.

Within some of the individual ASEAN countries, one can observe that, for instance, in Indonesia, the only bank with positive SRISK is Bank Pan Indonesia Tbk PT. For Thailand, no bank has positive SRISK. In Malaysia, the only bank with positive SRISK is Hong Leong Financial Group Bhd. In Singapore, the only bank with positive SRISK is the DBS Group Holdings.

Looking back at Figure 8.1, it was clear banks domiciled in the ‘+3’ countries – the PRC, Japan and the Republic of Korea, which have the largest economies in terms of GDP – are by far the largest contributors to systemic risk, as expected. Looking now at Table 8A.1, the systemic risk of some individual banks in these three countries exceed the total systemic risk of ASEAN countries. Most banks in ASEAN countries also have negative SRISK. It is noteworthy that the PRC, Japan and the Republic of Korea are part of the G20 and all committed to advancing some of the
Table 8.7  Global systemic risk by country: India SRISK

Systemic Risk Ranking For 2013–01–11 (MES is equity loss for a 2% daily market decline)

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK($M)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Bank of India</td>
<td>14.96</td>
<td>1</td>
<td>6667</td>
<td>1.79</td>
<td>0.72</td>
<td>0.23</td>
<td>26.5</td>
<td>12.07</td>
<td>30,495.4</td>
</tr>
<tr>
<td>Bank of India</td>
<td>7.54</td>
<td>2</td>
<td>3358</td>
<td>2.12</td>
<td>0.84</td>
<td>0.14</td>
<td>34.5</td>
<td>19.87</td>
<td>3,809.2</td>
</tr>
<tr>
<td>Punjab National Bank</td>
<td>7.28</td>
<td>3</td>
<td>3224</td>
<td>1.72</td>
<td>0.69</td>
<td>0.23</td>
<td>27.3</td>
<td>16.88</td>
<td>5,449.8</td>
</tr>
<tr>
<td>Canara Bank</td>
<td>6.53</td>
<td>4</td>
<td>2910</td>
<td>1.86</td>
<td>0.74</td>
<td>0.16</td>
<td>33.6</td>
<td>18.17</td>
<td>4,067.9</td>
</tr>
<tr>
<td>Central Bank of India</td>
<td>6.32</td>
<td>5</td>
<td>2816</td>
<td>2.15</td>
<td>0.88</td>
<td>0.14</td>
<td>39.1</td>
<td>38.00</td>
<td>1,205.9</td>
</tr>
<tr>
<td>Bank of Baroda</td>
<td>5.79</td>
<td>6</td>
<td>2582</td>
<td>2.06</td>
<td>0.82</td>
<td>0.19</td>
<td>33.1</td>
<td>13.87</td>
<td>6,539.82</td>
</tr>
<tr>
<td>IDBI Bank Ltd</td>
<td>5.77</td>
<td>7</td>
<td>2570</td>
<td>2.06</td>
<td>0.83</td>
<td>0.20</td>
<td>33.8</td>
<td>21.03</td>
<td>2,658.8</td>
</tr>
<tr>
<td>Indian Overseas Bank</td>
<td>5.51</td>
<td>8</td>
<td>2456</td>
<td>2.18</td>
<td>0.88</td>
<td>0.16</td>
<td>33.6</td>
<td>32.44</td>
<td>1,296.9</td>
</tr>
<tr>
<td>Union Bank of India</td>
<td>4.69</td>
<td>9</td>
<td>2088</td>
<td>1.54</td>
<td>0.64</td>
<td>0.13</td>
<td>33.9</td>
<td>19.79</td>
<td>2,592.8</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>4.61</td>
<td>10</td>
<td>2052</td>
<td>1.95</td>
<td>0.77</td>
<td>0.18</td>
<td>35.9</td>
<td>34.79</td>
<td>998.6</td>
</tr>
<tr>
<td>Syndicate Bank</td>
<td>3.83</td>
<td>11</td>
<td>1708</td>
<td>1.75</td>
<td>0.72</td>
<td>0.19</td>
<td>35.3</td>
<td>23.50</td>
<td>1,512.7</td>
</tr>
<tr>
<td>Allahabad Bank</td>
<td>3.79</td>
<td>12</td>
<td>1686</td>
<td>1.99</td>
<td>0.79</td>
<td>0.17</td>
<td>32.4</td>
<td>22.29</td>
<td>1,591.3</td>
</tr>
<tr>
<td>Corp Bank</td>
<td>3.57</td>
<td>13</td>
<td>1592</td>
<td>1.73</td>
<td>0.69</td>
<td>0.18</td>
<td>30.3</td>
<td>25.28</td>
<td>1,255.4</td>
</tr>
<tr>
<td>Oriental Bank of Commerce</td>
<td>3.13</td>
<td>14</td>
<td>1394</td>
<td>1.58</td>
<td>0.64</td>
<td>0.10</td>
<td>37.4</td>
<td>19.59</td>
<td>1,755.1</td>
</tr>
<tr>
<td>Indian bank</td>
<td>2.46</td>
<td>15</td>
<td>1098</td>
<td>2.42</td>
<td>1.00</td>
<td>0.14</td>
<td>33.8</td>
<td>17.01</td>
<td>1,600.6</td>
</tr>
<tr>
<td>Andhra Bank</td>
<td>2.27</td>
<td>16</td>
<td>1012</td>
<td>1.76</td>
<td>0.71</td>
<td>0.17</td>
<td>32.1</td>
<td>19.41</td>
<td>1,260.2</td>
</tr>
<tr>
<td>State Bank of Travancore</td>
<td>2.08</td>
<td>17</td>
<td>929</td>
<td>1.86</td>
<td>0.75</td>
<td>0.23</td>
<td>33.8</td>
<td>30.42</td>
<td>547.6</td>
</tr>
<tr>
<td>Bank of Maharashtra</td>
<td>1.95</td>
<td>18</td>
<td>871</td>
<td>1.75</td>
<td>0.69</td>
<td>0.15</td>
<td>30.7</td>
<td>26.12</td>
<td>650.7</td>
</tr>
<tr>
<td>Punjab &amp; Sind Bank</td>
<td>1.86</td>
<td>19</td>
<td>829</td>
<td>1.00</td>
<td>0.40</td>
<td>0.13</td>
<td>32.2</td>
<td>42.53</td>
<td>324.5</td>
</tr>
<tr>
<td>Dena Bank</td>
<td>1.80</td>
<td>20</td>
<td>800</td>
<td>1.89</td>
<td>0.77</td>
<td>0.15</td>
<td>39.1</td>
<td>22.22</td>
<td>767.0</td>
</tr>
</tbody>
</table>

Source: Estimated by New York University Volatility-Laboratory, using data mainly from Bloomberg.
regulatory issues that could assist international institutions to understand the factors that may assist in mitigating the propagation of systemic risk better. At the same time, since ASEAN+3 did not contribute to the recent GFC directly, banks in these countries have had different financial experiences since 2009. One of the key issues that some of the Asian banks are facing is how to rely less on the wholesale funds market for financing their increasing domestic demand for credit. The recent sovereign debt crisis in Europe has affected the flow of funds to some of the Asian Banks within ASEAN+3 as well as other countries such as Australia. Given the current fragile financial situation in Europe and the possibility of massive withdrawal of funds and business by European banks from Asian financial markets, some of the Asian banks have already consolidated their financial position in anticipation of such a possibility. A report from the IMF (2011) indicates that Asian banks will be able to withstand a Lehman Brothers collapse scenario, should such an event occur again in the near future.

7 THE CONVERGENCE OF IFRS AND US GAAP AND ITS IMPACT ON MEASUREMENT OF SYSTEMIC RISK

The G20 in repeated statements has affirmed its commitment to achieving a consistent international accounting framework through the convergence of US GAAP and IFRS. While the motivation has not been directly stated, it is quite clear that achieving a single international framework for accounting standards is vital to its regulatory agenda in order to improve the transparency and disclosure of information. Subsequently, since 2002, the International Accounting Standards Board and the Federal Accounting Standards Board have been working towards the convergence of US generally accepted accounting principles (GAAP) and International Financial Reporting Standards (IFRS). Despite some progress, commentators have suggested that it is increasingly likely there will remain two main accounting systems in the future (Arner and Schou-Zibell, 2010).

However there are important benefits to convergence, which is closely intertwined with the G20’s interest in identifying and monitoring systemic risk. Harmonization of accounting standards would substantially improve financial information for researchers to use in developing indicators of systemic risk buildup. This may eventually be a factor motivating convergence in future.

Specifically, in relation to the SRISK figure reported in this paper, the important difference between US GAAP and IFRS is the netting of
Implications of global financial and regulatory policies

derivatives. Under IFRS, derivative assets and derivative liabilities are only netted under some circumstances, while under US GAAP, they are netted much more widely. This does not affect net worth, since the difference between assets and liabilities remains the same. It only affects the size of assets and liabilities, thereby changing the leverage ratio (for example, where leverage is assets/net worth, assets may increase or decrease depending on the outcome of the netting, but net worth remains the same, leading to a higher or lower leverage ratio). To adjust for this difference in accounting treatment, a net derivative position is used for all firms.

8 CONCLUSION

This chapter highlights some of the financial challenges and opportunities in the post-GFC era with a focus on Asia. It discusses some of the issues related to G-SIFs and D-SIBs. The chapter also discusses some of the issues which led to the ‘too-big-to-fail’ environment in some parts of the world and the way recent global policies have focused on the creation of more effective resolution regimes. The IMF has referred to macro-prudential policies as one of the most challenging policies facing this generation. The chapter discusses aspects of macro-prudential policies and highlights the interaction between these policies and the way one may mitigate systemic risk. One of the policy challenges is how central banks could intervene in the market without stifling financial innovation and economic growth, while mitigating the risk of financial contagion. The chapter also discusses some of the issues related to regional financial safety nets, and states that one of highlights of the recent developments in Asia is the CMIM of the ASEAN+3 members which will reduce the destabilizing effects of sudden surges in capital outflows. Some of the policies that could make the CMIM a more effective tool in ensuring greater financial liquidity and less chance of systemic risk in the region are highlighted. This chapter uses the measures of systemic risk developed at the New York University Volatility-Laboratory and reports on contributions of banks from the PRC, Japan and India to global and regional systemic risk. Furthermore, it reports how banks within the ASEAN+3 are financially placed, given the ongoing financial challenges of European banks. The chapter argues that Asian banks are strong enough to withstand the possibility of a Lehman Brother collapse scenario, should the European banks withdraw their business activities from Asia.
ACKNOWLEDGMENTS

I have been at Stern Business School while writing this paper. I would like to thank the staff at New York University Volatility-Laboratory, particularly the Director of the V-Lab Rob Capillini for his valuable data analysis and information for this project. I have also benefited from the insight provided by Viral Acharya and Robert Engle on issues discussed in this paper. I am grateful for the excellent research assistance provided by Michael Liu and Tim Chiang for this chapter. I am responsible for all the errors and shortcomings of this chapter. I also wish to acknowledge the contributions of the Australian Research Council for this project.

NOTE


REFERENCES

APPENDIX 8A.1

The following measures of banks’ systemic risk are based on the data generated from the New York University Volatility-Laboratory.

Figure 8A.1 Japan SRISK time series for Mitsubishi UFJ FG, Mizuho FG, and Sumitomo Mitsui FG (USD million)
Figure 8A.1  (continued)

Figure 8A.2  The PRC SRISK time series for Bank of China, Agricultural Bank of China, China Construction Bank, Bank of Communications, and Industrial and Commercial Bank of China (USD million)
Figure 8A.2  (continued)
Figure 8A.3 India SRISK time series for State Bank of India, Bank of India, Punjab National Bank, Canara Bank, and Central Bank of India (USD million)
Figure 8A.3  (continued)
Figure 8A.3 (continued)
Figure 8A.3 (continued)
## Table 8A.1  Global systemic risk by country: SRISK for ASEAN+3 countries

(a) ASEAN

### Indonesia

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Pan Indonesia Tbk PT</td>
<td>100</td>
<td>1</td>
<td>7</td>
<td>1.74</td>
<td>0.70</td>
<td>0.07</td>
<td>42.5</td>
<td>9.47</td>
<td>1524.30</td>
</tr>
<tr>
<td>Polaris Investama Tbk PT</td>
<td>0</td>
<td>2</td>
<td>-96</td>
<td>1.45</td>
<td>0.55</td>
<td>0.03</td>
<td>83.9</td>
<td>1.07</td>
<td>136.40</td>
</tr>
<tr>
<td>Panin Insurance Tbk PT</td>
<td>0</td>
<td>3</td>
<td>-127</td>
<td>1.71</td>
<td>0.68</td>
<td>0.05</td>
<td>44.2</td>
<td>2.52</td>
<td>228.00</td>
</tr>
<tr>
<td>BFI Finance Indonesia Tbk PT</td>
<td>0</td>
<td>4</td>
<td>-202</td>
<td>1.11</td>
<td>0.42</td>
<td>0.06</td>
<td>47.5</td>
<td>2.26</td>
<td>309.30</td>
</tr>
<tr>
<td>Panin Financial Tbk PT</td>
<td>0</td>
<td>5</td>
<td>-237</td>
<td>1.80</td>
<td>0.71</td>
<td>0.14</td>
<td>36.2</td>
<td>1.82</td>
<td>395.70</td>
</tr>
</tbody>
</table>

### Thailand

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maybank Kim Eng Securities Thailand PCL</td>
<td>0</td>
<td>1</td>
<td>-187</td>
<td>1.26</td>
<td>0.50</td>
<td>0.18</td>
<td>21.5</td>
<td>2.00</td>
<td>286.40</td>
</tr>
<tr>
<td>TMB Bank PCL</td>
<td>0</td>
<td>2</td>
<td>-512</td>
<td>1.46</td>
<td>0.59</td>
<td>0.11</td>
<td>39.5</td>
<td>7.68</td>
<td>2961.80</td>
</tr>
<tr>
<td>Aeon Thanasinsap Thailand PCL</td>
<td>0</td>
<td>3</td>
<td>-525</td>
<td>0.49</td>
<td>0.21</td>
<td>0.04</td>
<td>36.4</td>
<td>2.69</td>
<td>742.80</td>
</tr>
<tr>
<td>Bangkok Insurance PCL</td>
<td>0</td>
<td>4</td>
<td>-534</td>
<td>0.88</td>
<td>0.36</td>
<td>0.24</td>
<td>21.0</td>
<td>2.41</td>
<td>793.40</td>
</tr>
<tr>
<td>CIMB Thai Bank PCL</td>
<td>0</td>
<td>5</td>
<td>-983</td>
<td>0.84</td>
<td>0.34</td>
<td>0.09</td>
<td>46.3</td>
<td>3.99</td>
<td>1782.00</td>
</tr>
</tbody>
</table>

### Malaysia

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Leong Financial Group Bhd</td>
<td>100</td>
<td>1</td>
<td>828</td>
<td>1.86</td>
<td>0.76</td>
<td>0.14</td>
<td>30.0</td>
<td>11.30</td>
<td>4978.10</td>
</tr>
<tr>
<td>Affin Holdings Bhd</td>
<td>0</td>
<td>2</td>
<td>-11</td>
<td>1.07</td>
<td>0.44</td>
<td>0.11</td>
<td>18.3</td>
<td>10.39</td>
<td>1702.10</td>
</tr>
<tr>
<td>OSK Holdings BHD</td>
<td>0</td>
<td>3</td>
<td>-80</td>
<td>1.60</td>
<td>0.65</td>
<td>0.08</td>
<td>27.2</td>
<td>7.56</td>
<td>484.10</td>
</tr>
<tr>
<td>Institution</td>
<td>SRISK%</td>
<td>RNK</td>
<td>SRISK ($m)</td>
<td>MES</td>
<td>Beta</td>
<td>Cor</td>
<td>Vol</td>
<td>Lvg</td>
<td>MV</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>--------</td>
<td>-----</td>
<td>------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>Allianz Malaysia Bhd</td>
<td>0</td>
<td>4</td>
<td>-117</td>
<td>0.99</td>
<td>0.40</td>
<td>0.12</td>
<td>28.3</td>
<td>6.90</td>
<td>392.80</td>
</tr>
<tr>
<td>TA Enterprise Bhd</td>
<td>0</td>
<td>5</td>
<td>-147</td>
<td>1.57</td>
<td>0.64</td>
<td>0.08</td>
<td>26.8</td>
<td>3.47</td>
<td>297.60</td>
</tr>
</tbody>
</table>

### Singapore

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBS Group Holdings Ltd</td>
<td>100</td>
<td>1</td>
<td>1 535</td>
<td>1.73</td>
<td>0.69</td>
<td>0.26</td>
<td>14.9</td>
<td>10.08</td>
<td>29 250.70</td>
</tr>
<tr>
<td>Singapore Reinsurance Corp Ltd</td>
<td>0</td>
<td>2</td>
<td>-64</td>
<td>0.91</td>
<td>0.36</td>
<td>0.19</td>
<td>35.8</td>
<td>4.11</td>
<td>121.10</td>
</tr>
<tr>
<td>Hong Leong Finance Ltd</td>
<td>0</td>
<td>3</td>
<td>-67</td>
<td>1.15</td>
<td>0.46</td>
<td>0.24</td>
<td>17.2</td>
<td>9.47</td>
<td>947.70</td>
</tr>
<tr>
<td>Cityspring Infrastructure Trust</td>
<td>0</td>
<td>4</td>
<td>-290</td>
<td>1.27</td>
<td>0.53</td>
<td>0.18</td>
<td>21.9</td>
<td>3.50</td>
<td>545.70</td>
</tr>
<tr>
<td>UOB-Kay Hian Holdings Ltd</td>
<td>0</td>
<td>5</td>
<td>-577</td>
<td>1.54</td>
<td>0.61</td>
<td>0.25</td>
<td>17.0</td>
<td>2.42</td>
<td>988.30</td>
</tr>
</tbody>
</table>

### The Philippines

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Reinsurance Corp of Philippines/The</td>
<td>1</td>
<td>0</td>
<td>-57</td>
<td>0.93</td>
<td>0.38</td>
<td>0.11</td>
<td>39.8</td>
<td>2.85</td>
<td>90.90</td>
</tr>
<tr>
<td>CitisecOnline.com Inc</td>
<td>0</td>
<td>2</td>
<td>-169</td>
<td>0.80</td>
<td>0.33</td>
<td>-0.04</td>
<td>26.6</td>
<td>1.27</td>
<td>218.70</td>
</tr>
<tr>
<td>Philippine Stock Exchange Inc</td>
<td>0</td>
<td>3</td>
<td>-470</td>
<td>1.08</td>
<td>0.42</td>
<td>0.07</td>
<td>34.4</td>
<td>1.02</td>
<td>621.50</td>
</tr>
<tr>
<td>China Banking Corp</td>
<td>0</td>
<td>4</td>
<td>-895</td>
<td>0.73</td>
<td>0.29</td>
<td>0.11</td>
<td>17.7</td>
<td>4.70</td>
<td>1753.40</td>
</tr>
<tr>
<td>SM Development Corp</td>
<td>0</td>
<td>5</td>
<td>-899</td>
<td>1.48</td>
<td>0.58</td>
<td>0.10</td>
<td>26.8</td>
<td>1.56</td>
<td>1362.00</td>
</tr>
</tbody>
</table>
Table 8A.1  (continued)

(a) ASEAN

Viet Nam

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>PetroVietnam Finance JSC</td>
<td>100</td>
<td>1</td>
<td>100</td>
<td>1.43</td>
<td>0.59</td>
<td>0.06</td>
<td>55.6</td>
<td>13.81</td>
<td>316.90</td>
</tr>
<tr>
<td>Kinh Bac City Development Share Holding Corp</td>
<td>0</td>
<td>2</td>
<td>−48</td>
<td>1.22</td>
<td>0.50</td>
<td>0.04</td>
<td>63.0</td>
<td>4.20</td>
<td>100.20</td>
</tr>
<tr>
<td>Saigon Securities Inc</td>
<td>0</td>
<td>3</td>
<td>−222</td>
<td>0.98</td>
<td>0.38</td>
<td>0.09</td>
<td>42.5</td>
<td>1.49</td>
<td>303.80</td>
</tr>
<tr>
<td>Viet Nam Export-Import Commercial JSB</td>
<td>0</td>
<td>4</td>
<td>−274</td>
<td>0.06</td>
<td>0.02</td>
<td>−0.01</td>
<td>23.3</td>
<td>8.63</td>
<td>913.50</td>
</tr>
<tr>
<td>Vietnam Joint Stock Commercial</td>
<td>0</td>
<td>5</td>
<td>−819</td>
<td>0.43</td>
<td>0.17</td>
<td>0.04</td>
<td>40.7</td>
<td>8.00</td>
<td>2807.00</td>
</tr>
</tbody>
</table>

(b) The PRC, Japan, and the Republic of Korea ‘+3’

China

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of China Ltd-H</td>
<td>24.13</td>
<td>1</td>
<td>77969</td>
<td>2.77</td>
<td>1.07</td>
<td>0.31</td>
<td>22.7</td>
<td>15.40</td>
<td>131525.50</td>
</tr>
<tr>
<td>Agricultural Bank of China-A</td>
<td>12.63</td>
<td>2</td>
<td>40822</td>
<td>0.87</td>
<td>0.35</td>
<td>0.19</td>
<td>20.3</td>
<td>14.29</td>
<td>147709.30</td>
</tr>
<tr>
<td>China Construction Bank-H</td>
<td>11.39</td>
<td>3</td>
<td>36808</td>
<td>2.55</td>
<td>1.03</td>
<td>0.30</td>
<td>22.3</td>
<td>10.49</td>
<td>207492.70</td>
</tr>
<tr>
<td>Bank of Communications Co-H</td>
<td>9.40</td>
<td>4</td>
<td>30385</td>
<td>3.09</td>
<td>1.20</td>
<td>0.32</td>
<td>25.4</td>
<td>14.13</td>
<td>58172.10</td>
</tr>
<tr>
<td>Ind &amp; Comm Bank of China-A</td>
<td>8.30</td>
<td>5</td>
<td>26835</td>
<td>1.16</td>
<td>0.45</td>
<td>0.20</td>
<td>23.1</td>
<td>11.71</td>
<td>242051.90</td>
</tr>
<tr>
<td>China Citic Bank Corp Ltd-H</td>
<td>5.52</td>
<td>6</td>
<td>17832</td>
<td>2.96</td>
<td>1.21</td>
<td>0.30</td>
<td>28.0</td>
<td>15.06</td>
<td>30493.30</td>
</tr>
<tr>
<td>Shanghai Pudong Development Bank-A</td>
<td>5.09</td>
<td>7</td>
<td>16436</td>
<td>1.32</td>
<td>0.54</td>
<td>0.21</td>
<td>31.9</td>
<td>17.04</td>
<td>29464.80</td>
</tr>
<tr>
<td>Industrial Bank Co Ltd-A</td>
<td>4.81</td>
<td>8</td>
<td>15558</td>
<td>1.34</td>
<td>0.56</td>
<td>0.16</td>
<td>33.6</td>
<td>16.92</td>
<td>28246.50</td>
</tr>
<tr>
<td>China Everbright Bank Co Ltd</td>
<td>3.92</td>
<td>9</td>
<td>12673</td>
<td>1.23</td>
<td>0.49</td>
<td>0.20</td>
<td>27.2</td>
<td>18.47</td>
<td>19187.10</td>
</tr>
<tr>
<td>Institution</td>
<td>SRISK%</td>
<td>RNK</td>
<td>SRISK (Sm)</td>
<td>MES</td>
<td>Beta</td>
<td>Cor</td>
<td>Vol</td>
<td>Lvg</td>
<td>MV</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>--------</td>
<td>-----</td>
<td>------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>Huaxia Bank Co Ltd</td>
<td>3.01</td>
<td>10</td>
<td>9728</td>
<td>1.45</td>
<td>0.56</td>
<td>0.18</td>
<td>34.8</td>
<td>20.94</td>
<td>10974.00</td>
</tr>
<tr>
<td>Shenzhen Development Bank Co</td>
<td>2.54</td>
<td>11</td>
<td>8210</td>
<td>1.16</td>
<td>0.47</td>
<td>0.14</td>
<td>40.5</td>
<td>18.34</td>
<td>12806.70</td>
</tr>
<tr>
<td>China Merchants Bank-A</td>
<td>2.52</td>
<td>12</td>
<td>8129</td>
<td>1.73</td>
<td>0.67</td>
<td>0.21</td>
<td>35.0</td>
<td>11.61</td>
<td>4695.50</td>
</tr>
<tr>
<td>Ping An Insurance Group Co-H</td>
<td>2.32</td>
<td>13</td>
<td>7482</td>
<td>4.89</td>
<td>1.90</td>
<td>0.28</td>
<td>36.9</td>
<td>7.30</td>
<td>61237.40</td>
</tr>
<tr>
<td>China Minsheng Banking Corp Ltd</td>
<td>2.10</td>
<td>14</td>
<td>6786</td>
<td>1.17</td>
<td>0.48</td>
<td>0.16</td>
<td>33.7</td>
<td>12.66</td>
<td>36161.30</td>
</tr>
<tr>
<td>Bank Of Beijing Co Ltd</td>
<td>1.30</td>
<td>15</td>
<td>4208</td>
<td>1.26</td>
<td>0.52</td>
<td>0.19</td>
<td>33.6</td>
<td>14.38</td>
<td>12456.80</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitsubishi UFJ Financial Group</td>
<td>24.75</td>
<td>1</td>
<td>167783</td>
<td>2.51</td>
<td>1.00</td>
<td>0.15</td>
<td>27.6</td>
<td>35.88</td>
<td>76073.60</td>
</tr>
<tr>
<td>Mizuho Financial Group Inc</td>
<td>19.77</td>
<td>2</td>
<td>134017</td>
<td>2.05</td>
<td>0.80</td>
<td>0.15</td>
<td>25.0</td>
<td>45.63</td>
<td>45675.10</td>
</tr>
<tr>
<td>Sumitomo Mitsui Financial Group</td>
<td>14.97</td>
<td>3</td>
<td>101463</td>
<td>1.96</td>
<td>0.76</td>
<td>0.15</td>
<td>20.5</td>
<td>33.10</td>
<td>52818.90</td>
</tr>
<tr>
<td>Resona Holdings Inc</td>
<td>4.97</td>
<td>4</td>
<td>33673</td>
<td>1.56</td>
<td>0.62</td>
<td>0.11</td>
<td>26.1</td>
<td>46.44</td>
<td>11453.40</td>
</tr>
<tr>
<td>Dai-Ichi Life Insurance</td>
<td>3.97</td>
<td>5</td>
<td>26930</td>
<td>3.89</td>
<td>1.56</td>
<td>0.18</td>
<td>38.7</td>
<td>29.50</td>
<td>14773.10</td>
</tr>
<tr>
<td>Sumitomo Mitsui Trust Holdings</td>
<td>3.75</td>
<td>6</td>
<td>25417</td>
<td>2.84</td>
<td>1.13</td>
<td>0.17</td>
<td>30.9</td>
<td>30.12</td>
<td>14303.10</td>
</tr>
<tr>
<td>Nomura Holdings Inc</td>
<td>3.63</td>
<td>7</td>
<td>24611</td>
<td>4.08</td>
<td>1.64</td>
<td>0.15</td>
<td>42.5</td>
<td>21.16</td>
<td>21010.20</td>
</tr>
<tr>
<td>Shinkin Central Bank</td>
<td>3.35</td>
<td>8</td>
<td>22696</td>
<td>−0.13</td>
<td>−0.05</td>
<td>−0.06</td>
<td>10.0</td>
<td>45.02</td>
<td>8798.50</td>
</tr>
<tr>
<td>Daiwa Securities Group Inc</td>
<td>2.03</td>
<td>9</td>
<td>13770</td>
<td>3.64</td>
<td>1.46</td>
<td>0.16</td>
<td>35.6</td>
<td>25.88</td>
<td>9105.00</td>
</tr>
<tr>
<td>Fukuoka Financial Group Inc</td>
<td>1.44</td>
<td>10</td>
<td>9741</td>
<td>1.38</td>
<td>0.56</td>
<td>0.09</td>
<td>19.9</td>
<td>45.04</td>
<td>3471.80</td>
</tr>
<tr>
<td>Hokuhoku Financial Group Inc</td>
<td>1.35</td>
<td>11</td>
<td>9162</td>
<td>1.98</td>
<td>0.77</td>
<td>0.11</td>
<td>28.2</td>
<td>63.40</td>
<td>2107.30</td>
</tr>
<tr>
<td>T&amp;D Holdings Inc</td>
<td>1.19</td>
<td>12</td>
<td>8065</td>
<td>3.06</td>
<td>1.19</td>
<td>0.16</td>
<td>38.9</td>
<td>19.13</td>
<td>8767.90</td>
</tr>
<tr>
<td>Bank of Yokohama Ltd/The</td>
<td>1.15</td>
<td>13</td>
<td>7806</td>
<td>1.48</td>
<td>0.59</td>
<td>0.10</td>
<td>25.1</td>
<td>24.93</td>
<td>6456.80</td>
</tr>
<tr>
<td>Yamaguchi Financial Group Inc</td>
<td>1.04</td>
<td>14</td>
<td>7057</td>
<td>1.20</td>
<td>0.49</td>
<td>0.07</td>
<td>20.5</td>
<td>46.99</td>
<td>2401.90</td>
</tr>
<tr>
<td>Chiba Bank Ltd/The</td>
<td>1.02</td>
<td>15</td>
<td>6923</td>
<td>1.48</td>
<td>0.59</td>
<td>0.13</td>
<td>25.2</td>
<td>26.35</td>
<td>5234.50</td>
</tr>
</tbody>
</table>
Table 8A.1  (continued)

(b) The PRC, Japan, and the Republic of Korea ‘+3’

The Republic of Korea

<table>
<thead>
<tr>
<th>Institution</th>
<th>SRISK%</th>
<th>RNK</th>
<th>SRISK ($m)</th>
<th>MES</th>
<th>Beta</th>
<th>Cor</th>
<th>Vol</th>
<th>Lvg</th>
<th>MV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Bank of Korea</td>
<td>59.11</td>
<td>1</td>
<td>8201</td>
<td>2.94</td>
<td>1.18</td>
<td>0.17</td>
<td>57.7</td>
<td>24.51</td>
<td>6125.10</td>
</tr>
<tr>
<td>Korea Exchange Bank</td>
<td>25.80</td>
<td>2</td>
<td>3579</td>
<td>2.73</td>
<td>1.10</td>
<td>0.13</td>
<td>26.7</td>
<td>18.00</td>
<td>4493.40</td>
</tr>
<tr>
<td>Tong Yang Securities Inc</td>
<td>5.18</td>
<td>3</td>
<td>719</td>
<td>3.32</td>
<td>1.33</td>
<td>0.27</td>
<td>31.5</td>
<td>25.75</td>
<td>487.90</td>
</tr>
<tr>
<td>Korea Life Insurance Co Ltd</td>
<td>4.42</td>
<td>4</td>
<td>613</td>
<td>2.45</td>
<td>0.98</td>
<td>0.15</td>
<td>29.4</td>
<td>9.60</td>
<td>6405.10</td>
</tr>
<tr>
<td>Woori Investment &amp; Securities</td>
<td>2.10</td>
<td>5</td>
<td>291</td>
<td>3.75</td>
<td>1.51</td>
<td>0.31</td>
<td>38.0</td>
<td>8.49</td>
<td>2235.20</td>
</tr>
<tr>
<td>Hyundai Securities Co</td>
<td>1.02</td>
<td>6</td>
<td>141</td>
<td>3.41</td>
<td>1.37</td>
<td>0.28</td>
<td>28.1</td>
<td>8.46</td>
<td>1424.30</td>
</tr>
<tr>
<td>Tong Yang Life Insurance</td>
<td>0.93</td>
<td>7</td>
<td>129</td>
<td>1.19</td>
<td>0.48</td>
<td>0.13</td>
<td>28.7</td>
<td>11.75</td>
<td>1099.80</td>
</tr>
<tr>
<td>Mirae Asset Securities Co Ltd</td>
<td>0.83</td>
<td>8</td>
<td>115</td>
<td>3.54</td>
<td>1.38</td>
<td>0.27</td>
<td>33.6</td>
<td>8.04</td>
<td>1499.10</td>
</tr>
<tr>
<td>LIG Insurance Co Ltd</td>
<td>0.62</td>
<td>9</td>
<td>86</td>
<td>2.08</td>
<td>0.84</td>
<td>0.10</td>
<td>36.4</td>
<td>9.69</td>
<td>1377.40</td>
</tr>
<tr>
<td>Daewoo Securities Co Ltd</td>
<td>0</td>
<td>10</td>
<td>−360</td>
<td>4.04</td>
<td>1.61</td>
<td>0.31</td>
<td>36.6</td>
<td>5.35</td>
<td>3711.40</td>
</tr>
</tbody>
</table>
PART IV

Financial Integration and Cooperation to Support Financial Stability
Introduction
Noritaka Akamatsu

Asia, particularly Southeast and East Asia, suffered the full effects of the financial crisis that broke out in 1997. This crisis prompted the Association of Southeast Asian Nations, the People’s Republic of China, Japan, and the Republic of Korea – collectively known as the ASEAN+3 – to jointly pursue financial stability through various regional cooperation initiatives. A policy dialogue process among ASEAN+3 finance ministers was then created to promote the exchange of views and information on the state of their economies and to pursue cooperation to achieve financial stability.

One example of such cooperation is the Chiang Mai Initiative (CMI). During the 1997–98 Asian financial crisis, Thailand, Indonesia, and the Republic of Korea sought liquidity support from the International Monetary Fund. Their difficult experience with IMF programs prompted the ASEAN+3 to launch the CMI to supplement the role of the IMF. In 2000, the 13 countries that comprise the ASEAN+3 gathered at the Annual Meeting of the Asian Development Bank in Chiang Mai, Thailand, and agreed upon bilateral currency swap arrangements to fight currency speculation and preempt future crises.

In 2009, the collection of bilateral swaps was multilateralized, leading to the renaming of the initiative as the Chiang Mai Initiative Multilateralization (CMIM). Multilateralization entailed the creation of a central pool of foreign exchange liquidity, supported by swap agreements with member countries that could be flexibly provided to participating countries when they anticipate a liquidity crunch but before actually facing a balance of payments problem. In 2010, the ASEAN+3 collectively committed US$120 billion to support the CMIM. In 2012, the amount was doubled to US$240 billion.

Clearly, the CMIM needs to be governed by proper rules and guided by competent macroeconomic surveillance functions. To supplement the role of the IMF, the CMIM’s rules need to be reasonably flexible. This flexibility is reflected in a portion of the CMIM that member countries are allowed to use without being linked to an IMF program. At the same time, this flexibility needs to be checked and balanced with sound
macroeconomic surveillance to avoid moral hazard among CMIM beneficiaries. The governing rules include quotas assigned to each ASEAN+3 member country, based on leverage ratios (or purchasing multiple) applied to its contribution amount (Table IV.1). The leverage ratios reflect the CMIM’s intended purpose to support the ASEAN, particularly lower-income ASEAN members. On the other hand, the ‘+3 countries’, particularly the PRC and Japan, are contributors to the CMIM rather than beneficiaries of it.

In 2011, ASEAN+3 established the ASEAN+3 Macroeconomic Research Office to conduct continuous surveillance of ASEAN+3 economies to serve as a basis to judge whether and how a member country needs to be supported with additional liquidity. It also periodically reports to ASEAN+3 finance ministries and central banks to update authorities on the state of economies in the region and beyond. A remaining challenge for AMRO may be to eventually go beyond macroeconomic surveillance and capture financial sector risks.

In 2003, the ASEAN+3 launched another important initiative called the Asian Bond Market Initiative (ABMI). While the CMIM aims to support member countries to pre-empt a future liquidity crunch at the macro level, the ABMI is designed to address one of the root causes of the 1997–98 Asian financial crisis. Prior to 1997, businesses in the crisis-hit countries were financing long-term projects and assets that generated returns in a local currency with short-term borrowing in foreign currencies. When foreign creditors sensed the growing risks associated with this widespread practice and began to retreat, businesses faced great difficulty in liquidating their assets and obtaining sufficient foreign exchange to repay their obligations. Attempts by monetary authorities to defend their local currencies against mounting depreciation pressures led to the depletion of foreign exchange reserves. Eventually, drastic depreciations caused massive bankruptcies among businesses with unhedged exposures to currency risks. Banks and finance companies that were financing those businesses also went under because of their large holdings of non-performing loans.

The experience vividly showed that a major financial crisis can occur even when the economy’s aggregate indebtedness is not excessive if the currency and maturity structure of assets and liabilities are misaligned. This so-called ‘double mismatch’ problem tends to occur in the financing of businesses and projects that generate returns in local currency while requiring long-term financing and imported capital goods. Infrastructure is typical of such a business or project. Indeed, Asia is projected to need a massive amount of investment in infrastructure in the years to come and, therefore, must approach its financing with care.

The crisis also showed that micro level prudential measures alone are
### Table IV.1 CMIM resource allocation

<table>
<thead>
<tr>
<th>Countries</th>
<th>Financial contribution (billion USD)</th>
<th>Share (%)</th>
<th>Purchasing multiple</th>
<th>Maximum swap amount (billion USD)</th>
<th>Basic votes</th>
<th>Vote based on contribution</th>
<th>Total voting power %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plus Three</strong></td>
<td><strong>192.00</strong></td>
<td><strong>80.00</strong></td>
<td><strong>117.30</strong></td>
<td><strong>9.60</strong></td>
<td><strong>192.00</strong></td>
<td><strong>201.60</strong></td>
<td><strong>71.59</strong></td>
</tr>
<tr>
<td>China (excluding Hong Kong)</td>
<td>76.80</td>
<td>68.40</td>
<td>32.00</td>
<td>28.50</td>
<td>0.5</td>
<td>34.20</td>
<td>3.20</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>8.40</td>
<td>3.50</td>
<td>2.5</td>
<td>6.30</td>
<td>0.00</td>
<td>8.40</td>
<td>8.400</td>
</tr>
<tr>
<td>Japan</td>
<td>76.800</td>
<td>32.000</td>
<td>0.5</td>
<td>38.40</td>
<td>3.20</td>
<td>76.80</td>
<td>80.000</td>
</tr>
<tr>
<td>Korea</td>
<td>38.400</td>
<td>16.000</td>
<td>1</td>
<td>38.40</td>
<td>3.20</td>
<td>38.40</td>
<td>41.600</td>
</tr>
<tr>
<td>ASEAN</td>
<td><strong>48.000</strong></td>
<td><strong>20.000</strong></td>
<td><strong>126.20</strong></td>
<td><strong>32.00</strong></td>
<td><strong>48.000</strong></td>
<td><strong>80.00</strong></td>
<td><strong>28.410</strong></td>
</tr>
<tr>
<td>Indonesia</td>
<td>9.104</td>
<td>3.793</td>
<td>2.5</td>
<td>22.76</td>
<td>3.20</td>
<td>9.104</td>
<td>12.304</td>
</tr>
<tr>
<td>Thailand</td>
<td>9.104</td>
<td>3.793</td>
<td>2.5</td>
<td>22.76</td>
<td>3.20</td>
<td>9.104</td>
<td>12.304</td>
</tr>
<tr>
<td>Malaysia</td>
<td>9.104</td>
<td>3.793</td>
<td>2.5</td>
<td>22.76</td>
<td>3.20</td>
<td>9.104</td>
<td>12.304</td>
</tr>
<tr>
<td>Singapore</td>
<td>9.104</td>
<td>3.793</td>
<td>2.5</td>
<td>22.76</td>
<td>3.20</td>
<td>9.104</td>
<td>12.304</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>2.000</td>
<td>0.833</td>
<td>5</td>
<td>10.00</td>
<td>3.20</td>
<td>2.00</td>
<td>5.200</td>
</tr>
<tr>
<td>Cambodia</td>
<td>0.240</td>
<td>0.100</td>
<td>5</td>
<td>1.20</td>
<td>3.20</td>
<td>0.24</td>
<td>3.440</td>
</tr>
<tr>
<td>Myanmar</td>
<td>0.120</td>
<td>0.050</td>
<td>5</td>
<td>0.60</td>
<td>3.20</td>
<td>0.12</td>
<td>3.320</td>
</tr>
<tr>
<td>Brunei</td>
<td>0.060</td>
<td>0.025</td>
<td>5</td>
<td>0.30</td>
<td>3.20</td>
<td>0.06</td>
<td>3.260</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0.060</td>
<td>0.025</td>
<td>5</td>
<td>0.30</td>
<td>3.20</td>
<td>0.06</td>
<td>3.260</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>240.000</strong></td>
<td><strong>100.000</strong></td>
<td><strong>243.50</strong></td>
<td><strong>41.60</strong></td>
<td><strong>240.00</strong></td>
<td><strong>281.600</strong></td>
<td><strong>100.000</strong></td>
</tr>
</tbody>
</table>

Source: ASEAN+3 Macroeconomic Research Office.
Global shock, risks, and Asian financial reform

insufficient to prevent a system-wide crisis because the rational behavior of individual businesses and financial institutions can collectively create a major risk to the whole economy. Their attempts to protect their interests and manage risks can cause market-wide panic and failure owing partly to the procyclical nature of micro-prudential rules. Thus, macro-prudential policies and measures are necessary.

Policymakers in the region recognized that the underdevelopment (or lack) of local currency bond markets was a key cause of the double mismatch problem that contributed to the 1997–98 Asian financial crisis. Businesses and financial institutions could not raise sufficient long-term finances in their domestic currency, which caused them to rely on external funding even though it created currency mismatch risks in their assets and liabilities. The cheap and easy funding at the short-end of foreign banks’ maturity curve enticed Asian firms to take on maturity mismatch risks as well. The underdevelopment of local bond markets also caused businesses to depend heavily on bank lending, which amplified systemic risks.

Observing these lessons, the ASEAN+3 launched the ABMI to develop the region’s local currency bond markets. The resolution of the 1997–98 turmoil made it necessary for countries hit hard by the crisis to issue large volumes of government bonds to finance the recapitalization of banks and finance companies. Subsequently, they needed to develop secondary markets for their bonds to allow banks and finance companies to better manage their liquidity. Therefore, bond market development became both a policy objective and an immediate necessity.

Because a bond market is not a single institution but a place of interaction among many market participants, efforts to develop it require tackling a number of interdependent issues. For example, countries need to develop and diversify their investor base beyond the banking system not only to broaden and deepen the sources of demand, but also to reduce the systemic risk to which a banking system is vulnerable. Yet, the recent global financial crisis showed that policymakers also need to pay attention to banks’ exposure to shadow banks via repurchase markets and securitization. To work on this complex set of interdependent issues, the ABMI has developed through a few stages to take its current shape led by four task forces that seek to address issues of bond supply, demand, regulation, and market infrastructure, respectively (Figure IV.1).

Thanks to the regional initiatives as well as national efforts, local currency bond markets within the ASEAN+3 have grown rapidly in size over the past decade. Yet, the ABMI needs to continue to tackle two major challenges: (1) assisting individual member countries to further develop their domestic bond markets; and (2) integrating the existing bond markets of member countries. The first challenge involves two different issues. One is
Introduction

**Finance Ministers and Central Bank Governors Meeting**

**Deputy Ministers and Deputy Governors Meeting**

**CMIM**
- Regional safety net

**ABMI**
- **TF 1** (Supply)
  - Credit Guarantee & Investment Facility (CGIF)
  - Infrastructure finance schemes
- **TF 2** (Demand)
  - Developing government bond markets
  - Building investor base and enhancing investment climate
- **TF 3** (Regulation)
  - ASEAN+3 Bond Market Forum (ABMF)
  - SME access to bond market
  - ASEAN+3 SRO Working Group
- **TF 4** (Infra.)
  - Regional settlement intermediary (Cross-border Settlement Infrastructure Forum)
  - Regional credit rating system
  - Financial education

*Chiang Mai Initiative Multilateralization

**Source:** Asian Development Bank.

**Figure IV.1 ABMI structure**

to further develop the existing corporate and sub-sovereign bond markets, which is relevant for middle income ASEAN+3 members that already have functioning government bond markets to a varying degree. The other is to develop a core government bond market, which is critical for lower-income ASEAN+3 members that do not yet have a functioning domestic bond market.2 Cambodia, the Lao People's Democratic Republic, and Myanmar belong to this group. At present, these countries have good access to concessional resources from multilateral and bilateral sources. With their sustained high growth, however, they are likely to soon reach a stage where market interest rates will be applied to donor financing. Thus, they need to be prepared to develop their local currency bond markets, particularly government bond markets.

The second challenge of integrating regional markets stems from the ASEAN+3’s aim to promote the efficient allocation of capital across national borders. Net borrower countries can benefit from the additional resources available from net saver countries, while net savers can manage their excess resources for productive use within the region and earn returns instead of investing those in foreign currency-denominated assets outside the region, only to wait for them to return as short-term, speculative money. This challenge is relevant for middle- and high-income ASEAN+3 members that already have domestic bond markets to integrate. The five
original members of the ASEAN (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) and the ‘+3 countries’ (the PRC, Japan, and the Republic of Korea) can meaningfully work on this agenda. Among the remaining members of the ASEAN+3, Viet Nam is also increasingly a candidate for participation.

To meet this second challenge, the ASEAN+3 established the ASEAN+3 Bond Market Forum (ABMF) as a part of the ABMI. The ABMF is facilitating the standardization of regulations for corporate bond issuance and investment, and the creation of a multicurrency common bond issuance framework. It is also promoting the straight-through processing of bond trades to settlement across national borders. It is linked to a separate initiative under the ABMI to establish a common settlement infrastructure in the region. It is now pursued under the Cross-border Settlement Infrastructure Forum (CSIF). Furthermore, there is interest among ASEAN+3 members in deepening the currency swap market to facilitate the financing of infrastructure via the bond market.

The ASEAN also has its own multi-track plan to create an ASEAN Economic Community (AEC) by 2015 to promote more integrated ASEAN markets. The AEC is akin to the concept of the European Economic Community (EEC) in seeking the free movement of goods, services, investment, and skilled labor, and the freer movement of capital. In particular, the liberalization of the financial services trade and improved money and capital mobility will have significant implications for financial stability in Southeast Asia.

While integration is expected to create a more efficient and competitive financial sector operating in a large, single ASEAN market, it also creates challenges in regulating and supervising financial markets and institutions operating across national borders. Under the ASEAN Capital Market Forum, stock markets in member countries are increasingly interconnected to allow cross-border investment and trading. Securities market authorities of member countries have been working on standardizing regulatory requirements and strengthening procedures for supervisory cooperation at the regional level. At this stage, investment flows are still oriented to domestic and global markets, with only modest levels of cross-border intra-regional investment. The ASEAN’s multicurrency environment including not fully convertible currencies is an obvious hurdle. As the region’s financial authorities make progress toward integration, however, they need to be prepared for new types of capital flows to ensure the systemic stability of markets.

Financial integration is also a process of creating systemically important financial institutions at the regional level. The ASEAN is pursuing the creation of an ASEAN banking framework under which qualified
banks will be allowed to operate across the region. In order to implement this plan, the bank supervisory authorities of ASEAN member countries need to develop, among other things, arrangements for the resolution of distressed financial institutions operating across national borders. In this regard, issues currently being debated in the Eurozone are relevant for the ASEAN, although the ASEAN is unlikely to move toward a single regional regulatory authority model in the foreseeable future.

Integration is bound to move slowly because of large differences in the level of financial-sector development across ASEAN member countries. For example, not all countries have a deposit insurance scheme, while a clearly defined role for deposit insurance will be crucial in tackling the resolution of distressed banks operating across national borders. Each ASEAN member country is likely to have to move on the basis of when it is ready. A principle of reciprocity may also be applied. To keep the momentum for integration, support for capacity building in less developed members is essential. Under the ASEAN Central Bank Forum, four working committees (Payments and Settlement Systems, Capital Markets Development, Capital Account Liberalization, and Financial Service Liberalization) and one task force (Banking Integration Framework) are examining specific steps for integration in their respective areas along a road map adopted by a senior-level committee led by deputy governors. Individual member countries as well as the working committees and task force identify capacity gaps. The steering committee for capacity building coordinates mutual support efforts among the members to fill capacity gaps.

CHALLENGES OLD AND NEW

While the region’s initiative to achieve financial stability has made good progress, it does not address all macro-prudential issues, including the management of capital flows. When the GFC broke out, countries in the region were exposed to highly volatile external conditions. The US Federal Reserve Bank and the European Central Bank implemented massive quantitative easing measures to cope with the acute contraction of liquidity in their home markets. The enormous liquidity created by QE spilled well beyond national borders and generated large capital flows into emerging markets, including those in Asia. Subsequently, the US and the European financial supervisory authorities, as well as global authorities, introduced tougher prudential standards for banks. Together with losses suffered by US and European banks, these new measures led banks to pursue deleveraging. Because US and European banks have a significant presence in
Asia, their deleveraging generated capital outflows from the region. Asian
countries were later faced with QE measures taken by the Bank of Japan,
and are now facing a possibility of the Federal Reserve winding down
QE. This series of events has led to massive capital flows in and out of
the region.

A dilemma for Asian authorities is that their successful efforts to develop
domestic bond markets, while helping to address the problem of double
mismatches, is creating a new channel of risk transmission. For example,
Indonesia, Malaysia, and Thailand experienced significant capital inflows
into their government bond markets, putting appreciation pressure on
their currencies as a result. The core of any bond market is almost always
the government sector, particularly in the case of developing economies,
and Asian economies are not an exception. Although many government
bonds are long-term instruments, the markets for them are designed to be
liquid and, therefore, facilitate the easy entry and exit of foreign portfolio
investments. They thus enable investors to speculate on the domestic cur-
currency value and arbitrage interest rate differentials (that is, currency carry
trades), especially when monetary authorities in developed economies are
engaging in massive QE efforts.

The ASEAN’s efforts to integrate the region’s economies and allow
freer movement of money and capital, will, in effect, promote capital
flows. Under the ABMI, the Asian Multicurrency Bond Issuance Facility
(ABMIF) of the ASEAN+3 could create a new channel of capital flows.
Ongoing efforts to enhance the cross-border settlement of bond trades,
establish comparability among credit ratings issued by local credit rating
agencies, and enable corporate issuers to overcome sovereign credit ceil-
ings and tap regional and international bond markets with the Credit
Guarantee and Investment Facility (CGIF) will further facilitate cross-
border investment and trading. Although corporate bonds are usually less
liquid than government bonds, ASEAN and ASEAN+3 authorities will
need to watch this new channel.

Needless to say, not all capital flows are harmful, and inflows of com-
mitted long-term capital such as foreign direct investment are generally
welcome. In formulating policy measures to control capital flows, however,
there is only a fine line between FDI and portfolio flows in their statisti-
cal definitions. Even among portfolio flows, there are long-term flows
and speculative ones. In fact, capital controls introduced by some Asian
countries to cope with capital inflows generated by QE have created some
undesirable side effects. It is, therefore, critically important for countries
to develop a capability to monitor capital flows and distinguish between
beneficial and harmful flows.

With the gradual recovery of the US economy and in anticipation of
eventual QE tapering by the Federal Reserve, capital flows have begun reversing themselves. Asian currencies are coming under depreciation pressure once again, which is raising inflationary concerns in economies dependent on imports, such as Indonesia. Monetary authorities in such economies are tempted to raise interest rates. However, these countries are also seeking to sustain economic growth and contain widening income gaps, which could be worsened by interest rate increases.

In addition, Asian banks today hold significant bonds on their balance sheets and are more exposed to interest rate risk. A rise in market interest rates could cause significant capital losses to banks, weakening their financial soundness. Some Asian countries need to develop instruments and markets for hedging and managing interest rate risk. Global efforts are also underway to strengthen the supervision of over-the-counter derivatives markets by requiring the use of central counterparties (CCPs) for clearing to improve transparency and risk management. The developed economies among the ASEAN+3 are already moving in step with global efforts. Middle income Asian countries that do not yet have a derivatives exchange supported by a CCP may need to develop such a market. They may also need to explore the possibility of using an existing CCP within the region. Regional cooperation should be useful to enable institutions to access CCPs in other economies since the access is otherwise limited by their member eligibility conditions.

On the other hand, frontier market economies – such as Cambodia, the Lao PDR, and Myanmar – need to focus on developing a core of their domestic financial systems and markets. Their economies are currently highly dollarized, and even their government finance depends significantly on concessional resources in foreign currencies made available from bilateral and multilateral sources. The resulting lack of a domestic government debt market is not helping the process of de-dollarization. A high level of dollarization seriously compromises the effectiveness and usefulness of monetary policy while not guaranteeing financial stability because currency mismatches can still be created in critical segments of the economy. It also deprives the central bank of a means to address a banking crisis. On the other hand, total dollarization is not an option for any of the frontier market economies in the region.

The frontier market economies operate in a quasi-fixed exchange rate regime. Their money and foreign exchange markets are neither well developed nor well organized, and their transparency, efficiency, and depth are limited. The foreign currency-denominated liabilities of the public sector and some businesses can put unexpected pressure on the value of a domestic currency in a shallow, disorganized, and non-transparent foreign exchange market. Such pressure could be caused by not only direct debt
but also contingent liabilities such as government guarantees for foreign currency payment obligations of businesses or projects that earn revenues in local currency (for example, utilities). If the local currency depreciates significantly, it could lead to default by or even the bankruptcy of such businesses. On the other hand, the central bank’s attempt to defend the value of the local currency could lead to a depletion of international reserves, which may invite attacks on the local currency through an offshore non-deliverable forward (NDF) market. Regional cooperation may be useful in regulating and supervising the NDF market.

Frontier market economies need to develop their money and foreign exchange markets, and upgrade their interbank payments system as it is a key piece of financial market infrastructure. Markets need to be better organized and more transparent to enable the monetary and financial supervisory authorities to anticipate and address possible emerging risks. These economies also need to develop their capacity to manage government cash flow and debt. Sound cash management by the government treasury is critical for the central bank to manage banking system liquidity and to promote the interbank money market. Sound management of government debt including contingent liabilities is a foundation for developing a government bond market. A core legal and regulatory framework such as a central bank law, banking law, securities law, and public finance or debt law must also be upgraded to enable these developments.

The need for contingent liabilities management is not limited to frontier market economies. Any economy seeking to aggressively invest in infrastructure through the use of public–private partnerships (PPPs), government guarantees, state-owned financial institutions, or fiscal decentralization needs to pay close attention to it. Owing to the region’s massive need for infrastructure investment and the drive to promote PPP to help finance such investment, many countries in the region need to make parallel efforts to strengthen their contingent liabilities management. Contingent liabilities tend not to be transparent, particularly under a cash-based accounting system in the public sector. It is necessary to make conscious efforts to explicitly account for the cost of contingent liabilities in the fiscal framework to avoid their uncontrolled growth.

With renewed global, regional, and national efforts to strengthen financial stability, a new dilemma seems to be that the more effective prudential measures are made, the less effective monetary policy will be. Tight prudential requirements constrain credit growth even when QE is being implemented. They can also limit access to financial services and compromise a polity to promote inclusive growth. Additional liquidity tends to sit in the current accounts of banks at the central bank instead of being lent to finance productive activities, even at rock-bottom interest rates. With the
global initiative to control shadow banking, repo market transactions, and securitization, the channels for excess liquidity to escape the prudential regulatory net are narrowing. Thus, balancing growth and stability will continue to be a challenge.

The chapters in this part discuss aspects of issues related to ‘financial integration and cooperation to support financial stability’. As stated in the synopsis of this volume, Chapter 9, by Cyn-Young Park and Rogelio Mercado Jr, examines the hypothesis that equity home bias should be declining for emerging Asian countries as a result of increasing financial integration and improving regulatory quality, given the experience with advanced economies. The results would be important for regulators in determining the types of financial market reforms to pursue to encourage lower equity home bias and greater international portfolio diversification. Chapter 10, by Emilos Avgouleas, Douglas W. Arner, and Uzma Ashraf, reviews the causes of the Eurozone financial crisis and draws parallels with the institutional infrastructures underpinning East Asian financial arrangements. Michael Andrews’s Chapter 11 considers the deposit insurance systems in the ASEAN+3 in the context of the Deposit Insurance Core Principles and other recent international developments. The second chapter by Michael Andrews (Chapter 12) argues that there is an opportunity for ASEAN+3 countries to learn from failures of other regions of the world and strengthen national resolution regimes. Finally, Chapter 13 by Paul Mizen, Frank Packer, Eli Remolona, and Serafeim Tsoukas discusses, among other issues, what drives the corporate bond issuance decision and capital structure for corporations in the context of emerging economies in Asia.

NOTES

1. The IMF developed new facilities at the global level including the flexible credit line (FCL) in 1999 and the precautionary credit line (PCL) in 2011.
2. High-income Brunei Darussalam does not have a local currency bond market, owing to a lack of borrowing need.
3. This framework is known as the Asian Multicurrency Bond Issuance Framework (AMBIF).
4. ASEAN and ADB (2013).
5. The Steering Committee is co-chaired by the ADB and the Southeast Asian Central Banks (SEACEN) Research and Training Centre.
6. The US dollar and the euro are fully convertible, international reserve currencies.
7. For example, the Basel Committee; International Organization for Securities Commissions (IOSCO), International Association of Insurance Supervisors (IAIS), and their Joint Forum; and the Financial Stability Board.
8. Donor lending to Myanmar is only now resuming owing to the fact that past arrears with donors were cleared in early 2013. The country is expected to take full advantage of concessional resources in the near future.
9. Implicit contingent liabilities also include unfunded pension liabilities, natural disaster risk, financial sector risk, and nonfinancial systemically important business risk.

REFERENCE

Association of Southeast Asian Nations and Asian Development Bank (ASEAN and ADB) (2013), The Road to ASEAN Financial Integration: A Combined Study on Assessing the Financial Landscape and Formulating Milestones for Monetary and Financial Integration in ASEAN, Manila: ADB.
9. Equity home bias, financial integration, and regulatory reforms: implications for emerging Asia

Cyn-Young Park and Rogelio V. Mercado, Jr

1 INTRODUCTION

Since French and Poterba (1991) noted the phenomenon that investors overweight domestic assets in their portfolios, equity home bias has been a topic of major interest for financial economists. Theoretically, gains from international portfolio diversification are substantial. In perfectly integrated international financial markets, where financial assets of similar risks are priced similarly regardless of where they are traded, investors are expected to hold international portfolios and exploit the gains of international portfolio diversification. With the trend of financial liberalization since the 1990s, there has been a considerable reduction in barriers to international portfolio investment. However, earlier studies suggested that equity home bias remains significant (see Lewis 1999; Karolyi and Stulz 2003 for literature review).

A significant body of literature has focused on the role of financial openness in lowering equity home bias. In theory, financial openness and integration provide better opportunities for local investors to allocate their portfolios in international equities that yield the highest returns given the same risks. By allowing for portfolio adjustments towards equities that offer higher returns at lower risks, financial integration enables equity home bias to decline. Accordingly, many studies in the field have explored the link between growing financial integration and declining equity home bias (Baele et al. 2007; Mondria and Wu 2010; Sørensen et al. 2007). The empirical findings suggest that greater financial market integration or openness leads to a decline in equity home bias, although these findings are rather limited to the advanced economies in Europe, Japan, and the US. It would be interesting to see whether a similar trend of growing financial integration and declining equity home bias appears in emerging market
economies such as those in emerging Asia\textsuperscript{1} given the region’s progress towards greater financial integration (Park and Lee 2011).

Another branch of literature looks into the impact of institutional quality. Bhamra et al., (2012), Gelos and Wei (2005), and Khurana and Michas (2011) studied the significance of governance, regulatory and institutional quality, transparency, and similar factors in explaining equity home bias. In fact, Carrieri et al. (2013) argue that various local factors such as institutional quality, corporate governance, and information transparency present implicit barriers to financial integration in emerging market economies despite \textit{de jure} liberalization measures. The findings regarding the effects of financial regulatory reforms on home bias remain varied. Some argued that policies or regulatory reforms that affect pricing and quantity of foreign investments increase portfolio home bias; while others found that policies or reforms that lower asymmetric information between domestic and foreign investors lower portfolio home bias. Hence, the design and nature of regulations and regulatory policies can have either a positive or negative impact on portfolio home bias. Given the wave of international financial regulatory reforms in the aftermath of the global financial crisis of 2008–09, it would also be interesting to assess the effect of regulatory quality on portfolio home bias. Specifically, it would be important to know whether better regulatory quality increases or decreases equity home bias in emerging Asia since it would have important policy implications on what types of reforms regulators can pursue and what impact they may have on investors’ portfolio choice.

This study contributes to existing literature on the link between financial integration and equity home bias in the context of emerging Asia by assessing the impact of increasing global and regional financial integration on the degree of equity home bias. Another major contribution of this chapter is that it investigates other factors that could help explain the behaviors of equity home bias in emerging Asia, particularly the significance of regulatory quality in the region. These innovations enrich our understanding of the evolution of equity home bias in the context of financial integration and regulatory reforms.

The chapter is organized as follows. Section 2 offers a literature survey on equity home bias, financial integration, and regulatory reforms. Section 3 discusses the measures of equity home bias and their patterns in emerging Asia. Section 4 provides the empirical analysis on the significance of financial integration and regulatory quality on equity home bias. Section 5 summarizes the findings and provides policy implications.
2 REVIEW OF THE LITERATURE

A large body of literature has focused on the equity home bias puzzle, offering various reasons for its prevalence. Coeurdacier and Rey (2013) argue heterogeneity across investors of different nationality would lead to differences in their optimal investment portfolios; for example, different hedging motives and transaction costs would potentially create a bias towards national assets in the investment portfolios. One major explanation is that domestic equities may offer a better hedge against the risks that are specific to a country than to foreign equities. These risks include domestic inflation, human capital, and foreign returns of domestic firms with overseas operations (Baxter and Jermann 1997; Lewis 1999). The other leading explanation focuses on the effects of transaction and information costs on investors’ international portfolio positions (Ahearne et al. 2004; Andrade and Chhaochharia 2010; Cai and Warnock 2004; Chan et al. 2005; Van Nieuwerburgh and Veldkamp 2009; Warnock 2002). Ahearne et al. (2004) suggest that transaction costs related to international investments may not be huge, but a proxy for information cost is a significant determinant for a country’s weight in US investors’ portfolios. Warnock (2002) confirms that transaction costs do not help explain equity home bias; while Chan et al. (2005) show that familiarity variables have significant but asymmetric effects on domestic and foreign equity bias. Van Nieuwerburgh and Veldkamp (2009) present a model where the investors’ learning process contributes to the lock-in effect of their investment in local assets. Applying their model, Andrade and Chhaochharia (2010) show that the endowments of information about a new country by foreign direct investment might translate into an increase in their portfolio holdings in the same country.

A growing literature highlights the role of investor behavior in explaining equity home bias. For instance, Gomez et al. (2003) explained that investors may have a preference for holding assets that are highly correlated with domestic wealth (domestic stocks) because this enables them to ‘keep up with the local Joneses (reference group)’. Morse and Shive (2011) argued that patriotism could explain some of the equity home bias beyond the effects of transaction barriers, diversification, information, and familiarity. Anderson et al. (2010) found that investors from culturally distant countries invest less abroad and underweight culturally distant target markets. Reflecting the increasing delegation of investment decisions to professional fund managers, Dziuda and Mondria (2012) explained how home bias can be further magnified by uncertainty about the ability of professional portfolio managers in addition to asymmetric information at the individual level.

Recent studies in the field have argued that increasing financial
integration, which reduces the costs of financial transactions and information, can lead to a significant decline in equity home bias. Baele et al. (2007) and Sørensen et al. (2007) suggested that as capital markets become more globally integrated, investors can trade assets freely and at lower cost. In addition, deepening economic and financial integration would lower information asymmetry between domestic and foreign investors, leading to a further reduction in equity home bias. Baele et al. (2007) tested this hypothesis and found that the decline in equity home bias is more pronounced for countries that are more financially linked with each other than those that are not. Sørensen et al. (2007) found that a decline in debt and equity home bias is associated with increased international risk sharing and financial integration. Other studies have also looked into this link. Mondria and Wu (2010) argued that home bias increases with information capacity and decreases with financial openness. They developed a theoretical model showing that informational advantage on domestic assets versus foreign assets at the early stage of financial liberalization encourages domestic investors to hold more domestic assets, thereby increasing home bias. However, as domestic investors gather more information on foreign assets in subsequent periods, foreign information builds up and so home bias declines. Bekaert and Wang (2009) showed that information and familiarity variables, and proxies for the degree of capital market openness are significant in explaining not only home bias, but also foreign bias. Other studies focus on the emergence of regional bias. For instance, Balli et al. (2010), Jochem and Volz, (2011), and Schönmaker and Bosch (2008) documented the increase of a regional portfolio bias with the introduction of the euro in European Monetary Union (EMU) countries.

However, focus on the literature dealing with home bias and financial integration has been largely limited to the equity home bias phenomenon in advanced economies of Europe, Japan, and the US. Only recently have a few papers examined the equity home bias phenomenon in emerging market economies in Asia and South America. For example, Borensztein and Loungani (2011) studied the determinants of bilateral equity home bias in selected Asian economies. Using a gravity model to identify the determinants of home bias, they found greater distance and real foreign exchange volatility increased bilateral home bias; while common language and bilateral trade reduced it. Sendi and Bellalah (2010) surveyed equity home bias in both advanced and emerging economies including those in Asia, Africa, and South America. Their findings show that home bias is greater in emerging than in advanced economies. Mercado (2013) provided evidence that increased financial globalization is relevant in explaining declining equity home bias in emerging Asia, but the analysis does not look into the impact of regional financial integration on equity home bias.
Another stream of studies turned to governance, regulatory and institutional quality, transparency, and similar other factors in explaining equity home bias. For instance, Gelos and Wei (2005) offer evidence that foreign portfolio investments are smaller in countries with limited transparency; and that there is a large propensity for portfolio investment funds to exit those countries during crises. Coeurdacier and Rey (2013) and Bhamra et al. (2012) argued that regulatory policies and reforms affecting transaction costs, tax treatments between foreign and domestic portfolio incomes, capital controls, and differences in legal and regulatory frameworks create financial frictions among investors, causing portfolio home bias to increase; while Khurana and Michas (2011) found that compliance with international financial reporting systems lowers equity home bias in the US.

International financial institutions involved in international financial regulatory reforms have recognized the impact the proposed financial regulatory reforms may have on portfolio and banking home bias. The Financial Stability Board (2012a) has stated that ongoing regulatory reforms can increase portfolio home bias through their design and/or implementation in other jurisdictions. Although the global policy development aspect of financial regulatory reforms has made substantial progress up to June 2012, the national and international policy implementation aspects of financial regulatory reforms continue to lag behind (Table 9.1). It is in this area of financial regulatory reforms where policy design and implementation could give rise to increased portfolio home bias. Furthermore, improving bank capitalization and addressing ‘too-big-to-fail’ are important issues in ongoing financial regulatory reforms. Similarly, the direction of current reforms in the banking regulation, such as tightening of lending standards may be responsible for increased home bias in bank lending in the euro area (BIS 2012).

This chapter draws on these recent studies exploring the link between financial integration and equity bias, similar to Baele et al. (2007), Sørensen et al. (2007), and others. However, unlike the previous studies, this paper also highlights the role of regulatory quality in determining home bias in emerging Asia.

3 EMERGING ASIA’S EQUITY HOME BIAS

3.1 Measuring Equity Home Bias

In order to evaluate the equity home bias in emerging Asia, we employ a measure that is commonly used in the literature (Baele et al. 2007; Bekaert
Global shock, risks, and Asian financial reform

Table 9.1 Status report on the progress in implementing the G20: recommendations on financial regulatory reform (June 2012)

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Global policy development</th>
<th>National/International policy implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving bank capital and liquidity standards</td>
<td>On track</td>
<td>In progress</td>
</tr>
<tr>
<td>Ending ‘too big to fail’</td>
<td>On track</td>
<td>In progress</td>
</tr>
<tr>
<td>Expanding and refining the regulatory perimeter</td>
<td>Completed</td>
<td>In progress</td>
</tr>
<tr>
<td>Creating continuous core markets – OTC derivatives reforms</td>
<td>On track</td>
<td>In progress</td>
</tr>
<tr>
<td>Creating continuous core markets – Strengthening and converging accounting standards</td>
<td>On track</td>
<td>On track</td>
</tr>
<tr>
<td>Creating continuous core markets – Other market reforms</td>
<td>On track</td>
<td>On track</td>
</tr>
<tr>
<td>Developing macro-prudential frameworks and tools</td>
<td>On track</td>
<td>In progress</td>
</tr>
<tr>
<td>Strengthening adherence to international supervisory and regulatory standards</td>
<td>On track</td>
<td>On track</td>
</tr>
<tr>
<td>Strengthening of FSB’s capacity, resources and governance</td>
<td>On track</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Note: The status of each category of regulatory reforms was determined based on the number of specific reforms with the same progress (either no progress, on track (light grey), in progress (mid grey), or completed (dark grey). In some cases, specific reforms under each category may have different status progress, in which case the status of each category was determined based on the progress of specific reforms with the same status.

Source: Status report and scorecard (FSB 2012b).

and Wang 2009; Chan et al. 2005; Fidora et al. 2007; Jochem and Volz 2011; Sørensen et al. 2007). That is, the deviation of actual holdings of domestic equity from the optimal share of domestic equity in the international portfolio.

Equity home bias of country $i$ is measured as the share of actual ($ACT_{i,t}$) foreign portfolio investment to the optimal ($OPT_{i,t}$) foreign portfolio weights, given by:

$$HB_{i,t} = 1 - \frac{(ACT_{i,t})}{(OPT_{i,t})}. \quad (9.1)$$
If the actual holdings of foreign equities are lower than the optimal share of foreign equities, then a country is said to exhibit home bias since it prefers domestic equities over foreign. In such cases, the home bias measure \( HB_{i,t} \) takes values close to 1. On the other hand, if actual holdings of foreign equities are equal to the optimal share of foreign equities, then that country does not exhibit home bias; and the measure \( HB_{i,t} \) takes the value of 0. There may be instances when actual holdings of foreign assets exceed optimal foreign portfolio holdings. In such cases, \( HB_{i,t} \) takes negative values suggesting that a country does not exhibit home bias, but instead shows a propensity to invest abroad.\(^2\)

The share of foreign equity in the total portfolio equity of country \( i \) \( (ACT_{i,t}) \) is calculated as the ratio of its foreign equity assets \( (FA_{i,t}) \) and the total (foreign and domestic) equity holdings. The domestic equity holdings are computed as the difference between the country’s total year-end stock market capitalization \( (MC_{i,t}) \) and the amount of stocks held by foreign investors or portfolio equity liabilities \( (FL_{i,t}) \). The actual foreign portfolio weights are derived using the formula:

\[
ACT_{i,t} = \frac{FA_{i,t}}{FA_{i,t} + (MC_{i,t} - FL_{i,t})},
\]

For a home bias against regional equities, the data on actual foreign equity holdings refers to those that are held within the region.

A key point of consideration in measuring equity home bias is how to estimate optimal foreign portfolio weights \( (OPT_{i,t}) \). Two common methods use stock market capitalization ratios and mean-variance approach.

The first approach is a direct computation of the share of domestic and total world stock market capitalization. This is based on the theory of the International Capital Asset Pricing Model (ICAPM) that the market portfolio is the only one optimal portfolio for any given risk free rate. This method is used by Baele et al. (2007), Bekaert and Wang (2009), Borensztein and Loungani (2011), Fidora et al. (2007), Sørensen et al. (2007) and Warnock (2002) to estimate the optimal foreign portfolio weights. The advantages of using stock market capitalization ratios to measure optimal foreign portfolio weight are that they are easy to implement and do not suffer from yearly fluctuations in values. But the effectiveness of this method is subject to the validity of the ICAPM assumptions. The ICAPM will be valid only when all markets are efficient and perfectly integrated, so the law of one price holds.

The second approach is based on the classical mean-variance approach of portfolio optimization developed by Markowitz (1952). The modern
portfolio diversification theory assumes that investors are risk averse, such that they will choose the less risky of the two assets even if both have the same expected returns. According to this theory, an investor will choose a risky asset only if he or she is compensated with higher returns. This theory is applied in the context of choosing between any number of assets including the choice between domestic and foreign equities such that domestic investors choose to hold more domestic equities if the expected domestic returns are high and the variance of the returns is low; or hold more foreign equities if the expected domestic returns is low and the variance of the returns is high. Several studies including Baele et al. (2007) adopted this approach to measure equity home bias. The classical mean-variance approach could offer a fairly accurate measure of equity home bias as it takes into account asset returns which is crucial in portfolio choice theory. But, Merton (1980) and Baele et al. (2007) pointed out the use of historical mean data as proxy for expected excess returns can be misleading as equity returns could be highly volatile.

The two parameters of interest in the mean-variance approach are the expected portfolio returns (mean) and the volatility of portfolio returns (variance). The formula used to calculate expected portfolio returns is as follows:

\[ E[R_{p,t}] = \sum_i w_i E[R_{p,t}] \]  

where \( w_i \) refers to the portfolio weights between choosing domestic and foreign equity equities. The following formula calculates the optimal foreign weights.

\[ w_i = OPT_{i,t} = \frac{\sum_{-1}^{-1} \mu_e}{i' \sum \mu_e} \]  

where \( \mu_e \) is a row vector of expected excess returns, \( i' \) is a unit column vector, and \( \Sigma \) is the variance–covariance matrix in the form:

\[ \Sigma = \begin{pmatrix} \sigma^2_{d,t} & \sigma_{df,t} \\ \sigma_{df,t} & \sigma^2_{f,t} \end{pmatrix} \]  

Several datasets were used to construct the measures for equity home bias against global and regional stocks. Appendix 9A.1 at the end of the chapter presents the list of indicators and their sources and some notes.
3.2 Patterns of Equity Home Bias in Emerging Asia

Figure 9.1(a–c) presents the estimates for equity home bias against global stocks for advanced and emerging Asian economies using stock market capitalization ratios and mean-variance approach. Home biases are generally greater in emerging Asian markets than those in advanced markets—a finding that is consistent with the previous literature. Among advanced markets, the EU economies have the lowest home bias, followed by the US and Japan. For emerging Asia, the relatively more open economies of NIEs have the lowest equity home bias, followed by ASEAN-4, the PRC, and India. Although home biases have been declining in both advanced and emerging Asian markets, the declines are also more pronounced in advanced markets than in emerging Asian markets. In emerging Asia, equity home bias remains relatively high, although declining in recent years particularly for NIEs.

Figure 9.2 (a–b) shows equity home bias against regional equities for various regional groupings. Home biases against the regional equities are again higher in emerging Asian economies than in the EU economies. Nonetheless, equity home bias against the regional equities declined somewhat from the 2001–07 to 2008–11 periods, consistent with the view of growing cross-border equity holdings among emerging Asian economies.

(a) Advanced and emerging Asia

![Graph showing equity home bias against global equities](image)

**Note:** Values are the unweighted average of individual country home bias with respect to global equities. Data on foreign assets and liabilities are taken from Lane and Milesi-Ferretti’s ‘External Wealth of Nations’ dataset and extended using IMF’s International Investment Position database. Market capitalization is taken from World Development Indicators. Equity returns are computed using Datastream stock price index.

**Source:** Authors’ calculation.

*Figure 9.1 Equity home bias (against global equities)*
Among emerging Asia regional groupings, NIEs have the lowest equity home bias against regional stocks, compared to ASEAN-4 economies and India. This pattern is consistent with those for equity home bias against global stocks.

Based on the figures, several observations are noted. First, the mean-variance approach yields generally lower measures of equity home bias compared to the stock market capitalization ratios. This can be explained partly by the fact that the mean-variance approach is based on equity returns, which exhibits considerable fluctuations as the optimal foreign portfolio weight is highly responsive to equity returns such that when global returns are very low, optimal foreign portfolio weight also declines. Although both measures have their advantages and disadvantages as mentioned in the previous subsection, they show consistent patterns on emerging Asia’s equity home bias. Second, the region’s home bias against global or regional equities is higher than those in advanced economies par-
particularly for the EU economies. Among emerging Asian economies, highly open economies of NIEs have the lowest home bias, supporting the link between financial openness and home bias. Finally, comparing the panels of Figures 9.1 and 9.2, home biases in Europe and emerging Asia are higher when measured against the regional equities, than those measured
against the global equities. This may reflect that the share of regional equities in total foreign equities is generally small.

4 EMPIRICAL ANALYSIS ON EMERGING ASIA’S EQUITY HOME BIAS

4.1 Hypotheses

This chapter tests two hypotheses. First, it tests whether greater financial integration at the global and regional levels lowers equity home bias in emerging Asia. This hypothesis rests on theoretical and empirical studies that argue greater financial openness through lower financial transactions and information costs increase cross-border financial holdings. Since the region has made significant progress toward global and regional financial integration in recent years (Park and Lee 2011), it is expected that equity home bias against global and regional equities should also exhibit a downward trend in recent years.

Second, this chapter also tests the hypothesis that better regulatory quality leads to a decline in equity home bias. This conjecture is based on earlier findings that show greater transparency and lesser information asymmetry results to greater cross-border financial flows and lower portfolio home bias. It is expected that as regulatory quality improves there will be greater transparency and lesser information asymmetry between domestic and foreign investors, thereby lowering equity home bias. However, it is equally feasible to expect that better domestic regulatory quality leads to an increase in home bias, if it encourages domestic investors to put more weight on domestic assets against foreign assets in their portfolios. The type of regulation also matters for the effect of regulation on home bias. For instance, if the regulation is about price or quantity control, improved effectiveness of such regulation would lead to an increase in home bias.

4.2 Model Specification

To test the two hypotheses, this chapter follows the model specification of Baele et al. (2007). The model specification utilizes macroeconomic determinants of equity home bias including financial integration and regulatory quality. Although measures of information symmetry, transactions costs, and information costs are also important determinants of equity home bias, these variables are not included in the regression model because it is assumed that the financial integration measures and other control variables should capture their effects on equity home bias. Following Baele et
al. (2007), a pooled dataset for ten emerging Asian economies is specified given a regression model:

$$\Delta EB_{it} = \alpha_i + \beta_1 EB_{i,t-1} + \beta_2 \Delta FI_{it} + \beta_3 \Delta STOCK_{i,t-1} + \beta_4 \Delta BANK_{i,t-1}$$

$$+ \beta_5 RQI_{i,t-1} + \beta_6 \Delta FXVOL_{i,t-1} + \beta_7 \Delta TRADE_{i,t-1} + \varepsilon_{i,t} \quad (9.6)$$

$\Delta EB_{it}$ refers to the change (first difference) in equity home bias – calculated using stock market capitalization ratios and the classical mean-variance approach derived from the data sources and computation in section 9.3. $\alpha_i$ is the intercept. $EB_{i,t-1}$ is the first lag value of the equity home bias measure. $\Delta FI_{it}$ refers to the change (first difference) in global (regional) financial integration measures using de jure and de facto measures. $\Delta STOCK_{i,t-1}$ is the lag change (first difference) in stock market capitalization scaled by nominal GDP. Data are sourced from World Bank’s World Development Indicators and World Federation of Exchanges. $\Delta BANK_{i,t-1}$ refers to lag change (first difference) of total assets of deposit money banks normalized by nominal GDP. Data are taken from IMF’s International Financial Statistics (IFS). $RQI_{i,t-1}$ is the lagged regulatory quality index taken from the World Governance Indicators. $\Delta FXVOL_{i,t-1}$ pertains to the lag change (first difference) of real foreign exchange volatility calculated as the coefficient of variation of real foreign exchange. Data are drawn from the IFS. $\Delta TRADE_{i,t-1}$ refers to the lag value of the change (first difference) in total trade (total intraregional) defined as exports plus imports scaled by nominal GDP. Data are sourced from Direction of Trade Statistics of the IMF. Finally, $\varepsilon_{i,t}$ represents the error term.

The first key parameter of interest is the measures of financial integration. Financial globalization is expected to reduce equity home bias because of lower transaction and information costs and greater exposure to portfolio alternatives. This paper employs both de jure and de facto measures of global and regional financial integration. Very few earlier studies adopted to use both the de jure and de facto measures to investigate the relationship between financial integration and home bias. The de jure measure is taken from the capital account openness index of Chinn and Ito (2009); while the de facto measure uses the sum of foreign portfolio assets and liabilities from the Lane and Milesi-Ferretti’s ‘External Wealth of Nations’ dataset and extended using IMF’s International Investment Position and scaled by nominal GDP. Regional de jure measure refers to the average of individual country measures in the region; while the de facto measure refers to the sum of intra-regional foreign portfolio assets and liabilities scaled by regional GDP. Measures of financial globalization reveal that although capital account restrictions persist in many emerging
Asian countries, cross-border financial holdings continue to rise in the region (Figure 9.3a–b). Measures of regional financial integration show that de facto regional financial integration has risen since 2005; while de jure regional financial integration has declined particularly after 2008 (Figure 9.4).

The other key variable is regulatory quality. Better regulatory quality tends to improve transparency and lessen information asymmetry among investors, lowering portfolio home bias. Data on regulatory quality is taken from World Bank’s World Governance Indicators, which captures perceptions on the ability of governments to formulate and implement sound policies and regulations that permit and promote private sector development. Figure 9.5a–b presents regulatory quality index for emerging Asia. Some observations are noted. First, there exists heterogeneity in regulatory quality among the selected economies. Across emerging Asia, Hong Kong, China (HKG) and Singapore (SNG) have the highest regulatory quality; while the People’s Republic of China (PRC), India (IND), Indonesia (INO), and the Philippines (PHI) have the lowest. As a whole, emerging Asia has lower regulatory quality compared to advanced economies. Among, emerging Asia country groupings, the more open economies of NIEs have higher regulatory quality compared to ASEAN-4, People’s Republic of China and India. Second, it is interesting to note that countries that are more financially open such as NIEs and advanced countries have better regulatory quality than less financially open economies of People’s Republic of China and India.

Equation (9.6) has been estimated for two different specifications. First, the measure of global financial integration is used for its impact on an individual country’s equity home bias against global equities to check the significance of financial globalization in lowering equity home bias. Second, using individual country’s regional financial integration measures, we examine the significance of regional financial integration in lowering equity home bias against regional equities.

Consequently, measures of real foreign exchange volatility also vary depending on the specifications. For equity home bias against global equities, real foreign exchange rate is expressed in terms of local currency unit per US dollar. For equity home bias against regional equities, real foreign exchange rate is in terms of local currency per Asian currency unit (ACU), where ACU is computed as GDP-weighted regional currency. For total trade, home bias with global equities uses individual country’s total trade with the rest of the world. For home bias against regional equities, individual country’s total intraregional trade is used.

Several tests have also been conducted for the model specification. Given the heterogeneity among the sample countries, Hausman tests
were conducted to determine whether equation (9.6) must be estimated using fixed- or random-effects. The results show that random-effects is more suitable, which is expected because the first difference specification of the regressors in Equation (9.6) has removed country-specific effects. However, the Breusch and Pagan LM test for random effects estimation
reveal that it is more appropriate to use a pooled ordinary least squares (OLS) estimation. Therefore, equation (9.6) is estimated using pooled OLS estimation.

All variables specified in equation (9.6) have been tested for stationarity. A Fisher-type augmented Dickey-Fuller (ADF) test for panel dataset was used for equity home bias with respect to global and regional equities. The results reject the null hypothesis that all panels contain unit roots, which suggests that all variables used in the pooled OLS estimation are stationary. To address heteroskedasticity, robust standard errors using Huber-White robust variance estimator are used.

### 4.3 Estimation Results

Table 9.2 presents the estimates for equity home bias against global equities. The results show that the de facto financial globalization measure significantly lowers equity home bias against global stocks. This finding supports the first hypothesis of this paper and is consistent with the previ-
The results of Baele et al. (2007), Bekaert and Wang (2009), and Chan et al. (2005) for advanced countries. Better regulatory quality also significantly lowers equity home bias. The estimates support the second hypothesis and appear robust under various specifications. The result is also consistent with those from Baele et al. (2007), Bekaert and Wang (2009), and Jochem

**Figure 9.5 Regulatory quality, selected economies**

*Note:* Estimated values range from -2.5 to 2.5, such that higher values represent better regulatory quality.

*Source:* World Governance Indicators.
Global shock, risks, and Asian financial reform

Table 9.2  Equity home bias (against global equities)

<table>
<thead>
<tr>
<th></th>
<th>ΔHB1</th>
<th>ΔHB1</th>
<th>ΔHB1</th>
<th>ΔHB2</th>
<th>ΔHB2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Home Bias (t-1)</td>
<td>-0.0236</td>
<td>-0.0029</td>
<td>-0.0344</td>
<td>-0.2762 *</td>
<td>-0.2975 *</td>
</tr>
<tr>
<td></td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>ΔDe Jure Global</td>
<td>0.0128</td>
<td>0.0108</td>
<td>-0.0388</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Integration (t)</td>
<td>0.01</td>
<td>0.01</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔDe Facto Global</td>
<td>0.0001</td>
<td>-0.0001 ***</td>
<td>-0.0001</td>
<td>-0.0006 *</td>
<td></td>
</tr>
<tr>
<td>Financial Integration (t)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔStock Market Capitalization (t-1)</td>
<td>0.0001</td>
<td>-0.0001</td>
<td>-0.0001</td>
<td>0.0009 **</td>
<td>0.0008 **</td>
</tr>
<tr>
<td></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ΔBank Assets (t-1)</td>
<td>0.0176</td>
<td>0.0021</td>
<td>0.0172</td>
<td>0.1248</td>
<td>0.1270 ***</td>
</tr>
<tr>
<td></td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.08</td>
<td>0.07</td>
</tr>
<tr>
<td>Regulatory Quality Index (t-1)</td>
<td>-0.0137 **</td>
<td>-0.0134 **</td>
<td>-0.0118 **</td>
<td>-0.0720 **</td>
<td>-0.0639 **</td>
</tr>
<tr>
<td></td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
<td>0.02</td>
</tr>
<tr>
<td>ΔReal Forex Volatility LCU/USD (t-1)</td>
<td>-0.0117</td>
<td>-0.0249</td>
<td>0.0145</td>
<td>0.1601</td>
<td>0.2960</td>
</tr>
<tr>
<td></td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.19</td>
<td>0.19</td>
</tr>
<tr>
<td>ΔTotal Trade (t-1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.0229</td>
<td>0.0025</td>
<td>0.0339</td>
<td>0.2505 **</td>
<td>0.2731 *</td>
</tr>
<tr>
<td></td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>Number of observations</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.09</td>
<td>0.13</td>
<td>0.21</td>
<td>0.20</td>
<td>0.28</td>
</tr>
</tbody>
</table>

Note: Values in italics are robust standard errors, *, **, *** refer to 0.01, 0.05, and 0.10 level of significance respectively. Δ = first difference; ΔHB1 = home bias using market capitalization ratios; ΔHB2 = home bias using mean-variance approach. Specifications 2 and 8 are estimated using the first lag value of Δ de facto regional financial integration. The dependent variable refers to the change in home bias measures. Home bias measures for (1) to (3) and (7) to (9) use stock market capitalization ratios (ΔHB1); while specifications (4) to (6) and (10) to (11) use mean-variance approach (ΔHB2). Specifications (1), (4), (7), and (10) include de jure global financial integration as a regressor; estimations (2), (5), (8), and (11) use de facto global financial integration; while the rest incorporates both de jure and de facto measures. Specifications (1) to (6) exclude total trade; while (7) to (12) include total trade. Robust standard errors are used and reported in italics.

Source: Authors’ calculation.

and Volz (2011) who found that countries with strong rule of law, better shareholder protection, and less corruption have lower equity home bias. The result could mean that improvements in regulatory standards encourage foreign investors to hold more domestic assets and reduce the relative holdings of domestic assets by domestic investors. The other factor which significantly reduces equity home bias against global stocks is lagged value of the home bias measure. This finding is similar to those of Adam et
al. (2002) and Ahearne et al. (2004) who argued that countries with high initial levels of equity home bias tend to decrease the level of bias faster than those with lower initial levels. Factors that significantly increase home bias include greater stock market capitalization and bank assets. Stronger domestic stock market growth significantly increases equity home bias against global stocks because as the domestic stock market grows local investors see more opportunities for portfolio diversification within the domestic market, thereby increasing home bias. Meanwhile, larger domestic bank assets imply a less diversified domestic financial system which raises home bias because local investors have limited choices for portfolio diversification. These findings and arguments are consistent with those of Baele et al., (2007).

Table 9.3 shows the results for equity home bias against regional equities. The estimates indicate that both de jure and de facto measures of regional financial integration significantly lower equity home bias against regional stocks. The results also support the first hypothesis on the link between regional financial integration and declining equity home bias.

<table>
<thead>
<tr>
<th>ΔHB2 (6)</th>
<th>ΔHB1 (7)</th>
<th>ΔHB1 (8)</th>
<th>ΔHB1 (9)</th>
<th>ΔHB2 (10)</th>
<th>ΔHB2 (11)</th>
<th>ΔHB2 (12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>−0.2949 *</td>
<td>−0.0237</td>
<td>−0.0033</td>
<td>−0.0352</td>
<td>−0.2800 *</td>
<td>−0.3058 *</td>
<td>−0.3033 *</td>
</tr>
<tr>
<td>0.09</td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>−0.0449</td>
<td>0.0124</td>
<td>0.0098</td>
<td>−0.0404</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>0.05</td>
<td>0.01</td>
<td>0.01</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>−0.0006 *</td>
<td>0.0001</td>
<td>−0.0002 **</td>
<td>−0.0006 *</td>
<td>−0.0006 *</td>
<td>0.0001</td>
<td>0.0001</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0.0008 **</td>
<td>0.0000</td>
<td>−0.0001</td>
<td>−0.0001</td>
<td>0.0009 **</td>
<td>0.0007 **</td>
<td>0.0008 **</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0.1240</td>
<td>0.0187</td>
<td>0.0033</td>
<td>0.0192</td>
<td>0.1286</td>
<td>0.1340 ***</td>
<td>0.1310 ***</td>
</tr>
<tr>
<td>0.07</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.08</td>
<td>0.07</td>
<td>0.07</td>
</tr>
<tr>
<td>−0.0630 **</td>
<td>−0.0140 **</td>
<td>−0.0137 *</td>
<td>−0.0122 **</td>
<td>−0.0740 *</td>
<td>−0.0671 **</td>
<td>−0.0662 **</td>
</tr>
<tr>
<td>0.02</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>0.2626</td>
<td>−0.0208</td>
<td>−0.0318</td>
<td>−0.0013</td>
<td>0.1224</td>
<td>0.2371</td>
<td>0.1985</td>
</tr>
<tr>
<td>0.18</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.19</td>
<td>0.19</td>
<td>0.19</td>
</tr>
<tr>
<td>0.0002</td>
<td>0.00</td>
<td>0.0004</td>
<td>0.0009</td>
<td>0.0017</td>
<td>0.0017</td>
<td>0.0017</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0.2695 *</td>
<td>0.0227</td>
<td>0.0027</td>
<td>0.0341</td>
<td>0.2531 **</td>
<td>0.2793 *</td>
<td>0.2757 *</td>
</tr>
<tr>
<td>0.09</td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
</tr>
<tr>
<td>0.29</td>
<td>0.09</td>
<td>0.13</td>
<td>0.23</td>
<td>0.21</td>
<td>0.29</td>
<td>0.30</td>
</tr>
</tbody>
</table>
Table 9.3  Equity home bias (against regional equities)

<table>
<thead>
<tr>
<th></th>
<th>ΔRB1</th>
<th>ΔRB1</th>
<th>ΔRB1</th>
<th>ΔRB2</th>
<th>ΔRB2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Regional Bias (t-1)</td>
<td>−0.0806</td>
<td>−0.0575</td>
<td>−0.0468</td>
<td>−0.6444*</td>
<td>−0.5785*</td>
</tr>
<tr>
<td></td>
<td>0.13</td>
<td>0.13</td>
<td>0.14</td>
<td>0.21</td>
<td>0.19</td>
</tr>
<tr>
<td>ΔDe Jure Regional</td>
<td>0.0118</td>
<td>−0.0165</td>
<td>0.0369</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Financial Integration (t)</td>
<td>0.02</td>
<td>0.03</td>
<td>0.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔDe Facto Regional</td>
<td>−0.0003</td>
<td>−0.0047**</td>
<td></td>
<td>0.0137</td>
<td></td>
</tr>
<tr>
<td>Financial Integration (t)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔStock Market (t-1)</td>
<td>0.0000</td>
<td>−0.0001</td>
<td>−0.0001</td>
<td>−0.0002</td>
<td>−0.0002</td>
</tr>
<tr>
<td>Capitalization (t-1)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>ΔBank Assets (t-1)</td>
<td>0.0255***</td>
<td>0.0237***</td>
<td>0.0228</td>
<td>−0.0549</td>
<td>−0.0076</td>
</tr>
<tr>
<td></td>
<td>0.01</td>
<td>0.01</td>
<td>0.07</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>ΔRegulatory Quality Index (t-1)</td>
<td>−0.0098**</td>
<td>−0.0086**</td>
<td>−0.0081***</td>
<td>−0.0602*</td>
<td>−0.0554*</td>
</tr>
<tr>
<td>ΔReal Forex Volatility</td>
<td>−0.0567</td>
<td>−0.0579</td>
<td>−0.0564</td>
<td>0.2186</td>
<td>0.3770</td>
</tr>
<tr>
<td>LCU/ACU (t-1)</td>
<td>0.12</td>
<td>0.12</td>
<td>0.13</td>
<td>0.26</td>
<td>0.25</td>
</tr>
<tr>
<td>ΔTotal Intraregional Trade (t-1)</td>
<td>0.0794</td>
<td>0.0567</td>
<td>0.0459</td>
<td>0.6380*</td>
<td>0.5722*</td>
</tr>
<tr>
<td>Constant</td>
<td>0.13</td>
<td>0.13</td>
<td>0.13</td>
<td>0.20</td>
<td>0.18</td>
</tr>
<tr>
<td>Number of observations</td>
<td>77</td>
<td>77</td>
<td>77</td>
<td>77</td>
<td>77</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.17</td>
<td>0.19</td>
<td>0.20</td>
<td>0.40</td>
<td>0.41</td>
</tr>
</tbody>
</table>

Note: Values in italics are robust standard errors. *, **, *** refer to 0.01, 0.05, and 0.10 level of significance respectively. Data excludes People’s Republic of China and Taipei, China. Δ = first difference; ΔHB1 = home bias using market capitalization ratios; ΔHB2 = home bias using mean-variance approach. Specifications 4 and 10 are estimated using the first lag value of Δ de jure regional financial integration. Specifications (1) to (3) and (7) to (9) use stock market capitalization ratios (ΔHB1); while specifications (4) to (6) and (10) to (11) use mean-variance (ΔHB2) for the home bias measures. Specifications (1), (4), (7), and (10) include de jure regional financial integration as the explanatory variable; estimations (2), (5), (8), and (11) include de facto regional financial integration; while the rest employs both de jure and de facto regional integration measures. Specifications (1) to (6) exclude total trade of individual countries with the region; while (7) to (12) include total trade of individual countries with the region.

Source: Authors’ calculation.

Similar to the results in Table 9.2, better regulatory quality also significantly lowers equity home bias against regional equities, which supports the second hypothesis of this chapter. The estimates also find that a higher initial level of home bias significantly lowers equity home bias against regional stocks; while larger bank assets significantly increase it. Interestingly, greater real foreign exchange volatility between local currency and regional currency (ACU) increases home bias against regional...
stocks. This could mean that risk-averse domestic investors tend to overweigh domestic stocks in their portfolio holdings whenever the real foreign exchange rate volatility between domestic and regional currency rises, which cause equity home bias against regional stocks to increase. Fidora et al. (2007) and Borensztein and Loungani (2011) also argued that greater real foreign exchange rate volatility increases equity home bias because it increases the risks for holding foreign securities from home investors’ perspective.

Based on the results presented in Tables 9.2 to 9.3, three observations are worth noting. First, the explanatory power of regression specifications using the mean-variance approach to compute optimal foreign portfolio weights is stronger than the explanatory power of the specifications using stock market capitalization ratios. This implies that explanatory power of regression specification increases when home or regional bias is measured taking into account expected portfolio returns. This observation suggests future research could benefit from the use of mean-variance approach in measuring optimal foreign portfolio weights.

Second, financial integration measures significantly lower equity home bias measures, whether it is global or regional. The pooled OLS
estimates support the first hypothesis of this paper i.e. financial globalisation measures lower equity home bias against global stocks; and regional financial integration measures also lower equity home bias against regional stocks.

Third, the estimates show that better regulatory quality significantly lowers equity home bias against global and regional stocks. The results are consistent with those of Baele et al. (2007), Bekaert and Wang (2009), and Jochem and Volz (2011) for advanced countries. These authors found that countries with strong rule of law, better shareholder protection, and less corruption have lower equity home bias. This could mean that better regulatory quality plays a significant role in reducing information asymmetry between domestic and foreign investors, thereby lowering equity home bias. In the context of financial regulatory reforms, it is interesting to note that regulatory quality captures perceptions of the government’s ability to formulate and implement sound policies and regulations that permit and promote private sector development or investment. In this regard, the results imply that better regulatory quality helps domestic investors gain more information on domestic and foreign equities, allowing them to diversify their portfolio holding which may lower the share of domestic assets held by domestic investors’ portfolios.

4.4 Robustness Checks

Tables 9.2 and 9.3 show that financial integration significantly lowers equity bias whether it is global or regional. However, there may be reverse causality. That is, financial integration may be an outcome of lower equity home bias. Separate regression was done to test this, where financial integration measures are used as a dependent variable, and equity home bias measures are added as regressors. The results show that for most specifications equity bias measures are insignificant in explaining financial integration measures at 0.10 level of significance. This suggests that there is no reverse causality between financial integration and equity bias measures. The relationship between the two runs one-way with financial integration affecting home bias and not the other way around.

To test for endogeneity, the residuals of each estimated specification in Tables 9.2 and 9.3 are generated and correlated with their respective regressors. If the residuals are highly correlated with the independent variables, then the pooled OLS estimation will be biased. If not, then endogeneity is not a concern and the OLS estimation is unbiased. The pairwise correlations between the residuals and independent variables for all specifications in Tables 9.2 and 9.3 shows that the correlations are zero, suggesting that endogeneity is not a concern. The results are expected since almost all inde-
dependent variables are in lagged \((t-1)\) first difference form thereby reducing the possibility of endogeneity.

In order to verify the consistency and validity of the results presented in Tables 9.2 and 9.3, several robustness checks were conducted by adding, removing and replacing variables. First, financial integration measures remain significant and with the expected sign even after removing the volatility of real foreign exchange rate; and simultaneously removing real foreign exchange rate volatility and adding total (intraregional) trade. Second, instead of using regulatory quality index, which is one of the components of the World Governance Indicators, an aggregate (unweighted average) measure of governance indicator was used to include measures of voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption, also taken from World Governance Indicators. The results are very similar to those presented in Tables 9.2 and 9.3. Specifically, both financial integration measures and institutional (governance) quality indicators significantly lower equity home bias.

5 SUMMARY OF FINDINGS AND POLICY IMPLICATIONS

Equity home bias remains a phenomenon and a puzzle in international finance. Recent literature shows that financial integration plays a key role in explaining the observed decline of home bias in highly integrated and advanced economies of Europe, Japan, and North America. Understanding the link between the two is important for emerging countries including those in Asia as it highlights the role of financial integration in facilitating portfolio diversification, efficient allocation of capital resources, and risk sharing. In addition, several studies found that better regulatory quality, greater transparency, and/or lesser corruption significantly lowers equity home bias. The relationship between regulatory quality and equity home bias also has important policy implications given the ongoing global financial regulatory reforms.

This chapter extends the literature by looking into the role of evolving global and regional financial integration in lowering equity home bias as well as the significance of regulatory quality in decreasing equity home bias in emerging Asia. Applying two methods to equity home bias measures for the region and its countries and subgroups, this chapter finds that equity home biases exhibit a declining trend, although they remain high compared with advanced countries. This study also highlights the impact of the region's financial integration at both global and regional levels.
on declining home biases. In addition, this chapter also notes different levels of regulatory quality across regional economies and the significant effect of regulatory quality on equity home biases. More open economies of NIEs have the highest regulatory quality compared to other regional groupings. But overall emerging Asia has lower regulatory quality compared to advanced economies.

To determine which factors – including financial integration measures and regulatory quality – contribute to the decline of equity home bias in emerging Asia, a pooled OLS estimation was used. The results show that greater financial integration and better regulatory quality significantly lower equity home bias against global and regional stocks. The results also show that the lag value of the home bias measure significantly lowers equity home bias against global and regional equities; while bank assets and stock market capitalization tend to increase the said bias against global and regional equities. Interestingly, volatility of foreign exchange rates significantly increases equity home bias against regional stocks, but not for the home bias against global stocks.

The findings in this chapter offer several policy implications. First, global and regional financial integration plays a significant role in lowering equity home bias against global and regional stocks. Interestingly, not only de facto, but also de jure regional financial integration measures, which reflect the region’s capital account openness stipulated in terms of policies and regulations, significantly reduce equity home bias against regional equities. The finding of the significant negative effect of de jure regional financial integration on equity home bias against regional stocks suggests the importance of policy actions on capital account openness in determining equity home bias. Second, better regulatory quality also lowers equity home bias. Various explanations can be made. Better regulatory quality may contribute to a reduction in information and transaction costs, an increase of foreign investments in domestic equity markets, and an increase in cross-border financial flows and asset holdings.

Given the ongoing financial regulatory reforms, the region’s policymakers are confronted with several challenges in designing financial regulatory reforms in the region. First, the nature and design of financial regulatory reforms matter for the degree of portfolio home bias. Earlier findings of Bhamra et al. (2012), Coeurdacier and Rey (2011), and Khurana and Michas (2011) suggest that reforms that will harmonize and standardize accounting and reporting systems will lower portfolio home bias because they reduce information asymmetry between domestic and foreign investors. On the other hand, reforms that will limit or control capital flows and foreign asset holdings, discriminate in tax treatments, and the like, will likely increase portfolio home bias as they increase transaction costs and
create financial market friction between domestic and foreign investors. In this regard, the ongoing regulatory reform measures may have varying impacts on equity home bias (Table 9.4).

Second, the design and implementation of consistent financial regulatory reforms would help encourage portfolio diversification while mitigating financial risks. For instance, measures that will reduce information asymmetry between local and foreign investors may not be accompanied by those that will increase transaction and information costs associated with portfolio diversification.

**Table 9.4 Potential impact of regulatory reforms on home bias**

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Impact on equity home bias</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving bank capital and liquidity standards</td>
<td>↑</td>
<td>Strengthening of bank risk management may lead to banking home bias</td>
</tr>
<tr>
<td>Ending 'too big to fail'</td>
<td>↑</td>
<td>Measures taken by national authorities may lead to banking home bias</td>
</tr>
<tr>
<td>Expanding and refining the regulatory perimeter</td>
<td>↑</td>
<td>Measures taken by national authorities may lead to banking home bias</td>
</tr>
<tr>
<td>Creating continuous core markets – OTC derivatives reforms</td>
<td>↓</td>
<td>Harmonization and standardization of OTC derivatives can increase transparency and lower information asymmetry</td>
</tr>
<tr>
<td>Creating continuous core markets – strengthening and converging accounting standards</td>
<td>↓</td>
<td>Increase transparency and reduce information asymmetry between domestic and foreign investors</td>
</tr>
<tr>
<td>Creating continuous core markets – other market reforms</td>
<td>↓</td>
<td>Increase transparency and reduce information asymmetry between domestic and foreign investors</td>
</tr>
<tr>
<td>Developing macro-prudential frameworks and tools</td>
<td>↓</td>
<td>Increase transparency</td>
</tr>
<tr>
<td>Strengthening adherence to international supervisory and regulatory standards</td>
<td>↓</td>
<td>Reduce information asymmetry between domestic and foreign investors</td>
</tr>
<tr>
<td>Strengthening of FSB’s capacity, resources and governance</td>
<td>n.a.</td>
<td>Not applicable at the national level</td>
</tr>
</tbody>
</table>

*Note:* Potential impact on home bias is based on existing studies and findings including those from Bhamra et al. (2012), BIS (2012), Coeurdacier and Rey (2011), and Khurana and Michas (2011), and the specific provisions under each recommendation.

*Source:* Authors’ elaborations.
Global shock, risks, and Asian financial reform

Third, regional cooperation initiatives and dialogue are important in implementing the global reform principles at the national policy level to further strengthen regional financial integration and avoid cross-border regulatory arbitrages. It is at the national policy design and implementation stage that will ultimately determine how the specific reform measures may impact on portfolio home bias. Consequently, policymakers need to consider potential implications and impacts of the regulatory reforms on portfolio home bias and benefits of international portfolio diversification.

ACKNOWLEDGMENTS

The findings of this chapter were presented at the Seminar on Financial Regulatory Reforms in Asia held in Hong Kong, China on 29 January 2013; and in Seoul, Republic of Korea on 2 July 2013. The authors would like to thank the presenters, panelists, and participants of both conferences for their valuable comments and suggestions. Corresponding email address: cypark@adb.org.

NOTES

1. Throughout this chapter, emerging Asia refers to a group of fast-growing economies in Asia. It includes the PRC, Hong Kong, China, India, Indonesia, Republic of Korea (Korea), Malaysia, the Philippines, Singapore, Taipei, China, and Thailand. For purposes of comparing intra-regional trends, this chapter groups Hong Kong, China, the Republic of Korea, Singapore, and Taipei, China as newly industrialized economies (NIEs); and Indonesia, Malaysia, the Philippines, and Thailand as Association of Southeast Asian Nations (ASEAN-4). China and India are presented separately. Advanced economies include country members of the EMU, Japan, the UK, and the US.

2. This chapter disregards situations where investors overinvest abroad. In cases when actual foreign asset holdings exceed optimal foreign portfolio weights, home bias is assigned to a number (0.0001) very close to 0. Similarly, when actual foreign asset holdings is significantly less than the optimal foreign weight, that is, the value is 1, a number (0.9999) very close to 1 is used.

3. Both measures show similar patterns when applied to individual emerging Asian countries and to the region as a whole as they have a strong predictive relationship through their correlations. For home bias against global equities, the correlation between both measures of home bias is relatively high at 0.77. For home bias against regional equities, the correlation is 0.56, which still implies a strong predictive relationship between both measures.


5. Regulatory quality index is taken from the World Governance Indicators (Kaufmann et al. various years) The index captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. It incorporates regulatory perception measures on access to capital markets, transparency in financial institutions, legal framework, and bank regulation, among others.
6. The real foreign exchange rate was derived as the product of nominal foreign exchange rate and price index ratio.

REFERENCES


Schönmaker, D. and T. Bosch (2008), ‘Is the home bias in equities and bonds
### APPENDIX 9A.1 DATA SOURCES FOR EQUITY HOME BIAS

| Domestic stock price indices | Datastream stock price index from 1990 to 2011. Annual values for mean and variation of returns are computed based on weekly values. | Datastream stock price index from 1990 to 2011. Annual values for mean and variation of returns are computed based on weekly values. Regional values (excluding the country of interest) are computed using nominal GDP as weights. |

*Source:* Authors’ elaborations.
10. Regional financial arrangements: lessons from the Eurozone crisis for East Asia

Emilios Avgouleas, Douglas W. Arner and Uzma Ashraf

1 INTRODUCTION

In the aftermath of the Asian financial crisis, two sets of policies (and approaches to economic development) battled for supremacy in East Asia: (1) protectionism, which conditions economic development on closed markets, and (2) liberalization and regional market integration. This was a battle that was soon lost by the supporters of protectionism. In the 2000s liberalization and market integration came to be regarded as the only sustainable path to the region’s future economic prosperity. East Asian countries have expended a great deal of effort in the development of regional financial arrangements to support regional economic integration and growth. These include, in particular, the ABMI, the CMIM, the AMRO, and the Executives’ Meeting of East Asia Pacific Central Banks (EMEAP). The region is now in the process of seeking to build an AEC, many aspects of which will likely extend to ASEAN+3 as a result of bilateral arrangements.

Prior to the global financial crisis and the Eurozone financial crisis, the European Union was often portrayed and in fact often served as a positive model for East Asian regional institutional arrangements. This chapter asks whether in light of the global and Eurozone financial crises the EU can or should still be seen as a model for regional financial integration in East Asia.

The 2008 global financial crisis spread to most of the developed economies, including those of the EU. Unfortunately, despite decades of effort to build a single financial market, almost all EU jurisdictions lacked proper crisis resolution mechanisms, especially with respect to the cross-border dimensions of a global crisis (Avgouleas 2012b; Recine and Teixeira 2009). This led to a threat of widespread bank failures in EU countries and near
collapse of their financial systems. Today, in the context of the Eurozone financial crisis, the EU is at a critical crossroads. It has to decide whether the road to recovery runs through closer integration of financial policies and of bank supervision and resolution, or is subject to a gradual return to controlled forms of protectionism in the pursuit of narrow national interest, although the latter is bound to endanger the single market. Therefore, the policy dilemmas facing the EU and contemporary institution building within the Eurozone can provide a range of useful lessons for the future development of regional financial arrangements.

A central idea of this paper is that the design of institutions underpinning regional integration has to be a step-by-step process. From CMI to CMIM and AMRO and from ASEAN to ASEAN+3 and AEC, East Asian arrangements follow a pattern of development of institutions that presents striking similarities with that followed by the EU, albeit over several decades, starting with the European Coal and Steel Community and the EEC and from there to the EU and ultimately to the EMU and the introduction of the single currency. It is submitted that problems inevitably arise when a supranational market exhibits a high degree of integration but the development of cross-border regulatory mechanisms lags significantly behind. This shortcoming has become acutely evident in the course of the current Eurozone crisis.

The chapter is in five sections. Following the present introduction, section 2 provides an analytical overview of economic and institutional developments relating to the EU single market for financial services in the pre-crisis period. Section 3 discusses the evolution of the EU Single Financial Market and the causes of the Eurozone crisis. This section also reviews the main tenets of the European Banking Union and considers how this new set of EU institutions will affect EU economic and political integration. Section 4 provides an analytical overview of East Asian regional financial arrangements and offers a critical evaluation of such arrangements and of their potential vulnerabilities. Section 5 concludes with discussion of potential implications of EU experiences for the future of financial integration in East Asia, particularly in the context of the AEC.

2 DEVELOPMENT OF THE EU SINGLE FINANCIAL MARKET

2.1 Challenges of European Financial Integration

The European experience constitutes the most advanced global laboratory for regional economic, legal, and political integration (Wouters and
Regional financial arrangements

Ramopoulos 2012). Thus, it is worth examining the process of regional financial integration, as it developed in Europe, in order to discern inherent and artificial obstacles to efficient financial governance regimes for an integrated market. The establishment of pan-European banks has, of course, been the most potent integrative factor, in an environment marked, at least at the earlier stages, by absence of regulatory cohesion. At the same time, it was inevitable that the concurrent presence of pan-European banks and of incoherent regulatory structures would lead to financial instability across the single market and especially across the single currency area, in the event of serious market turbulence.

The establishment of a single currency area (the Eurozone) and the pan-European presence of a number of large banks with large cross-border operations lent urgency to questions about long-term protection of EU-wide financial stability in the absence of appropriate institutional arrangements (Schoenmaker and Oosterloo 2005). The so-called financial stability trilemma, which states that the (three) objectives of financial stability, financial integration, and national financial policies cannot be combined at the same time, has precisely described the acute policy trade-off which holds that one of these objectives has to give in order to safeguard the other two (Schoenmaker 2011; Thygesen 2003). In spite of assertions to the contrary (for example, Padoa-Schioppa 2000), the recent crisis has proven beyond doubt that a common currency area is not viable without building, at the same time, transnational supervisory structures in the field of fiscal monitoring and responsibility and bank supervision.

An essential prerequisite of financial market integration is importation of a harmonized set of core rules, which border on uniformity and are binding in all jurisdictions comprising the single market. Absence of such uniformity can, in theory, seriously hinder market integration as it can give rise to regulatory arbitrage and hidden protectionism and harm efficient group approaches to capital allocation and risk management within cross-border banks (Larosiere 2009). There is no area where divergence of national rules and regulations is more important than cross-border bank failures. Thus, protection of financial stability in an integrated financial market characterized by cross-border financial institutions becomes a very challenging task, especially when there are incongruent policy measures between national preferences and regional integration requirements. While, at the later stages of single market development the EU has moved very close to maximum harmonization in the field of financial market regulation, the overall European regulatory edifice lacked strong uniformity/consistency both in terms of rule construction and rule enforcement.

The complexity of the financial integration process and its significance means that it is impossible to understand contemporary developments
within the Eurozone without a discussion of the different forms of integration and of the history of financial integration in Europe.

2.1.1 Different forms of integration

It is important to draw a distinction between economic, monetary and political forms of integration before looking at the specific properties of EU financial integration. Economic integration normally refers to integration of national commercial and economic policies and elimination of trade barriers and of obstacles to FDI (Ropke 1950). Monetary integration refers to formal currency alignments and interest rate cooperation between states (Meade 2009). On the other hand, financial sector integration refers to the elimination of restrictions to cross-border capital flows that may involve transactions concerning loans, debt and equity securities, and of barriers to cross-border market access by financial intermediaries, as well as to rights of foreign firm establishment. The market for a given set of financial instruments and/or services is fully integrated if all potential market participants with the same relevant characteristics deal with a single set of rules, when they decide to transact in financial instruments and/or provide financial services, and firms and consumers have non-discriminatory access to such financial instruments and/or services. It must also provide non-discriminatory regulatory oversight arrangements (Baele et al. 2004). Finally, political integration involves the voluntary sharing/pooling of sovereignty, whether in commercial and financial affairs, trade-policy cooperation/coordination, or in relation to justice and national security (Moravcsik 1993). Lack of political integration can hinder the flow of benefits emanating from monetary and financial integration.

2.1.2 Early stages of European financial integration

Financial integration in Europe began much earlier than the late twentieth century, at least for the leading European markets. There is convincing evidence that by the mid-eighteenth century European equity markets were well integrated (Neal 1985, 1990, 1992). This was, in general, a period characterized by a transition from autarky to integrated world capital markets, and, thus, for many it constitutes the era of the first globalization. The term ‘financial integration’ however, was not used in this sense before the mid-1950s. German neoliberals during the 1950s advocated international integration through the removal of trade barriers and the introduction of free convertibility (Machlup 1977). As this argument goes, the greater the degree of regional integration by multilateralism and convertibility, the larger are the advantages of economic cooperation (Dorn and Xi 1990; Ropke 1950). Yet evidence of the existence of a direct causal relationship between financial integration and economic growth remains inconclusive
(Liu et al. 2013, p. 513), as any economic growth benefits deriving from financial integration depend upon a number of preconditions necessary to facilitate the integration process.²

When the six-state EEC was established, in 1957 (by the Treaty of Rome), furthering member states’ growth was the apparent but not sole objective of the founders. Political integration was a stronger long-term objective. Namely, building a single market was seen as an essential prerequisite to political integration and not a self-standing goal. The fact that political integration in the EU is still nowhere close to what was envisaged by the founding fathers can easily explain the lack of adequate institutions supervising the single financial market and securing financial stability. For example, even one of the EU fundamental freedoms, the free movement of capital, became effective only after the signing of the Maastricht Treaty in 1992, a full 35 years after the Treaty of Rome, as it was essential in building a European monetary union and national restrictions on the free flow of capital could no longer be retained.

2.2 The Role of the EU Treaties: An Ever Closer Union?

2.2.1 The path towards economic integration and the monetary union
The European economic integration process and the establishment of the euro as the common currency of (at the time) 17 EU member states has been incremental with periods of strong progress and of painfully slow growth. In general, it has been the product of political expediencies as much as of economic efficiency rationales and it has witnessed major crises and setbacks (Pierson 1996; Story and Walter 1997).

Western European economies have shown in the post-war era a marked preference for exchange rate stability. When the first set of European arrangements aiming at exchange rate stability failed, following the collapse of the requisite Bretton Woods arrangements in the early 1970s, and the post-war world entered the era of floating exchange rates, EEC members created the European Monetary System (EMS) in 1979, in order to manage and control currency fluctuations among EMS members (De Cecco and Giovannini 1989; Giavazzi and Giovannini 1989). The EMS was viewed as the first step towards permanent exchange rate alignment and paved the way towards the establishment of EMU. Eventually, EMU member states irrevocably pegged the exchange rates of member country currencies, which were replaced by a single European currency.

At this point it should be noted that the establishment of the single currency was itself a matter of politics as much as of economic necessity. Of course, through a currency union, EU members could answer the classic monetary trilemma, built on the Mundell-Fleming model of an open
economy under capital mobility (Mundell 1963). The monetary trilemma famously states that a fixed exchange rate, capital mobility, and national monetary policy cannot be achieved at the same time; one policy objective has to be abandoned. Therefore, under capital mobility and national monetary policy, fixed exchange rates will invariably break down (Obstfeld et al. 2005). However, as the EU has been very far from being an optimal currency area under the Mundell model (Mundell 1961), and there was no fiscal integration or debt mutualization, it was only a matter of time before the first strains would appear. It is, thus, arguable that the founders of the EMU just hoped that a single currency would pave the way for a fiscal and political union, something that has not yet happened. Moreover the desire for a political union might not have been the whole story.

From a political economy viewpoint European financial and monetary integration was not just an intergovernmental goal, or merely dictated by the conditions of increasing market integration and capital mobility in the EU. The interests of professional intermediaries may have also been a strong force behind the push for further integration. For example, the Eurobond and the Eurocurrency interbank markets emerged as a result of national, legal and regulatory impediments to capital flows (European Commission 2003). This led to protracted negotiations in the early 1990s between industry representatives and regulators that brought off-shore activity back into national markets, while subsuming the many disparate local practices. In fact, the early Eurobond market might have played the role of an imperfect substitute to financial integration, given that capital mobility was only a secondary EU goal until the 1990s (Genillard 1967; Richebacker 1969). Conversely, the 1966 Segré report was both very cognizant of the growth potential attached to financial integration and of the potential for this objective to be confounded by commercial interests (Segré et al. 1966).

2.2.2 EMU membership criteria and realities
The path to monetary integration that was adopted by the Maastricht Treaty was based on a three-stage process and the fulfillment of convergence criteria. Only countries which met the appropriate criteria could gain Eurozone membership. The transitional framework under the treaty provided some flexibility in terms of the time required for the weaker candidate economies to converge with the strongest, especially as regards their macroeconomic outlooks and policies. However, such convergence proved in many cases no more than drawing board plans.

The Maastricht Treaty’s convergence criteria included two basic conditions for euro membership: first, a 3 percent limit on general government annual deficit and a 60 percent limit on general government gross debt
Regional financial arrangements

limit (article 104c). It also included three other important criteria, which were inflation, long-term interest rates, and exchange rate fluctuations. Inflation was to be kept within a 1.5 percent margin over that of any of the three EU countries having the lowest inflation rate. Long-term interest rates were to stay within a 2 percent margin over that of the three states with the lowest borrowing rates in the EU. As regards exchange-rate fluctuations, there was a requirement of participation for two years in the Exchange Rate Mechanism II (ERM II), which provided for a narrow band of exchange-rate fluctuations.

The reality was, however, in glaring contrast with the spirit of the Maastricht Treaty, due to political pressures and the actual condition of the European economies, which even in the 1990s were mildly to grossly indebted states with considerable budget deficits. The treaty itself had exceptions to provide political leverage in extending membership to certain countries while restricting it to others. Italy, the third largest economy in continental Europe had general government gross debt in 1998 of 114.9 percent of GDP (as against 60 percent required by the treaty), Belgium’s gross government debt (home to the EU capital, Brussels) was 117.4 percent of GDP, and formation of a euro block was implausible without having both of these countries in the Eurozone. In practice, these differences meant a much lesser degree of economic integration than had been envisaged in the earlier Werner (1970) and Delors reports (European Commission 1985) respectively. Moreover, the difference in the macroeconomic ‘initial conditions’ of the founding member states made it politically difficult to enforce the strict fiscal criteria laid down for EMU membership.

2.3 EU Harmonization Legislation 1985–2009

2.3.1 Harmonization principles
Completion of the legal and regulatory framework has always been regarded as an essential prerequisite in the EU financial integration process. The first step in this direction was to develop a harmonized set of minimum regulatory standards based on consensus (Avgouleas 2005b). This seemed more aligned with the overall objective of achieving a single market without having to endure excessive concessions on idiosyncratic national policy designs and preferences, which might make the harmonization process politically untenable.

The 1985 Delors report (European Commission 1985) preceded the enactment of the first amendment to the Treaty of Rome in 30 years, the so-called ‘Single European Act’. The White Paper outlined the reforms required in the pre-existing EEC legal framework in order to build a truly single market in the EEC (as it then was) and paved the way to monetary
As maximum harmonization had proved impossible for many areas of activity in the single market, the European Commission adopted instead the principles of mutual recognition, minimum harmonization, and home country control. These three principles were subsequently enshrined in harmonization legislation in a number of areas, particularly financial services. The internal market was to be based on minimum harmonization of national regulatory systems and mutual recognition through which member states would recognize each other’s laws, regulations, and authorities (Steil 1996). Use of minimum regional requirements was intended to limit competitive deregulation by state actors and regulatory arbitrage by commercial parties (Arner and Taylor 2010). It was also a reflection of how political collaboration can encourage adoption of sound market principles and practices (Arner et al. 2009).

The EU framework for financial services provided minimum standards for the establishment and operation of banks and other financial intermediaries, conduct of public offers on a national and pan-European basis, and extended to the fields of accounting, company law, and regulation of institutional investors; the latter in the form of regulation of collective investments schemes. It also provided access to the single market unfettered by national borders or restrictions on activity, the so-called single passport facility (Cranston 1995; Ferrarini 1998). Essentially, the purpose of the passport facility was to allow intermediaries to deliver products or services into any part of the internal market and promote cross-border competition. As a result, the ‘passport directives’ in financial services defined the kind of financial intermediary, activity or product to which they applied, its activities and the market segment, the conditions for initial and continuing authorizations, the division of regulatory responsibility between the home (domicile) state and the host state, and aspects of the regulatory treatment of non-EU member states (Moloney 2008). The home state would generally be responsible for the licensing and supervision of financial intermediaries, for their foreign branches, and for the fitness and propriety of managers and major shareholders. The host state would be responsible for conduct within their jurisdiction or in the course of offering services cross-border to clients residing within their jurisdiction.

2.3.2 The gradual shift to maximum harmonization

The ‘passport directives’ clearly enhanced financial integration in the EU, although areas of marked divergence, such as retail financial services, remained (Grossman and Leblond 2011). But, minimum harmonization left the EU with an incomplete regulatory framework, since, in many cases, it merely augmented rather than replaced pre-existing national laws (Avgouleas 2000). Thus, the drive towards harmonization
intensified in the early 2000s, following the introduction of the euro and the publication of the Commission's Financial Services Action Plan (FSAP) in 1999 (European Commission 1999; Ferran 2005). Arguably, the most important integrative instrument of that era (which can be viewed as the second EU financial services consensus: Avgouleas 2005a) was the Markets in Financial Instruments Directive (MiFID), which established a detailed pan-European regime with respect to conditions of establishment and operation of financial markets and investment intermediaries and the conduct of cross-border financial activities (Avgouleas 2008).

To answer a number of challenges pertaining mostly to the enactment and consistent implementation of financial services legislation, the EU adopted the so-called Lamfalussy process in 2001. This process consisted of four levels that started with the adoption of the framework legislation (level 1) and more detailed implementing measures (level 2). For the technical preparation of the implementing measures, the Commission was to be advised by the committees made up of representatives of national supervisory bodies from three sectors: banking, insurance and occupational pensions, and the securities markets (CEBS,4 CEIOPS,5 and CESR6). The level-3 committees would then contribute to the consistent implementation of Community directives in the member states, ensuring effective cooperation between the supervisory authorities and convergence of their practices (level 3) and, finally, the Commission was to enforce timely and correct transposition of EU legislation into national laws (level 4) (Ferran 2010; Lamfalussy 2001; Schaub 2004).

In the context of the global and Eurozone financial crises, the EU has been forced to introduce a range of reforms, discussed in Section 3.

3 CRISIS AND RESPONSE IN THE EU

3.1 The Global Financial Crisis and the Eurozone Debt Crisis

As mentioned earlier, it was not until the 2008 crisis and in earnest after the outbreak of the Eurozone debt crisis in 2010 that the vexed issue of preservation of financial stability in an integrated market came to the forefront of EU policymakers’ attention. It should be noted here that the Maastricht Treaty (1992) did not include ‘financial stability’ as a key objective of the ECB, although, article 127(5) of the Treaty on the Functioning of the European Union (TFEU) underscores the ‘financial stability’ as a classic central banking good. Thus, financial stability has not been designed as one of the four basic tasks to be carried through the ESCB (article 127(2)
of TFEU) and has rather been clustered with prudential supervision under the ‘non-binding tasks’ of the ECB.

Both the GFC and the Eurozone crisis have emphasized the need to revisit existing models of financial market integration with a view of enriching them with institutions and structures that underpin financial stability as well as economic growth. A multi-level governance system involves far more complexities than a regime based on minimum harmonization can foresee. These mainly arise out of conflicting and sometimes misunderstood national priorities and transnational requirements. Political considerations also undermined the credibility of rule-based frameworks for coordination of national fiscal policies in the euro area (Bergsten and Kirkegaard 2012). For example, the Stability and Growth Pact (SGP) was originally designed to safeguard sound public finances and to thwart individual Eurozone members from adopting fiscal policies leading to unsustainable debt levels by enforcing budgetary discipline. Nonetheless, France and Germany, faced with a breach of the 3 percent deficit limit in 2002–04, pushed through a watering down of the SGP rules by March 2005. Arguably, the Maastricht Treaty itself allowed sufficient flexibility to the interpretation of SGP and its enforcement as to allow it to become part of the political bargaining process in the EU at the expense of objective economic criteria (European Council 2005). As a result, during the period that the debt crisis was building up, the Eurozone was deeply marked by economic and financial imbalances, and the EU itself lacked a central fiscal authority, which would have afforded it a credible mechanism to enforce budget discipline. In addition, trade imbalances due to accelerating competitiveness imbalances and lack of exchange rate flexibility meant that there were no realistic prospects for fiscal convergence (de Grawe 2012). Yet, in the absence of a common Treasury to effect fiscal transfers, preservations of a currency union requires a sufficient level of economic convergence, together with a properly functioning internal market, and an effective system for economic and budgetary policy surveillance and coordination.

Accordingly, when the GFC broke out, European financial stability was hampered by a number of pre-existing problems which had simply been ignored for far too long. These included colossal pre-crisis public and private debt levels, a flawed macroeconomic framework, and absence of institutions capable of handling effectively cross-border banking crises. In this context, we explain the European crisis as the result of four interlocking crises: a banking crisis, a competitiveness crisis, payment imbalances within the Eurozone indicating structural asymmetries, and a sovereign debt crisis (Avgouleas 2012a).

While the 2008 crisis intensified reform efforts to a great extent, the true
‘big bang’ for the mooted pan-European supervisory and bank resolution structures has been the ensuing Eurozone debt crisis, which has shaken to its foundations the banking system of the Eurozone. The EU had to devise mechanisms, in the midst of crisis, first, to prevent an immediate meltdown of its banking sector and ensuing chain of sovereign bankruptcies and, secondly, to reform its flawed institutions, in order to prevent the Eurozone architecture from collapsing. Eurozone members had to build both a crisis-fighting capacity and support bailout funding mechanisms.

The Eurozone crisis has brought home with devastating force the potential risks of financial market integration, which inevitably leads financial institutions operating in the single market to develop very tight links of interconnectedness, allowing shocks appearing in one part of the market to be transmitted widely and quickly across all other parts. Examples of such rapid transmission of shocks include the failure of Icelandic banks, the botched rescue of Fortis bank, the threat of collapse of the financial systems of Ireland and Spain, and the possibility of a sovereign default (for example, Greece), or of a chain of sovereign defaults. Each of those crises brought serious tremors to European markets and exposed their fragility and the dearth of policy options available to Eurozone decision makers. Naturally, the rapid amplification of those crises and their grave consequences has raised serious questions regarding the survival of Eurozone.

In the US the response to the crisis was rapid and came in the form of state purchase of distressed bank assets so-called Troubled Asset Relief Program (TARP), innovative intervention schemes by the Federal Reserve, and (complex) re-regulation of the financial sector. In the EU however, the diversity of member state economies and issues arising out of inherent contradictions between national policy priorities meant a much lower degree of responsiveness to the crisis. For example, lack of common deposit insurance in a well-integrated banking market at a time of cross-border crisis led to several conflicting policy choices and responses in an effort by the states to protect their own citizens.

As mentioned earlier, the Eurozone crisis should be seen as a sequence of four interlocking crises resulting from imbalanced monetary integration. This resulted in a competitiveness crisis that transformed into a marked loss of fiscal revenues and widening fiscal deficits which led to debt accumulations (particularly in Greece, Italy, Portugal, and Spain) that were financed by the surpluses of the northern countries, reflecting, in turn, to massive payment imbalances within the Eurozone (in particular, Germany, the Netherlands, and Finland vis-à-vis the European South). As these surpluses had to be reinvested, they found their way to investments in the bonds of deficit countries (Greece, Italy) or to the banking systems of the Eurozone periphery (Ireland, Spain) and financed gigantic real
estate bubbles in Ireland and Spain. Thus, they led to an accumulation of unsustainable levels of public or private debt, or both (Avgouleas 2012a). Eurozone economies continue to suffer from the impact: the sharp recessions of 2008–09 and subsequent economic slowdowns coupled with sovereign debt crises have had a sharply negative impact on their fiscal position, which has been further aggravated by the operation of automatic fiscal stabilizers and the counter-cyclical fiscal measures adopted during the crisis.

The Eurozone crisis has signaled a fundamental shift in the political dynamics underpinning the EU. While the exact remedies of the crisis – austerity, more integration, mutualization of Eurozone members’ debt, and other measures – remain the topic of heated discussion, one remedy is viewed as uncontroversial. Arguably, the Eurozone crisis would have been much less severe, if Eurozone members had decoupled sovereign and private risk by breaking up the link between bank debt and sovereign indebtedness, which, of course, created a vicious circle of ever more bank bailouts and ever-higher levels of national debt. The fact that many EU banks had invested in EU members’ bonds and are also adversely affected by the continuous recession ravaging the periphery of the Eurozone has only made things worse. However, the EMU, although it had interest rate setting competence through the ECB, has until recently been devoid of any binding mechanism to effectively enforce fiscal and banking stability, both areas of serious national interest where pooling of sovereignty was regarded, until recently, as intolerable.

3.2 EU Financial Regulation Infrastructure in the Post-2009 Period: From Evolution to Revolution

3.2.1 Phase I: from the Lamfalussy process to the ESFS
In November 2008 the Commission appointed a High Level Group (chaired by Jacques de Larosiere) to study the Lamfalussy framework in light of the GFC and the threats to cross-border banking and the internal market that the GFC uncovered, and to make recommendations for a new EU regulatory set up (Larosiere 2009). In order to implement the recommendations, the EU has established (through a series of Regulations, normally referred to as the European Supervisory Authorities – ESAs – founding Regulations) an integrated European System of Financial Supervision (ESFS), which came into effect in December 2010 (article 2). It comprises the European Systemic Risk Board and a decentralized network comprising existing national supervisors (who would continue to carry out day-to-day supervision) and three new ESAs: the European Banking Authority (EBA), the EIOPA, and the ESMA, which respectively replaced the corresponding Lamfalussy level 3 committees (CEBS, CEIOPS, and CESR).
Furthermore, colleges of supervisors were to be put in place for all major cross-border institutions because supervision of strategic decisions at the consolidated level requires a college of supervisors to understand the global effects and externalities of those decisions (CEBS 2009; Lamanda 2009). Last but not least, a Joint Committee was formed by the ESAs to coordinate their actions on cross-sectoral rule-making and supervisory matters.

3.2.2 Phase II: from the ESFS to the European Banking Union: overview of EU reforms in the post-2011 era

The nature of the regulatory architecture itself may not be an important cause of a financial crisis. Yet the ‘institutional design’ can be very important for the prevention and resolution of a major financial crisis. Prevention is dealt with through a framework of systemic risk control and robust prudential regulations. Crisis management and resolution, on the other hand, require established supervisory and resolution structures, which in an integrated market, must have a cross-border remit, in order to override or subsume the principle of home country control (Arroyo 2011; Garicano and Lastra 2010). For a very long time and until the different pillars of the European Banking Union come into place, the regulatory structures of the EU have been characterized by three principles: decentralization, lack of coordination, and segmentation. A careful look at the developmental phase of European institution-building reveals this has been a process of experimentation rather than design (Schoenmaker 2009).

Nonetheless, the EU, as a whole, eventually embarked on a number of initiatives to build an integrated surveillance framework with respect to: (1) the implementation of fiscal policies under the SGP to strengthen economic governance and to ensure budgetary discipline, and (2) the implementation of structural reforms.

As a first step, Eurozone heads of state adopted the intergovernmental Euro Plus Pact, to strengthen the economic pillar of EMU and achieve a new quality of economic policy coordination, with the objective of improving competitiveness and thereby leading to a higher degree of convergence. As this remains outside the existing institutional framework a constitutional amendment to the EMU will be required to implement it (European Council 2012). In addition, the European Parliament and the Council adopted a ‘six-pack’ set (comprising five regulations and one directive) of new legislative acts, aimed at strengthening the Eurozone’s economic governance by reduction of deficits through tighter control of national finances. The reforms represented the most comprehensive reinforcement of economic governance in the EU and the euro area since the launch of the EMU almost 20 years ago. This legislative package aims at
concrete and decisive steps towards ensuring fiscal discipline to stabilize the EU economy and to avert new crises in future.

Breaking up the vicious circle of bank debt piling up on sovereign debt is a matter of utmost importance for the survival of the Eurozone. European Union members need to complete the adjustment of internal and external imbalances, to repair financial sectors and to achieve sustainable public finances (EU 2012a). The economic and financial crisis has exacerbated pressure on the public finances of EU member states where 23 out of the 27 member states fall in the so-called ‘excessive deficit procedure’ (EDP). Piling up debt in their effort to bail out Europe’s ailing banks only makes things worse. In addition, it raises the cost of borrowing for Eurozone members to unsustainable levels, necessitating continuous bailouts by the wealthier members of the Eurozone in an effort to keep the EMU from breaking up. However, such sovereign bailouts are not only very expensive they are also highly unpopular with the citizens of lender countries.

The most important of the forthcoming reforms is the decision to move towards a banking union reflected by the legislative proposals for a single supervisory mechanism for the euro area, a single resolution mechanism (SRM), the entry into force of the European Stability Mechanism (ESM), and ECB’s decision in summer 2012 to declare its readiness to undertake outright monetary transactions (OMTs) in secondary markets for the bonds of Eurozone countries, subject to an appropriate conditionality. These policy initiatives will also support fiscal consolidation and private sector deleveraging (EU 2012b). The Liikanen (2012) report has proposed solutions to separate deposit-taking banking from riskier banking activities. However, a comprehensive EU mandate on structural reform of the EU banking sector may take some time as the EU faces so many existential problems on numerous fronts.

In order to break the vicious circle between bank bailouts and levels of sovereign indebtedness, the Eurozone members have established a funding facility, the ESM, which is both a fund that will employ, under a strict conditionality, member-state funds and funds it will obtain in the money and capital markets in order to operate as a liquidity provision and bank recapitalization mechanism. The use of ESM funds for bank recapitalizations is supposed to put to stop to further increases of the indebtedness of the sovereign concerned due to bank bailouts. As a result, there are four conditions on employment of ESM funds (Eurogroup 2013):

1. Risk of sovereign over-indebtedness or adverse impact of member state’s access to debt markets;
2. Risk to financial stability of the Eurozone or of the member states;
3. Risk of bank insolvency/failure and lack of alternative sources of funding; and

4. Systemic risk – the institution has a systemic relevance or poses a serious threat to the financial stability of the euro area as a whole or the requesting ESM member.

In part in order to counter moral hazard and in part because ESM funds are limited (around €700 billion, with expected lending capacity of up to €500 billion with member states having so far contributed only €80 billion with €620 billion remaining in callable pledges), there is a strict numerical limit to ESM lending of €60 billion per member state seeking recapitalization assistance. Therefore, private capital resources will be sought as a first solution, including contributions from existing shareholders and creditors of the beneficiary institution(s). If shareholders’ equity is, as expected, insufficient, then an appropriate level of write-down or conversion of debt will have to take place, following a burden sharing arrangement between ESM, bank creditors, and the member state.

The inevitable transfer of funds from the richer to the weaker Eurozone members through the ESM and the need to tighten the framework for bank regulation, supervision, and resolution have meant that the countries in the core of the Eurozone have promoted the centralization of bank supervision and resolution functions in the EMU. These demands have given birth to a new set of bank authorization, supervision and resolution arrangements: the European Banking Union. However, the European Banking Union (EBU), plausible and necessary as it may be, has also reinforced rather than calmed the centrifugal forces within the EU and has the potential to lead to a serious split of the internal market (Lastra 2013). Important members of the EU, chiefly the UK, have resolutely remained outside important EBU arrangements.

3.3 European Banking Union

Responding to the ever-growing pressure for more bank and sovereign bailouts, the European Commission initiated the establishment of institutions that would support the ESM and lead to the establishment of a more integrated banking union in the EMU (Barroso 2012). This has, in principle, three pillars: a unified supervision mechanism (the SSM), operated by the ECB, a future pan-European deposit guarantee scheme (DGS), and a future single-bank resolution mechanism with common backstops.
3.3.1 The single supervisory mechanism

The SSM is the first step towards an integrated ‘banking union’ that includes further components such as a single rulebook, common deposit protection and single bank resolution mechanisms. (EU Commission 2012). Within the unified supervisory system, the ECB will have direct responsibility for around 150 banks with assets of more than €30 billion, or those with assets representing more than 20 percent of a member state’s GDP. National supervisors within the same unified supervisory system will primarily supervise the remaining banks. Finally, while the ECB will have the power to step in to assume direct supervision at any moment, if need be, national supervisors will remain in charge of tasks such as consumer protection, money laundering and branches of third country banks. European Central Bank supervision will be phased in automatically in late 2014.

3.3.2 The new EU resolution framework and plans for integrated resolution funds and deposit guarantee schemes

To provide for common mechanisms to resolve banks and guarantee customer deposits, the Commission has proposed instituting a single resolution mechanism, which would govern the resolution of banks and coordinate in particular the application of ‘resolution tools’ to banks within the EU, as provided by the EU’s proposed (harmonized) framework for crisis management and the resolution of banks and other systemically important financial institutions (EU Commission 2013). The SRM is envisaged as an indispensable supplement to the SSM and one of the cornerstones of the EBU. The SRM would ensure that – notwithstanding stronger supervision – if a bank subject to the SSM faced serious difficulties, its resolution could be managed efficiently with minimal costs to taxpayers. In addition to the prescribed resolution architecture, a Single Bank Resolution Fund would be set up under the control of the Single Resolution Board to ensure the availability of medium-term funding support while the bank was restructured. It would be funded by contributions from the banking sector, replacing the national resolution funds of the euro area member states and of member states participating in the EBU.

The SRM aims at safeguarding the continuity of essential banking operations, to protect depositors, client assets and public funds, and to minimize risks to financial stability. This mechanism would be more efficient than a network of national resolution authorities particularly in the case of cross-border failures, given the need for speed and credibility in addressing the issues in the midst of a crisis (Beck 2012; Schinasi 2012).

The European Commission has also proposed the harmonization and simplification of protected deposit regimes, faster payouts and improved financing of schemes, notably through *ex ante* funding of deposit guar-
antee schemes and a mandatory mutual borrowing facility between the national schemes.

3.4 Evaluation of EU Reforms

Current EU reforms promise to create a stronger financial and institutional framework in order to strengthen the resilience of the single market and mitigate the risk of vicious circles of market instability and fragmentation observed during the GFC and the ongoing Eurozone debt crisis (ECB 2012, p.12). Nonetheless, they are also high risk for EU market integration. European Banking Union membership only extends to the 17 EMU members and, thus, it might create irreparable fractures for the internal market (Lastra 2013). Moreover, the new arrangements under the SSM need to become a ‘first-best’9 framework in order to stabilize the Eurozone. Effective supervision, however, will challenge the fiscal sovereignty of Eurozone members (Schinasi 2012), especially, as the SSM will be able to activate the permanent EU rescue fund in order to directly recapitalize struggling Eurozone banks, such as those in Spain. This initiative, which essentially centralizes control over Eurozone finances by reducing the power of national governments, has attracted criticism from different quarters with respect to the role of the ECB, which will end up mustering an enormous amount of power without having a democratic mandate. At the same time, the legal basis for the new arrangements must be robust and must include a mechanism for judicial review, and gives rise to criticism as to whether this is best feasible under article 127(6) of the TFEU or other treaty provisions.

4 ASIAN FINANCIAL REGIONALISM

Risks flowing from cross-border financial crises tend to intensify within integrated markets. The more integrated is a regional market the higher the propensity for cross-border contagion (ADB 2012). Over a period of several decades, the progressive development of an integrated single financial market in the EU combined with a single currency among 17 of its members led to the imbalances that became visible when the GFC erupted in 2008 (Stark 2012). Unfortunately, despite the vast amount of effort expended in developing both the EU single financial market and EMU, important design features necessary to support financial stability had not been put in place or were not sufficiently robust.

Weaknesses in the institutional framework have affected EU financial integration in two ways: first, the incomplete or partial harmonization of
the pre-crisis supervisory and regulatory framework prevented the benefits of full integration from being reaped and created fragilities in the financial sector to build up in a way that became threatening over time and, secondly, the crisis revealed the vulnerabilities and gaps in the national and EU-wide crisis management frameworks. These weaknesses have resulted in partial disintegration of the internal market and have caused splits along national lines of some segments of the single EU market for capital and financial services (ECB 2012). Thus, for the EU, progression to a framework of tighter financial integration and risk controls for the banking system – together with improved governance standards in the monetary and fiscal spheres and centralization of responsibility for financial stability – has become a one-way street.

Building on the preceding review of the Eurozone crisis and attendant reforms, this section explores regionalism in Asia in the context of issues relating to financial cooperation and integration.

4.1 Asian Financial Regionalism: A Brief Overview

From the 1950s to the 1980s, individual economies in Asia adopted a range of models to support primarily domestic financial development. These ranged from Soviet-style models of state ownership and control to liberal laissez-faire, with approaches to finance varying from model to model. By the end of the 1980s, the basic model in use was the Japanese model of ‘the developmental state with strong administrative direction of finance’ and this particular model proved the most successful in supporting balanced and inclusive economic growth and development in most of the East Asian economies. The model focused on employing an export-led strategy to support economic growth through a close relationship between government, business, and finance. Finance in this model largely originated through bank loans rather than equity markets (Liu et al. 2013). Contrasting with today, during this period, economic regionalism, generally, and financial regionalism more specifically, remained very limited and fragile. However, with the collapse of the Bretton Woods monetary system, the tremendous increase in cross-border capital flows and currency instability during the 1970s and through the 1990s led to the beginning of the formation of transnational regulatory international networks.

During the 1990s, in the context of the then-dominant Washington Consensus, East Asian economies focused on integration with the global economy (primarily the developed western financial systems and markets) by following rapid liberal economic and financial policies in certain specific areas. Selective market liberalization without a backstop of appropriate legal and regulatory institutions set the stage for the 1997 crisis, highlight-
ing flaws in the combination of the Japanese-inspired state-led model of development and selective liberalization. However, the reforms pursued after the Asian crisis marked the beginning of significant economic and financial regionalism in East Asia, as economies started looking at ‘common interests’, which were not appropriately addressed under the prevalent international financial architecture (Arner and Schou-Zibell 2010). The developments in the western world and the global financial and economic crisis which commenced in 2007 marked another turning point from the ‘export-led’ growth model, as the decrease in demand for Asian exports shifted regional consensus to support economic rebalancing domestically, regionally and internationally.

In the East Asian context, a range of regional financial arrangements have been established (see sections 4.2–4.4 below). The EU experiences hold significant lessons for the future development of each of these. In addition, the AEC (discussed in the final section) and its possible extension to ASEAN+3 present significant potential for future financial integration, with particular implications to be drawn from EU experiences.

4.2 Central Bank and Banking Regulatory Cooperation: Executives’ Meeting of East Asia-Pacific Central Banks

The Executives’ Meeting of East Asia-Pacific Central Banks was established in 1991 to provide the main mechanism for central bank, regulatory and financial infrastructure cooperation in the region among the more developed financial jurisdictions, to some extent as a reaction to the fact that the only Asian member of the BCBS was Japan. The EMEAP plays a significant role in central bank coordination and cooperation among its membership, and works closely with ASEAN+3/+6, the ADB, and the BIS (especially the latter’s Asian Consultative Committee – ACC – and Asian Office), and international standard setters. As a result of shared crisis experiences, the effectiveness and impact of the group has grown, with regional initiatives such as ABMI and support for CMIM (Arner and Schou-Zibell 2010).

In addition, there are other regional mechanisms at work. The ASEAN/+3/+6 Finance Ministers process plays a policy-setting role, including through the CMIM process (ASEAN+3 + Hong Kong, China).10 The standards adopted have largely been derived from the international process, but with increasing trend to develop regionally tailored equivalents through regional groups of international organizations, such as IOSCO. At the same time, there has been some movement to develop an Asian Financial Stability Dialogue (AFSD) to coordinate regional cooperation, coordination, and surveillance mandates. Implementation
of international standards is widespread in the region, but willingness to participate in international monitoring through the IMF has traditionally been limited, albeit now increasing rapidly as a result of G20 commitments to Financial Sector Assessment Program participation. These arrangements may be sufficient for coordinative purposes; however, surveillance arguably requires a higher level of attention, with the AMRO (discussed below) having the potential to provide an appropriate framework, if effectively designed and implemented.

Looking forward, the EMEAP provides an important forum for supporting regional financial stability and integration, particularly in the context of the AEC. In this context, the process of development of common minimum standards derived from international regulatory standards combined regional harmonization through domestic implementation of these common regional regulatory standards, an approach pioneered by the EU in the 1980s in the context of the development of the Single European Act, holds the biggest promise. While East Asian regulatory standards are unlikely in the near future to have the binding force of EU directives, the EMEAP can also serve as an important monitoring and dispute resolution function. In the context of implementation monitoring, the Lamfalussy process provides an important example of the depth that is necessary in standards development and harmonization in order to support financial integration. In addition, the new EU ESAs provide a long-term example of a regulatory design aimed at closer cooperation.

4.3 Market Development: Asian Bond Market Initiative

Currency and maturity mismatches and a heavy reliance on bank loans in East Asia, under the developmental state approach to finance, was at the heart of the 1997 Asian financial crisis. The 1997 crisis provided not only the biggest impetus to later regional developments but also highlighted the depth of infrastructure-related gaps extant in the Asian financial markets (Kawai 2004). Post-crisis attention paid to improve regional capital market development initially focused on the debt and money markets, but later, it began to consider wider securities market reform as well.

Debt markets reform has mainly focused on the ASEAN+3 ABMI. The ASEAN+3 launched the ABMI in 2003 to help promote domestic reforms aimed at expanding the size of national and regional bond markets, to attract regional and foreign investors, and strengthen the bond market infrastructure related needs. Another motive behind ABMI was to help divert savings to local and regional investments. In this regard, the Asian Bond Fund (ABF), supported by the EMEAP, promoted the development of national and regional bond markets by directly creating bond funds.
The first such Fund, ABF1 was launched in 2003. The ABF completed phase 2 of the eight ABF2 single market funds in May 2011. On the basis of this progress, the Roadmap+, identifying nine priorities, was adopted in order to produce tangible outcomes in the future with the support from the ADB, and to reinvigorate the ABMI discussions (ADB 2012).

These initiatives and structures are aimed at intensifying efforts to build integrated financial markets under the ASEAN umbrella, yet the expectations from the leading regional economies – the PRC, Japan and the Republic of Korea – demand an active cross-market approach to propagate effective and resilient regional integration mechanisms. In the context of bond market development, European experiences have particular relevance. A strongly positive example is EU harmonization with common minimum standards as an alternative to the development of offshore markets (in the EU context, the Euromarkets). At the same time, aspects of the Maastricht and EU FSAP processes are also relevant, particularly those concerning the development of common approaches to the development of market infrastructure, such as payment and settlement systems which are vital in supporting integration. On the other hand, the Eurozone crisis highlights the risks of markets, which cease to differentiate between domestic sovereign risks in the context of monetary and financial integration, which are not backed by sufficient levels of political integration. It also underscores the importance of regional macroeconomic surveillance mechanisms.

4.4 Regional Liquidity Arrangements and Macroeconomic Coordination and Monitoring: The Chiang Mai Initiative Multilateralization and the ASEAN+3 Macroeconomic Research Office

The CMIM is the premier regional financial safety net for providing liquidity support in ASEAN+3 (plus Hong Kong, China). The CMI was created with the purpose to ‘provide sufficient and timely financial support to ensure financial stability’ in the Asian region (ASEAN+3 2000), and to supplement existing international facilities, primarily performed by the IMF internationally. The CMI has been growing and expanding on its inception goals, and was multilateralized to become a collectively managed reserve-pooling arrangement (CMIM) governed by a single contract in 2010 (ASEAN 2012) with US$120 billion in commitments (ASEAN+3 2009), now doubled to US$240 billion. Since its inception, 20 percent of the aggregate amount was made available for drawing under CMIM by a user state, ‘de-linked’ from any IMF conditionality, but subject to rules to be developed by ASEAN+3 members (ASEAN+3 2000). The arrangement thus was conceived as to ‘supplement the existing inter-
national financial arrangement’ (ASEAN+3 2000, p.6). In May 2012, ASEAN+3 added a crisis prevention facility – the CMIM Precautionary Line (CMIM-PL) – to further support the CMIM given the high degree of contagion-risks highlighted by the global financial crisis (Azis 2012).

The CMIM is thus a sovereign liquidity facility designed particularly as a response to the Asian financial crisis and resulting negative experience with the IMF. The CMIM is not designed to address sovereign solvency issues, which are instead left to the IMF. The Eurozone experience clearly provides important lessons in this context. First, the EU entered the crisis with neither sovereign liquidity nor sovereign solvency mechanisms. The view was that the single currency combined (particularly the entry criteria) and the SGP would be sufficient to prevent the occurrence of either sort of crisis, which as discussed in previous sections was in fact one of the underlying weaknesses leading to the current Eurozone crisis. Yet, East Asia needs to be very clear on the role of CMIM in providing sovereign liquidity but not solvency support. In order to do this, strengthening of regional macroeconomic surveillance mechanisms is absolutely essential. In addition, the aforementioned architecture of the EU ESM might provide significant technical lessons.

The ASEAN+3 Economic Review and Policy Dialogue (ERPD) is the most important mechanism for information exchange on economic conditions and policies in Asia. The ASEAN Surveillance Process was established in 1998, to monitor macroeconomic and financial vulnerabilities and strengthen policy dialogue through peer review (ADB 2008). In May 2000, ASEAN+3 finance ministers launched the ERPD process, which also played a vital role in formulation of the CMI. Most significantly, the AMRO was established in 2011 to institutionalize the ERPD and to support the CMIM. While at an early stage, the AMRO has a very significant role both in addressing potentially contagious macroeconomic risks and enabling the approach functioning of CMIM as a liquidity support (rather than a mechanism to address solvency). The important prescription that follows from the current European crisis is that the regional surveillance must complement global surveillance (ADB 2009). In addition, the new EU European Systemic Risk Board (ESRB) provides an example of an important potential next step, linking the EMEAP, the CMIM and the AMRO.

4.5 Financial Services Liberalization: ASEAN, APEC, and ASEAN+3

The ASEAN is the main regional arrangement addressing financial services liberalization. At present, the ASEAN is at a much more elementary stage of development than the EU. The hindrances to full financial services
liberalization primarily revolve around the trade-offs attached to abolition of national policy controls. Weaker regional institutions and the slower pace of integration are only a natural manifestation of EU norms.

Over the years, the ASEAN and the ASEAN+3 have cooperated in three broad areas of macroeconomic and financial policy: (1) economic review and policy dialogue, (2) regional financial safety nets, and (3) regional financial markets. These initiatives have been further strengthened in the aftermath of the GFC (ADB 2012, p. 48). The integration scale, however, has been far higher for trade in goods than in financial services. The ASEAN’s 1995 Framework Agreement on Services (AFAS) sought to reduce barriers to trade in services. In 2006, the ASEAN and Australia’s official Regional Economic Policy Support Facility commissioned an assessment study that concluded that its performance was both disappointing and unimpressive (Thanh and Bartlett 2006).

The APEC retains advantages over competing regional structures but it needs to seek reforms to accelerate the Bogor Goals (APEC 1994) and enhance the APEC’s institution-building and monitoring system while ensuring its complementarity with other regional organizations including the WTO. The APEC’s goal of creating a Free Trade Area of the Asia-Pacific (FTAAP) could potentially overcome structural limitations and serve as an effective ‘Plan B’ for the Doha Round standoff (Hsieh 2013). At the same time, any FTAAP seems off the table for the time being, replaced instead by more limited efforts, such as the US-led Trans-Pacific Partnership.

At present, the various AEC and ASEAN+3 treaties would appear to have greater potential to support further regional financial integration, with the ASEAN+3 and the ASEAN+6 having largely eclipsed the APEC’s role (Hsieh 2013). In respect of this greater potential, in addition to further developing the ASEAN and ASEAN+3 frameworks, the subject of the next section, a logical addition would be an expansion of the ASEAN+3 framework to encompass the full ASEAN+6.

5 LOOKING FORWARD: BUILDING AN EAST ASIAN SINGLE FINANCIAL MARKET?

East Asian economies lag behind European and North American economies in financial integration. At the same time, both trade and investment flows in the region have grown very rapidly over the past 20 years. The Asian financial crisis in the late 1990s provided an impetus for more financial integration within the region. One group of scholars perceive differences between EU and East Asian financial integration as a matter
of degree and not of nature (Wouters and Ramopoulos 2012). According to this school of thought, regulatory convergence takes time; whereas, the quality and sustainability of convergence is the key to the success of the whole process itself (Smaghi 2012). At the same time, most would agree that in reality, the region's markets largely remain fragmented. Despite the rise in trade-related integration, financial integration lags behind trade and investment in East Asia. Given this context, the European example constitutes a major significant precedent and as a laboratory of economic, legal, and political integration transcending national borders.

This section thus highlights the need for indigenous institutional infrastructure required to support integrated supranational banking markets, on the one hand, and the more transnational issues of financial liberalization and free movement of capital, financial services and trade, on the other, in the context of the AEC.15 Importantly, these ideas are also being taken into account more broadly in the ASEAN+3/ASEAN+6 with the launch of the ASEAN Regional Comprehensive Economic Partnership (RCEP) to create a free trade area with comprehensive economic cooperation. Significantly, while East Asian financial integration has largely proceeded through weak institutional arrangements, the AEC and the RCEP provide a much firmer institutional basis for the future.

5.1 Financial Integration: The ASEAN Economic Community

The ASEAN Vision 2020, first adopted by the ASEAN heads of state/government in the Kuala Lumpur summit in December 1997, was made more concrete in January 2007 when ASEAN heads of state/government signed the Cebu Declaration on the Acceleration of the Establishment of an ASEAN Community16 by 2015. As a central component, the AEC envisaged the following key characteristics: (1) a single market and production base, (2) a highly competitive economic region, (3) a region of equitable economic development, and (4) a region fully integrated into the global economy. At their sixteenth meeting, in Cambodia in April 2012, ASEAN finance ministers reaffirmed their commitment (ASEAN 2012). However, there is a gap between declarations and the actual implementation of those pronouncements. The implementation rate of AEC Blueprint17 has recently increased to 74.5 percent (Pushpanathan 2010). In the declaration, the domestic difficulties in implementation of AEC were also recognized, but the ASEAN finance ministers agreed to intensify efforts in those areas under the AEC in order to achieve AEC goals by 2015 (ASEAN 2012).

Under the AEC roadmap, monetary and financial integration is broadly structured around three themes: (1) harmonizing regulations, market standards, and rules; (2) developing market infrastructure and regionally
focused products and intermediaries; and (3) strengthening member countries’ capacities (ASEAN 2009a, 2009b). The influence of the EU experience is thus immediately apparent. At the same time, the underlying focus of regionalism in ASEAN and its supporting framework is different, with a focus on integration to support growth and financial stability rather than political integration. A very important element emerges from this central difference in purpose: treatment of members at divergent levels of development. In particular, in the EU, new members of whatever level of development must as a prerequisite adopt the entire body of EU law into their domestic legal systems prior to entry. Upon entry, a new member thus has the entire spectrum of legal and institutional structures in place and opens its markets and borders completely to other EU member states. Given the highly divergent levels of economic and financial development as well as of political arrangements in the ASEAN, this approach would not be workable. Rather, as discussed below, the ASEAN should take a multi-staged approach to financial development and liberalization based on progressive development in order to ensure both growth and financial stability.

Against this background, the AEC has so far developed initial plans in two areas: financial market integration and cross-border financial institutions, for both of which EU experience is highly relevant.

5.1.1 Financial market integration
In respect of capital markets, in addition to the ABMI, the ASEAN Capital Markets Forum (ACMF)18 has developed the Capital Market Implementation Plan (ACMF 2009). The implementation plan ‘provides for a comprehensive approach at building an integrated regional capital market, with strategic initiatives and milestones, to strengthen financial intermediation, enhance capacity and manage risks to support national and regional growth’, through a core strategy of harmonization and mutual recognition, starting with a core group of the more advanced economies and progressively supporting the development and eventual inclusion of all of ASEAN. It is designed in three phases and organized around six principles: (1) adoption of international standards to the maximum extent possible; (2) progressive liberalization to facilitate more open access and cost reduction through greater competition; (3) sequencing of regional integration initiatives taking into account ease of implementation, market preferences, and technical linkages; (4) the ASEAN Secretariat as the main coordinator; (5) consistent implementation of policies to support regional integration at country level, with effective monitoring mechanisms; and (6) strong communication plans and consultative processes to build consensus and set priorities for integration initiatives.

To date, the ACMF has focused on two initiatives: cross-recognition of
Global shock, risks, and Asian financial reform

qualifications and development of ‘ASEAN and Plus’ standards. Cross-recognition of qualifications is proceeding very slowly, with only a limited Memorandum of Understanding (MoU) between Singapore and Thailand so far in place. However, development of ASEAN and Plus standards is proceeding more smoothly. Essentially, these are regional versions of international standards for equity and debt offerings and listings, including adoption of international accounting and auditing standards (Arner 2002).

Overall, this strategy draws directly from the EU experience following the 1986 Single European Act, and rightly so. At the same time, as noted above, it does not follow the approach adopted by the EU for accession candidates. Instead, the implementation plan focuses on moving forward in stages, with financial market liberalization only occurring once the underlying infrastructure has been put in place and market development has proceeded to higher levels of development. In particular, this reflects the regional experience and lessons learnt from the 1997 crisis. Based on the EU experience, two areas should receive particular attention: first, harmonizing domestic accounting standards and, second, allowing the development of regional wholesale financial markets.

5.1.2 Cross-border financial institutions

In respect of cross-border financial institutions, so far the focus has been on banks. The ASEAN Banking Integration Framework (ABIF) has yet to be finalized but in its current form sets timelines for a pan-ASEAN banking strategy to be adopted in two stages. The first stage will focus on pan-ASEAN banking through separately capitalized subsidiaries. This will initially be done through the developed members, with the developing members following at a later stage. Such platforms necessitate regulatory convergence across jurisdictions. However, the framework may be applicable to both ASEAN banks and non-ASEAN banks that meet the requirements. The idea is to have ‘Qualified ASEAN Banks’ (QABs), with regulatory harmonization across the ASEAN (once again, with the five developed countries going first, followed later by the developing members). Asian authorities have agreed upon four preconditions to ensure the banking integration framework is successfully implemented. The first is harmonization of regulations; second, building financial stability infrastructure; third, assisting the less developed countries to build their banking capacity, and fourth, establishment of set criteria for ASEAN qualified banks to operate in any ASEAN country with a single ‘passport’. The ABIF’s concept of integration is restricted to the commercial presence of qualified banks. Thus, it takes such presence as the benchmark for ASEAN banking integration by 2020. This is has been criticized because it
will not necessarily reflect the success of ABIF in bringing about economic benefits and financial stability to the region (Siswanto and Wihardja 2012). At the same time, we would argue that on the basis of the EU experience, particularly the Eurozone crisis, this is an entirely appropriate design. As shown by the EU crisis, the relationship between liberalization and stability is critical in the case of the financial services industry. While liberalization may proceed, especially as regional and global financial institutions seek greater market access, it would appear best for economies for the foreseeable future to adopt arrangements for cross-border provision on the basis of separately capitalized and regulated subsidiaries, albeit to increasingly harmonized regional standards, rather than following the passport system which has been adopted by the EU.

The second stage will allow branching, based on harmonization and QABs which will require addressing issues such as supervision, resolution and deposit insurance. This resembles closely the patterns that were adopted in the EU prior to banking union. The Eurozone debt crisis has clearly exposed the weaknesses of regulatory structures divided along national lines when these have to deal with integrated cross-border financial markets. It has also highlighted the limited range of policy choices available from within the EU/EMU system as it existed prior to 2008. As a result, the EU faces a number of hard choices extending to the intractable trade-off between national sovereignty and collective financial stability. The plans to establish a European banking union within the boundaries of the Eurozone, which will include a single supervisor and, in the future, a single resolution authority and a pan-European deposit guarantee scheme, have clearly tilted the balance towards further centralization and pooling of sovereignty. This approach is unlikely to appeal in the ASEAN in the foreseeable future. At the same time, the planned second stage will require very careful thought in order to address supervision, resolution, and deposit insurance – all areas which the Eurozone crisis has highlighted the weaknesses inherent in the pre-crisis approach. In particular, the Eurozone financial crisis highlights the necessity of having in place very clear ex ante arrangements for dealing with cross-border financial institution failures which calls for a greater role of the ASEAN and the EMEAP (Arner and Schou-Zibell 2010).

5.2 Monetary Integration: Renminbi Regionalization and Internationalization

Like Western Europe, East Asian nations have had a long-standing preference for stable exchange rates – a preference that played a significant role in the Asian crisis and has been the source of political contention,
particularly between the US and Japan in the 1980s and the PRC in the 2000s. Despite the fact that in response to the 1997 Asian crisis and the 2008 GFC East Asia has been progressing in respect of regional integration, these initiatives and institutional arrangements are at nascent stage of sophistication compared to EU levels of development, because regional financial cooperation is constrained by national strategic rivalry and regulatory competition. Asian reforms and regionalism initiatives focus only on increased rather than comprehensive and profound market integration; therefore, the possibility of regional monetary union in the near future is very unlikely, given the EU experiences on the one hand, and political differences across East Asia, on the other (Liu et al. 2013).

While it appears that there is little appetite for the development of an Asian counterpart to the euro, there is very strong interest in encouraging regional use of domestic currencies. Apart from encouraging cross-investment in each other’s bond markets, the PRC, Japan, and the Republic of Korea, in December 2011 agreed to promote the use of local currencies in cross border transactions. More significantly, the PRC has been promoting the international use of the renminbi as a regional invoicing currency. The renminbi’s potential as reserve currency could help the PRC shield its domestic economy from US dollar volatility. While this move raises deep and extensive implications for both regional and global economic cooperation and integration, it demands several preconditions to meet before the renminbi can enjoy the status of a reserve currency in parallel to the US dollar and the euro, and financial liberalization would be only one such requisite. Therefore, the goal to have renminbi as a regional anchor currency to be followed by an international reserve currency requires open markets and institutional support infrastructures, accompanied by harmonization of standards, improved legal norms, and better creditor rights amongst other prerequisites as seen from EU experience (ADB 2012).

In the context of monetary integration, the renminbi presents possibilities of widespread regional use in a relatively short period of time. An important lesson from the global and Eurozone financial crises relates to liquidity: the central bank of the issuer of an international currency is the liquidity provider of last resort. While CMIM has a role to play in this context, the PRC’s adoption of increasing numbers of bilateral currency swap arrangements shows that lessons have already been learned and that as the international use of the renminbi increases, the People’s Bank of China will be well-positioned to provide liquidity support as necessary.
5.3 The Continuing Relevance of the EU Experience?

In the context of furthering financial integration, the EU provides the leading example and simultaneously highlights very real difficulties for other regions, including Asia. As enhanced financial integration brings increased risks of contagion in the event of a crisis, regional cooperation is even more important for developing post-crisis resolution mechanisms. As the uncertainty of world financial conditions and the heightened possibility of a contagion-driven crisis persistently looms over global financial markets, it makes sense for Asian countries to have their own regional safety nets strengthened in order to prevent a cross-border financial stability crisis triggered by exogenous factors.

In Asia, the global financial crisis highlights the necessity of addressing a range of issues relating to financial integration and regionalism, which, in a sense, go much beyond the financial stability challenges raised by the GFC. First, there is a pressing need to continue with the development of Asian regional alternatives to address issues relating to liquidity, liberalization, regulation, capital controls and exchange rate volatility. Before the advent of the GFC, financial innovation was regarded as inextricably linked with economic growth and aggregate welfare however, in the wake of the crisis the utility of financial innovation has become more unequivocal. In addition, regional macroeconomic and financial surveillance mechanisms also have clear value, as demonstrated both by the 1997 Asian financial crisis and the more recent global financial crisis, especially in the context of the euro area. The main challenge in terms of capital provision, however, is underdeveloped domestic and regional capital markets. As economies across the region grow and banks increase lending, there will be consequent requirements to increase capital. As a result, the availability of well-developed equity and debt capital markets to support bank capital will become an increasingly major concern.

Secondly, in addition to domestic and regional considerations, the crisis implies an enhanced role for the Asian economies within global regulatory and supervisory institutions, such as the IMF and the FSB. The IMF, G-20, and the FSB are pursuing structural reforms to allow wider representation of the Asian economies and tend to pay increased attention to Asian leaders’ recommendations with respect to redesigning the global regulatory architecture. Increasing Asian influence is grounded in: (1) the relative success of more conservative Asian approaches to liberalization, and policy implementation, and (2) from the parallel decline of the contribution from the West in economic growth indicators vis-à-vis Asian countries.

Moreover, it is not controversial, even though it does challenge orthodox
thinking, to argue that financial integration is not always beneficial. Despite the increased importance of enhanced regionalism and integration, policy formulation must take a balanced view. The European crisis provides a deep insight to the risks of integration and identifies mistakes not to be repeated in following integration plans elsewhere. For example, for the banking integration framework (ABIF), in the short term, it should deliver its promise to facilitate economies of scale, a bigger market, technological transfer and information sharing, that is, ‘the soft-infrastructure’, but in the long term it should aim for financial stability through consolidated integration, that is, the ‘hard infrastructure’ (Siswanto and Wihardja 2012).

This balanced view of integration offers further perspectives: First, that the soundness and credibility of domestic policies are not substitutes for regional commitments even though, at times when domestic policies are ‘stuck’, regional commitments can help to ‘tie hands’ and exert external pressure. Secondly, rather than imposition of strict benchmarks and mile- stones to meet the idiosyncrasies of individual economies, the integration framework should facilitate and encourage the growth of regional economies while allowing the market to work freely. Thirdly, it does not matter how much integration or liberalization has been achieved in the region, but what matters is that regional approaches and small steps of cooperation will result in the Asian economies being more integrated.

East Asia, in seeking to further develop regional financial and economic markets, must take into account the debate on sovereignty trade-offs and economic stability, and jurisdictional risk trade-offs to ensure continuity and development of an integrated market.

One important lesson is that these frameworks must be sensitive to domestic peculiarities especially of less developed and smaller regional economies. Given the new international regulatory requirements on capital, liquidity and leverage ratios, meeting those higher standards could be challenging. For smaller states, therefore, the development of regional arrangements, such as the establishment of a high-level AFSD, would provide special support to such smaller economies in the region. One such mistake made during the EU single market developmental phase was meandering around the eligibility criteria for member states through manipulation of economic data by the states in order to win eligibility to join the club. Therefore, any reform in Asia, including that being contemplated by AEC to establish a ‘banking union’ where states need to meet specific criterion before joining the ‘club,’ must be structured with the lessons learnt from European experience. Requisite institutional reforms must simultaneously be pursued at the national, regional and international level and focus on the following developmental requirements: (1) the need to balance regula-
tion and innovation, (2) establishment of national and cross-border crisis management and resolution mechanisms, (3) preparation of a comprehensive framework and contingency plans for financial institution failure, including consumer protection measures such as deposit insurance, and (4) supporting growth and development with particular attention to the region’s financial needs for infrastructure and for SMEs (Arner and Park 2010).

Where, however, the EU experience is invaluable is in supplying policymakers with irrefutable evidence about the axiom that, although financial markets may be established anywhere, provided that certain property rights are recognized by local law, in the absence of restrictions on cross-border flows, their stability may only be guaranteed through appropriate institutions and not by reliance on market forces’ rationality and coordination. Therefore, arrangements to safeguard the stability of the cross-border market cannot be delayed until formal integration efforts reach a peak in Asia, whether in the form of establishment of a single currency area, or otherwise. Waiting until then might prove fatal to the Asian financial integration process. Therefore, in the East Asian context building the necessary infrastructure for the operation of integrated financial markets is very important.21

In the case of East Asia, the complexities involved in harmonizing common practices, standards, and specifically the legal rules for such diverse economies mean that EBU-type institutions are not feasible in the foreseeable future. Yet this does not mean that the leadership of those countries should not think about the challenges to financial stability created by increasing market integration and financial interconnectedness in the region. It only means that, for the time being, other less strongly integrative measures, such as subsidiarization, are probably more suitable and effective in the East Asian context than the EU’s plans for centralization of cross-border bank supervision and resolution. In addition, while establishment of a single regulator, such as the EU SSM, with power to intervene and discipline banks in ASEAN+3 is probably not feasible at present, building a macro-supervisory umbrella is essential for the undisturbed continuation of East Asian integration. In such a case, the function of macro-prudential oversight ought to be discharged by an independent body in order to secure credibility and authority, even if it is a ‘soft law’ body.

In the final analysis, Asian policymakers should not assume that they have ample time to deliberate before another major crisis breaks out. They should urgently start with the business of augmenting the region’s financial stability mechanisms in order to safeguard the future economic prosperity of the region. And it is in this context that lessons drawn on the Eurozone crisis can prove very useful.
NOTES

1. Cf. Lastra and Louis (2013) who (perhaps more accurately) describe the same trade-off as an ‘inconsistent quartet’ of policy objectives: free trade, full capital mobility, pegged (or fixed) exchange rates and independent national monetary policies.

2. Such integration pre-requisites include domestic institutional reforms, the maintenance of adequate and enforceable property rights, and adequate controls on money supply (Dorn and Xi 1990).

3. The Delors report provided for the establishment of a new monetary institution that would be called a European System of Central Banks (ESCB) responsible for carrying out monetary policy and the European Community’s exchange rate policy vis-à-vis third currencies.

4. The Committee of European Banking Supervisors (CEBS) was established by the European Commission in 2004. On 1 January 2011, this committee was replaced by the European Banking Authority (EBA), which took over all existing and ongoing tasks and responsibilities of the CEBS.

5. The CEIOPS (2003–10) was established on 5 November 2003. In January 2011 the CEIOPS was replaced by the EIOPA in accordance with the new European financial supervision framework.

6. The Committee of European Securities Regulators (CESR) was an independent committee of European Securities regulators established by the European Commission on 6 June 2001. On 1 January 2011, the CESR was replaced by the European Securities and Markets Authority (ESMA) in accordance with the new European financial supervision framework.

7. The colleges are a mechanism for the exchange of information between home and host authorities, for the planning and performance of key supervisory tasks in a coordinated manner or jointly, including all aspects of ongoing supervision, and also for the preparation for and the handling of emergency situations.

8. There is however, mounting criticism of the conditionality of deficit reduction by pursuing austerity measures and tighter control of national expenses, especially on the member states facing financial stresses. See, for example, Bellofiore (2013) who perceives that a way out of crisis requires not only monetary reforms and expansionary coordinated fiscal measures, but also a wholesale change of economic model built upon a new ‘engine’ of demand and growth that requires a monetary finance of ‘good’ deficits.


11. The PRC; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; and Thailand.

12. These included: (1) launching guarantee programs under the Credit Guarantee and Investment Facility (CGIF); (2) developing infrastructure-financing schemes (including a pilot project involving Lao and Thailand); (3) fostering an investment-friendly environment for institutional investors and sharing ABMI expertise with them; (4) enhancing ASEAN+3 Bond Market Forum (ABMF) activities (including the Common Bond Issuance Program); (5) facilitating the establishment of the Regional Settlement Intermediary (RSI); (6) further developing government bond markets; (7) enhancing financial access to consumers and SMEs; (8) strengthening the foundation for a regional credit rating system; and (9) raising financial awareness (AFMGM+3 2012).

13. This has clearly been manifested in the primacy of accumulation of international reserves in the region during the first decade of the twenty-first century when national exchange rate policies ran supreme over any regional market development initiatives.

14. Including India, Australia, and New Zealand.

15. To ensure economic growth and development across all the member states, the ASEAN must ensure its regional centrality and the ASEAN Economic Community is an important milestone to the bigger objective of a seamless, borderless economic community by 2030. See ADBI (2012).
16. The ASEAN Community comprises three pillars: the ASEAN Political-Security Community, the ASEAN Economic Community and the ASEAN Socio-Cultural Community. Each pillar has its own Blueprint, and, together with the Initiative for ASEAN Integration (IAI) Strategic Framework and IAI Work Plan Phase II (2009–15), they form the Roadmap for and ASEAN Community 2009–15.

17. The ASEAN Economic Blueprint (ASEAN 2009a) was signed at the thirteenth ASEAN Summit, on 20 November 2007 in Singapore, to guide the establishment of the ASEAN Economic Community 2015. See also ADBI (2012); ASEAN (2009a, pp. 21–67).

18. The ACMF comprises Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.

19. A double-track implementation plan has been adopted for the developed ASEAN 5 (Singapore, Malaysia, Thailand, the Philippines and Indonesia), and the developing, BCLMV countries (Brunei Darussalam, Cambodia, Lao PDR, Myanmar and Viet Nam).

20. In August 2010, HKMA allowed all authorized institutions to take part in the interbank bond market using renminbi through a settlement agent and after seeking PBOC's approval. Hong Kong, China, Singapore, and London all have some international trade settled in renminbi – with Hong Kong, China taking the lead.

21. ASEAN+3’s ‘Group of Experts’ initiative in securities clearing is a first step in this respect.

REFERENCES


Asian Development Bank (ADB) (2012), Asian Economic Integration
Association of Southeast Asian Nations (ASEAN) (2009b), ‘Implementing the roadmap for an ASEAN Community 2015’.
Association of Southeast Asian Nations +3 (ASEAN+3) (2009), ‘Report from the Finance Ministers of the ASEAN+3 to heads of governments’, February, ASEAN.
Association of Southeast Asian Nations (ASEAN) Capital Markets Forum (ACMF), (2009), ‘Implementation plan to promote the development of an integrated capital market to achieve the objectives of the AEC Blueprint 2015’, ACMF.
Avgouleas, E. (2012a), ‘Eurozone crisis and sovereign debt restructuring: intel-
lectual fallacies and new lines of research’, paper presented at the Society of International Economic Law (SIEL), 3rd Biennial Global Conference, Centre for International Law (CIL) and Faculty of Law, National University of Singapore, July.


European Commission (2003), The EU Economy: 2003 Review, Brussels:


11. The role of deposit insurance in financial stability: issues and options in the ASEAN+3

A. Michael Andrews

1 INTRODUCTION

There have been significant changes in the accepted international practices for effective deposit insurance regimes since the 2007–09 financial turmoil. Experience in the crisis demonstrated that poorly designed deposit insurance systems played no role in maintaining stability, and were even destabilizing. This contributed to the development of a new international standard, the Core Principles for Effective Deposit Insurance Systems (the Deposit Insurance Core Principles; released in 2009 – BCBS&IADI 2009 – and subsequently endorsed as an international standard by the FSB).

The Deposit Insurance Core Principles replace earlier less prescriptive guidance. Among other changes, there is a new focus on the role that deposit insurance can play in mitigating against runs and providing alternatives to taxpayer funded bailouts as part of an effective resolution regime. The Deposit Insurance Core Principles do not support co-insurance, which proved problematic in the crisis, and have a much sharper focus on the role of the deposit insurer in failure resolution, the elements of an effective resolution process, and the importance of reimbursing deposits within a time frame that does not undermine financial stability and the proper functioning of the payment system. In other national and international forums, the design features of deposit insurance systems which can contribute to financial stability and mitigate procyclicality have received additional attention since the crisis.

This chapter considers the deposit insurance systems in the ASEAN+3 countries in the context of the Deposit Insurance Core Principles and other recent international developments. It identifies recent and pending changes in the selected countries, as well as design features or practices that may need to be revisited to achieve full compliance with the international standard. The chapter also identifies, in the context of the ASEAN+3
The role of deposit insurance in financial stability

member countries yet to introduce or make fully effective deposit insurance, reforms that should precede the decision to introduce deposit insurance, the preconditions for effective deposit insurance, and the importance of ensuring that the deposit insurance regime is fully consistent with supervision and resolution frameworks. In addition to the role of deposit insurance in financial stability, the chapter discusses the other policy objectives to be considered when deciding to introduce deposit insurance, including the potential to support financial sector development, encourage competition, and protect unsophisticated depositors.

The next section of the chapter discusses the changing international perspectives on deposit insurance systems. Section 3 summarizes the lessons from the recent global financial turmoil with respect to deposit insurance and discusses the temporary and permanent changes to deposit insurance regimes as part of the response to the crisis within the ASEAN+3 countries and more broadly. The fourth section provides an overview of existing deposit insurance systems in the ASEAN+3 countries, and the concluding section provides a suggested reform agenda.

2 CHANGING VIEWS OF DEPOSIT INSURANCE

Explicit limited deposit insurance has become an increasingly prevalent component of the framework for financial stability and crisis resolution. At end of June 2013 the International Association of Deposit Insurers (IADI) identified 112 countries with deposit insurance in place, and a further 41 countries considering its introduction, a sharp increase from 95 and 23 respectively at end-2010.2

One of the motivations for deposit insurance is to limit the cost to taxpayers and minimize political fallout when financial institutions fail. Without deposit insurance, the pressures for government to reimburse depositors of failed banks may be irresistible. Considering this, it may be preferable to establish a deposit insurance system funded by levies on the banking sector as an alternative to an implicit government guarantee.

Despite widespread acceptance, there remains a significant number of countries that have not adopted deposit insurance. In some cases this is because the preconditions for deposit insurance – macroeconomic stability, a healthy banking system, effective supervision and a well-conceived safety net including lender of last resort (LOLR) facilities and an effective framework for problem bank resolution – have not yet been put in place. In other countries, there has been a conscious decision not to adopt deposit insurance because of moral hazard concerns.3

In addition to the increased preference for explicit deposit insurance in
Global shock, risks, and Asian financial reform

evidence since the onset of the global financial turmoil, there have been changes in the accepted international view of effective deposit insurance regimes. Post-crisis there is a new focus on deposit insurance as part of the tool kit for crisis management in addition to the ‘normal times’ role of providing for orderly exit of individual weak institutions from otherwise sound systems. A well-designed system can contribute to financial stability by mitigating against irrational runs, and by facilitating minimally disruptive resolutions of failing financial institutions. The FSB has recommended that all member jurisdictions without an explicit deposit insurance system should establish one in order to maintain financial stability by protecting depositors and preventing bank runs.4

There are other policy objectives that have contributed to the decision to introduce deposit insurance in many countries. These include fostering financial sector development by increasing depositor confidence, and enhancing competition by levelling the playing field between state-owned banks, private banks perceived as too big to fail, and smaller private banks. While the new focus on financial stability may provide an additional incentive for introduction of deposit insurance, these development objectives may be of particular importance in decisions regarding deposit insurance in developing and emerging economies.

3 LESSONS FROM THE CRISIS

Deposit insurance is one part of the financial safety net which also includes the framework for prudential regulation and supervision, LOLR, resolution framework for problem institutions, and government typically represented by the ministry of finance. In light of the costs incurred to stabilize and resolve problem institutions during the global financial turmoil, each element of the safety net and the arrangements for coordination among them has come under post-crisis scrutiny. An overarching objective is to ensure that robust mechanisms are in place to resolve even the largest financial institutions without resorting to taxpayer funded bailouts.

The events of 2007 and 2008 brought home a number of lessons about the design and implementation of deposit insurance systems. Previously accepted practices – co-insurance, low coverage limits, and systems funded by assessments of surviving institutions – were found not to contribute to financial stability and in some cases were even destabilizing.

In 2007 it became crystal clear that co-insurance does not work. The UK deposit insurance system covered 100 percent of the first £2000, and 90 percent of the next £33 000. The system was not pre-funded, and it could take up to 90 days for reimbursement. This was wholly compliant with the
provisions of the EU directive on deposit insurance (Directive 94/19/EC). Faced with the possibility of financial loss compounded by an extended period without access to their funds, depositors quite rationally ran from Northern Rock until a government guarantee was announced.

About 85 percent of deposit insurance systems around the world are pre-funded. Pre-funding can help to maintain confidence in the system by providing tangible evidence that the guarantee is credible. It can also help to ensure that depositors can be compensated promptly, which is especially important in maintaining confidence during a period of distress.

Events in Europe demonstrated that unfunded systems were not well positioned to contribute to stability and risked exacerbating a crisis if surviving institutions, themselves under severe financial pressure, were assessed to cover the losses of failing institutions. Deposit insurance systems relying on ex ante funding were only suited to dealing with small failures. This contributed to decisions in some European countries to initiate taxpayer-funded bailouts.

Deposit insurance systems are not intended to absorb the costs of systemic crisis. Experience around the world, most recently in the global financial turmoil of 2007–09, has demonstrated that in the extreme circumstances of widespread financial turmoil, government has to intervene if depositors are to be protected. However, in the wake of the crisis there is increased attention on the design of deposit insurance systems since the answers to the following questions suggest that deposit insurance can contribute to maintaining stability and resolving problem institutions at lower cost, even in a systemic crisis.

- Can well designed deposit insurance systems mitigate against runs, reducing the likelihood that a blanket guarantee will be required as a stabilization measure in a crisis?
- Are larger funds required to enable deposit insurance systems to address significant shocks without resorting to taxpayer funding?
- Can deposit insurance, as part of an appropriate resolution framework, contribute to credible alternatives to bailing out systemically important institutions?
- Can deposit insurance systems play a role in addressing procyclicality – the buildup of financial sector risks during a boom and the inevitable losses as these risks are realized during a downturn?

### 3.1 Contributing to Financial Stability

The experience in Ireland and the UK, where government guarantees were required to stop runs, contrasts with the experience in the US, where retail
Global shock, risks, and Asian financial reform

Deposits grew throughout the crisis despite the closure of almost 470 banks (Figure 11.1). The FDIC track record of minimally disruptive resolutions in the US, with depositors at most losing access to their funds over a weekend, helped to preserve the retail funding base of banks even as the wholesale markets dried up.

The immediate response of the EU was a 2009 directive (Directive 2009/14/EC) requiring all EU countries to have minimum coverage of €100,000, eliminate co-insurance and to make payments to depositors within 20 days of bank failure. These provisions should ensure that depositors have less reason to run from banks during times of uncertainty. This directive was intended as an interim measure, but as yet there is no consensus on its replacement.

Target fund sizes have been revised upward or are under review in many jurisdictions, with the intention of ensuring that deposit insurance systems will be better able to deal with failures without resorting to government bailouts. While there is no clarity regarding the magnitude of the significant but not systemic shock that a deposit insurance fund should be able to withstand in the ‘normal times’ circumstances of one or more weak insti-

Note: The sharp increase in insured deposits between 2007 and 2008 is due to the increase in the coverage limit from $100,000 to $250,000 in October 2008.

Source: FDIC.

Figure 11.1 US bank closures and insured deposits
tutions in an otherwise sound system, there does seem to be an emerging consensus that larger funds are warranted.

European Commission proposals, which are still under discussion, would require deposit protection systems in Europe to be pre-funded to about 1.5 percent of total deposits. Several of the countries with banks hard hit by losses in 2007 and 2008, including Germany, Luxembourg, the Netherlands and the UK, relied on ex post systems which played no role in either maintaining financial stability or contributing to the resolution of troubled institutions. Institutions that were not in danger of failing were nevertheless under capital and liquidity stress, and thus were in no position to be able to pay assessments to deal with failing banks. The Netherlands introduced in 2012 an ex ante funding system with a new independent agency to manage the fund.

The new target fund size established in 2010 by the FDIC is based on an estimate of how large a fund would have been required to weather the crisis without falling into deficit. Federal Deposit Insurance Corporation staff analysis in 2010 determined that a pre-crisis deposit reserve ratio (DRR – the ratio of fund size to insured deposits) of more than 2.0 percent would have been required to prevent the fund balance becoming negative during the crisis. Based on this, in December 2010 the FDIC established a new long-term DRR target of 2.0 percent.

The role of the deposit insurance system in resolving problem institutions, even those of systemic importance, has been revisited in many jurisdictions. Deposit insurance can facilitate speedy and minimally disruptive resolutions as alternatives to bailouts. Preserving the functions performed by a bank does not necessarily require preserving the bank itself. It may be cheaper to hive off the important parts of the bank rather than trying to save the entire institution. This can preserve customer relationships without the costs of maintaining loss-making operations.

A range of resolution options is required, including the sale of all or part of the failing institutions. Doing this in a timely and cost-effective manner requires that the deposit insurer be empowered to discharge its obligations other than by paying depositors in liquidation. In a purchase and assumption transaction, a sound institution purchases all or a portion of the assets of a failing bank and assumes all or part of its liabilities. Since the value of the deposit liabilities usually exceeds the total of good assets, the deposit insurer typically will pay the purchasing bank the difference between the value of the assets and liabilities. This requires less immediate funding than paying out all insured deposits and then making recoveries over time from the assets of the failed institution.

Purchase and assumption-type transactions can only be undertaken if the deposit insurer is not required to net depositors’ liabilities against
deposits, as the core of the transaction is the sale of a matched book of assets and liabilities. Purchase and assumption preserves the full banking relationship which is transferred to the acquiring institution. Subsequent to the crisis, Singapore, the UK and the Netherlands removed the netting requirement, which would facilitate faster payments in both liquidation and sale of all or part of the failing bank involving an assumption of liabilities.

Another key resolution tool being added post-crisis in a number of jurisdictions is the ability to establish a bridge bank. A bridge bank is an institution controlled by the authorities – the deposit insurer or other government entity – incorporated for the purpose of receiving some or all of the assets and liabilities of a failing institution. A bridge bank is a tool to separate the assets and liabilities of the bank from shareholder control so that a resolution can be quickly imposed without shareholder and creditor consent. It can also be used as an interim measure to take control of a weak institution pending a final resolution, which is usually the sale to another institution. Among the ASEAN+3 countries, bridge bank powers already existed in Japan and the Republic of Korea, and were added in Malaysia in 2011.

The possibility of deposit insurance as a counter-cyclical tool first began to be discussed as the crisis was still unfolding. Mature deposit insurance systems such as the US FDIC had reduced or eliminated premium assessments when their target fund sizes had been reached. Losses in the US quickly exhausted the fund, with the result that, during and immediately after the crisis, banks were subject to higher assessments than in the pre-crisis period, at a time when the institutions were less able to bear these costs due to high loan loss expenses. In Europe, this effect was magnified because a number of countries did not have pre-funded systems, and thus assessments on surviving banks would have been prohibitively large in some cases.

A counter-cyclical solution is to eliminate or significantly increase target fund sizes, and maintain relatively constant levels of premium assessments over time. This contributed to the FDIC decision not to treat the long-term target DRR of 2.0 percent of insured deposits as a cap. Assessments will continue to collected, albeit at a reduced level, when the target has been surpassed. This would build a larger fund and ensure that banks would continue to pay for deposit insurance even in good times.

3.2 Responding to the Crisis

In responding to the global financial turmoil, 48 jurisdictions around the world took temporary or permanent steps to enhance depositor protec-
tion, and many initiated reform of their depositor protection regimes. Among the ASEAN+3 counties, Malaysia and Singapore introduced as a precautionary measure full guarantees of deposits, which were removed at the end of 2010. Thailand extended the blanket guarantee introduced in 1997 and set to expire in 2008 for two additional years. Indonesia and the Philippines increased the deposit insurance coverage limits from IDR100 million to IDR2 billion, and PHP250,000 to PHP500,000 respectively.

Although their institutions were not directly affected by the global financial turmoil, Malaysia and Singapore revised their deposit insurance regimes in light of experience elsewhere. In Malaysia a 2011 revision of the Deposit Insurance Corporation Act introduced coverage for insurance companies and takaful operations in addition to deposit insurance. The new law also expressly provided bridge bank powers, which in conjunction with the pre-existing powers to support purchase and assumption transactions, provides a full suite of tools for resolution of problem institutions.

The Singapore Deposit Insurance and Policy Owners’ Protection Scheme Act 2011 increased the coverage limit from S$20,000 to S$50,000, and introduced coverage for insurance policy holders. The requirement to net depositor’s liabilities against deposits was removed, providing for a more streamlined process for payments in liquidation, and potentially facilitating the sale of assets and assumption of the liabilities of a failed institution.

4 DEPOSIT INSURANCE REGIMES IN ASEAN+3 COUNTRIES

Explicit limited deposit insurance has been introduced in ten of the 13 ASEAN+3 countries, beginning in 1963 with the Philippines and most recently by Brunei Darussalam in 2011 (Table 11.1). Reflecting the differing histories, legal traditions and financial sector structure, the deposit insurance systems vary widely in their specifics.

The Republic of Korea, Japan and the Philippines were the only ASEAN+3 countries with deposit insurance systems in place prior to the 1997 Asian financial crisis. All three were, in general terms, modeled on the US FDIC, the original deposit insurer established in 1933. Each institution can be considered a broad mandate deposit insurer, with power to act as receiver or liquidator of failed financial institutions, and each is established as a fully staffed agency.

Lao PDR and Viet Nam established deposit insurance in 1999, in each case as an element of broader financial sector reforms. The Lao PDR system is a paybox-type fund domiciled in the Ministry of Finance.
Table 11.1 Deposit insurance systems in ASEAN+3 countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Date established</th>
<th>Mandate, powers</th>
<th>Structure</th>
<th>Compulsory membership</th>
<th>Ex ante funding</th>
<th>Fund size*</th>
<th>Annual premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>2011</td>
<td>Paybox</td>
<td>Fund in Ministry of Finance</td>
<td>Yes</td>
<td>Yes</td>
<td>New fund</td>
<td>Max. 0.5 percent insured deposits 0.1 percent total deposits</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2004</td>
<td>Loss minimizer</td>
<td>Government agency</td>
<td>Yes</td>
<td>Yes</td>
<td>0.77 percent of insured deposits</td>
<td>0.084 percent insured deposits 0.08 to 0.15 percent of insured deposits</td>
</tr>
<tr>
<td>Japan</td>
<td>1971</td>
<td>Loss minimizer</td>
<td>Semi-government</td>
<td>Yes</td>
<td>Yes</td>
<td>0.04 percent of insured deposits</td>
<td>1.61 percent of insured deposits</td>
</tr>
<tr>
<td>The Republic of Korea</td>
<td>1996</td>
<td>Risk minimizer with prudential oversight</td>
<td>Government agency</td>
<td>Yes</td>
<td>Yes</td>
<td>1.61 percent of insured deposits</td>
<td>0.08 to 0.15 percent of insured deposits (risk based)</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>1999</td>
<td>Paybox</td>
<td>Fund in central bank</td>
<td>Yes</td>
<td>Yes</td>
<td>Not available</td>
<td>0.14 percent insured Islamic and 0.17 percent insured conventional deposits</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2005</td>
<td>Loss minimizer</td>
<td>Government agency</td>
<td>Yes</td>
<td>Yes</td>
<td>0.03 to 0.24 percent of insured deposits</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Year</td>
<td>Program Description</td>
<td>Government Agency</td>
<td>Risk Minimizer</td>
<td>Insured Deposits</td>
<td>Note</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>------</td>
<td>--------------------------------------------</td>
<td>-------------------</td>
<td>----------------</td>
<td>------------------</td>
<td>-------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>The Philippines</td>
<td>1963</td>
<td>Risk minimizer with prudential oversight</td>
<td>Government agency</td>
<td>Yes</td>
<td>₱64.6 billion</td>
<td>0.2 percent of total deposits</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>2006</td>
<td>Paybox</td>
<td>Government agency</td>
<td>Yes</td>
<td>0.13 percent of insured deposits</td>
<td>0.02 to 0.07 percent of insured deposits</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>2008</td>
<td>Paybox plus liquidation</td>
<td>Government agency</td>
<td>Yes</td>
<td>THB52.1 billion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1999</td>
<td>Risk minimizer with prudential oversight</td>
<td>Government agency</td>
<td>Yes</td>
<td>VND3.7 trillion</td>
<td>0.15 percent of insured deposits</td>
<td></td>
</tr>
</tbody>
</table>

*Note:* End of 2011 or most recent available.

*Sources:* Deposit insurance agency websites and annual reports, Financial Stability Board (2012) and International Association of Deposit Insurers (2011). Further detail provided in the appendix to this chapter.
Deposit insurance in Viet Nam operates pursuant to a Prime Ministerial Decree, with the law still under development.

Deposit insurance was introduced in Indonesia, Malaysia and Thailand as part of the transition away from blanket guarantees used as stabilizing measures during the Asian crisis. Despite its short history with deposit insurance, Malaysia enacted significant changes in legislation in 2011 to reflect lessons learned in other countries during the global financial turmoil and evolving international standards.

Singapore and Brunei Darussalam introduced deposit insurance in 2006 and 2011 respectively, reflecting policy decisions to put in place a missing element of the safety net for dealing with problem institutions. Three ASEAN+3 countries – the PRC, Cambodia, and Myanmar – have not established deposit insurance systems.

The Deposit Insurance Core Principles codify a broad set of objectives and conditions that should apply when implementing deposit insurance. A wide range of approaches can meet the requirements, with the most important consideration being that the deposit insurance system must be appropriately designed for the circumstances of the country, particularly the legal system and institutional structure.

An overview of key aspects of the deposit insurance systems of the ASEAN+3 countries is presented below, organized using key topics from the Deposit Insurance Core Principles. This overview is derived from publicly available information and provides useful insights into the nature of the deposit insurance systems in the various countries. However, it does not have the rigor of a full assessment of compliance, so conclusions should be drawn cautiously regarding the extent of implementation in each jurisdiction of the Deposit Insurance Core Principles.

### 4.1 Setting Objectives

Deposit protection systems typically are intended to meet a range of policy objectives, some of which may be unstated. These include:

- protection of depositors, particularly the wealth and liquidity of average households, in the event of institution failures;
- enhancing stability through avoidance of deposit runs and providing a mechanism for weak institutions to be dealt with in a non-disruptive manner;
- encouraging savings and economic growth; and
- enhancing the ability of smaller institutions to compete with those perceived as too big to fail.
Protecting depositors is the core function of any deposit insurance system, and Deposit Insurance Core Principle 1 establishes contributing to the stability of the financial system as a second main objective. Thus, the design of the deposit insurance system should focus on protecting depositors and contributing to financial stability. Meeting other public policy objectives such as encouraging savings and competition will generally be by-products of a well-designed system, and thus may not need to be explicitly stated.

The objective of protecting depositors is established in law or a subordinate legal instrument in all of the ASEAN+3 countries with deposit insurance systems. With the exception of Lao PDR, the Philippines, Singapore and Viet Nam, there is also a clearly established mandate to contribute to financial stability. In countries without an explicit mandate for financial stability, it may generally be inferred from other objectives and powers.

Other elements of the deposit insurance system may need to be revisited to ensure that it is capable of contributing to financial stability. Deposit insurance alone is not intended to deal with widespread problems in the financial sector, however an effective regime should, without resorting to extraordinary measures such as blanket guarantees or taxpayer funding, deal with the ‘normal times’ situation of one or a few weak institutions in an otherwise sound sector. An effective regime can also mitigate against runs, even in periods of widespread distress.

Depositors who are confident that they will have timely access to funds even if their bank fails will be less prone to run from an institution rumored to be in financial difficulty. An even more important contribution to enhancing stability is the ability of a well-designed deposit insurance system to participate in minimally disruptive resolutions of failing financial institutions. These resolutions include purchase and assumption transactions, where another institution assumes deposit liabilities as payment of the purchase price for the good assets of a failing institution, with ‘top up’ payment by the deposit insurer to cover the difference between the value of the good assets and the deposit liabilities.

Country authorities may find it helpful to revisit the objectives of deposit insurance as part of a broader reconsideration of whether the system is compliant with the Deposit Insurance Core Principles, and when taken collectively with the other elements of the safety net, provides a resolution regime consistent with the FSB guidance on resolution regimes (Box 11.1).

4.2 Moral Hazard

The principal argument against deposit insurance is moral hazard – the reduction in the incentives for depositors to mitigate their own risks. The
Global shock, risks, and Asian financial reform

practical challenge is that few depositors are able to assess the riskiness of financial institutions. Even if there was effective market discipline, it could be destabilizing if a change in risk assessment led to a sudden withdrawal of funding from one or more banks.

BOX 11.1 FINANCIAL STABILITY BOARD GUIDANCE ON RESOLUTION REGIMES

Effective resolution regimes should:

(i) ensure continuity of systemically important financial services, and payment, clearing and settlement functions;
(ii) protect, where applicable and in coordination with the relevant insurance schemes and arrangements such depositors, insurance policy holders and investors as are covered by such schemes and arrangements, and ensure the rapid return of segregated client assets;
(iii) allocate losses to firm owners (shareholders) and unsecured and uninsured creditors in a manner that respects the hierarchy of claims;
(iv) not rely on public solvency support and not create an expectation that such support will be available;
(v) avoid unnecessary destruction of value, and therefore seek to minimize the overall costs of resolution in home and host jurisdictions and, where consistent with the other objectives, losses for creditors;
(vi) provide for speed and transparency and as much predictability as possible through legal and procedural clarity and advanced planning for orderly resolution;
(vii) provide a mandate in law for cooperation, information exchange and coordination domestically and with relevant foreign resolution authorities before and during a resolution;
(viii) ensure that non-viable firms can exit the market in an orderly way; and
(ix) be credible, and thereby enhance market discipline and provide incentives for market-based solutions.

The resolution authority should have a broad range of powers and options, including:

(i) stabilization options that achieve continuity of systemically important functions by way of a sale or transfer of the shares in the firm or of all or parts of the firm’s business to a third party, either directly or through a bridge institution, and/or an officially mandated creditor-financed recapitalization of the entity that continues providing the critical functions; and
(ii) liquidation options that provide for the orderly closure and wind-down of all or parts of the firm’s business in a manner that protects insured depositors, insurance policy holders and other retail customers.

The role of deposit insurance in financial stability

Core Principle 2 requires appropriate mitigation measures to be in place. Moral hazard is typically addressed through appropriate design features for the deposit insurance system, and effective supervision of the banking system. A good deposit insurance system will provide 100 percent coverage for the majority of deposit accounts, but will have a low enough coverage limit that the majority of the value of deposits in the system is not insured. In this way the holders of large deposits – those more likely to be financially sophisticated and able to exert market discipline – are still exposed to loss, while holders of smaller deposits are completely protected.

Effective supervision requires sound prudential rules to mitigate risks, and timely and effective response to identified weaknesses in banks. Ineffective supervision could allow an accumulation of losses, and there is at least a theoretical concern that the supervisory authority, knowing that depositors are protected, may be less vigilant. In some regimes the deposit insurance agency itself has supervisory powers, but more commonly the deposit insurer relies on the bank supervisory authority to take prompt action.

All the deposit insurance systems in the ASEAN+3 countries provide limited coverage, thus leaving some portion of deposits uninsured while providing full coverage for smaller deposits. The three countries with narrow mandates (Brunei Darussalam, Lao PDR, and Singapore) rely wholly on the bank supervisory authority to take prompt remedial action, while in the other ASEAN+3 countries with explicit deposit insurance, the deposit insurer has explicit supervisory authority and/or participates in the selection of resolution options for failing institutions. Regardless of the legal regime, effective practical implementation is crucial to provide for the intervention and resolution of weak institutions.

4.3 Mandate and Powers

Sound practice requires that the mandate, powers and resources of a deposit insurance system be appropriate to its objectives, and that its mandate and powers should align with other elements of the financial safety net (Core Principles 3 and 4). The FSB classifies deposit insurance mandates into four broad categories:

- Narrow mandate or ‘paybox’ systems that are only responsible for premium assessment and management of the fund, and reimbursement of depositors.
- Paybox plus mandates, where the deposit insurer has additional responsibilities such as acting as the liquidator of failed institutions.
● Loss minimizer mandates, with the deposit insurer actively engaging in the selection from a full suite of appropriate least cost resolution options.
● Risk minimizer mandates which include prudential oversight responsibilities in addition to a full suite of resolutions options.8

Within the ASEAN+3, there are three paybox deposit insurers (Brunei Darussalam, Lao PDR, and Singapore), one paybox plus (Thailand), three loss minimizers (Indonesia, Japan, and Malaysia), and three risk minimizers (the Republic of Korea, the Philippines, Viet Nam).

The choice of mandate should depend on the overall framework for supervision and resolution of problem institutions. Selection of an inappropriate mandate can result in costly duplication at best, and at worst, an ineffective regime for problem bank resolution that proves unable to compensate depositors promptly.

Effective deposit insurance systems have powers commensurate with their mandate. In all cases this would include the power to assess insured institutions on either or both an ex ante or ex post basis, to make payments to depositors, to enter into contracts, set internal policies and budgets, and to obtain all necessary information to promptly meet obligations to depositors. The mandate and powers should require and enable the deposit insurer to make payments promptly, as a depositor deprived of access to funds for an extended period, even if ultimately made whole, can suffer significant hardship.

It is highly desirable, even in the case of a narrow paybox mandate, that the deposit insurer has the power to discharge its obligation to depositors by means other than direct payment. Making payment to another bank which assumes the deposit liability or acts as the agent of the deposit insurer can be less disruptive to depositors than requiring them to submit claims and receive payments from the deposit insurance agency. More importantly, this power can facilitate resolutions such as purchase and assumption transactions which can reduce the deposit insurer’s immediate liquidity requirements as well as resulting in lower cost than liquidation.

The powers of the deposit insurers in the ASEAN+3 countries appear generally well matched to their mandates and objectives. However, in light of experience in the global financial turmoil, country authorities should review whether the requirements and powers for resolution and depositor reimbursement are adequate to ensure timely and cost effective resolutions. In particular, systems that contemplate payment of depositors only in liquidation should be revisited.
4.4 Governance

International best practices require a deposit insurer to be operationally independent, transparent, accountable and insulated from undue political and industry influence (Core Principle 5). Operational independence is particularly crucial when the deposit insurer has a broad mandate. For instance, when exercising supervision authority, the requirements would be the same as for any other supervisory agency with respect to adequacy of resources, independence, and accountability. The other areas where operational independence is important are in managing a deposit insurance fund, decisions about how best to meet the obligations to depositors when a failure occurs, and acting as liquidator or receiver of a failed institution.

Meeting the governance requirements does not necessarily require establishment of a fully staffed deposit insurance agency. An alternative is the ‘virtual entity’ concept, whereby the deposit insurance agency has its own legal identity and board of directors responsible and accountable for discharge of its mandate, but does not have its own staff or infrastructure. In a small financial sector and/or a country where there is a shortage of suitably skilled staff, there is no advantage and considerable cost to establishing a large deposit insurance agency. An independent entity with all necessary services provided by another entity, such as the central bank, under an outsourcing arrangement could be a cost-effective option capable of meeting all the requirements of the Deposit Insurance Core Principles.

Within the ASEAN+3, Brunei Darussalam and Lao PDR operate their deposit insurance funds within the ministry of finance and central bank respectively. In the other eight countries, there is a separate government or semi-government agency. Most of these agencies predate the current standards for independence and accountability, and in some cases Financial System Stability Assessments have noted a lack of independence on the part of other safety-net participants such as the central bank or supervisory authorities.

Country authorities would benefit from reviewing the governance provisions of existing deposit insurance agencies, and where necessary introducing revisions to ensure adequate independence, resources, and accountability. This is particularly important for the ten jurisdictions with mandates extending beyond the basic paybox.

4.5 Relationships with Other Safety-net Participants and Cross-border Issues

Coordination on routine matters and crisis management within countries and across borders has taken on heightened importance owing to
deficiencies revealed in many countries during the global financial turmoil. Core Principle 6 requires a framework to be in place for the deposit insurer to coordinate and share information with other safety-net participants, which typically include the central bank, supervisory authority (if not the central bank) and ministry of finance. Core Principle 7 establishes a similar requirement in cases where deposit insurers in more than one jurisdiction may be involved in resolving a failing institution. Detailed data on a bank’s deposit liabilities is particularly important so that deposit insurers can ‘pre-position’ for payment of depositors should it become necessary.

Current disclosure practices with respect to contingency planning vary across countries, so the absence of publicly available information on coordination and information sharing among safety-net participants does not necessarily indicate an absence of such arrangements. Few ASEAN+3 deposit insurers disclose information on domestic and international agreements or protocols. Where these do exist, they should be reviewed for compliance with the Deposit Insurance Core Principles, and where they do not exist, they should be put in place. As part of the process of assessing performance against its objectives (Principle 1), an overview of the coordination and information sharing arrangements should be publicly disclosed.

### 4.6 Membership and Coverage

Compulsory membership in the deposit insurance system is required to avoid the problem of adverse selection and free-ridership (Core Principle 8). If membership is optional, it may be that only the banks perceived as more likely to fail would participate. Larger banks, believing that deposit insurance represents a cost with no benefit owing to the implicit expectation that government would bail them out, might opt not to participate. All deposit insurance systems in the ASEAN+3 have compulsory membership.

The key to coverage limits is establishing a level that covers the bulk by number of depositors, but still leaves a significant percentage of the value of deposits uninsured (Core Principle 9). A rule of thumb of two to three times per capita GDP often proves appropriate to fully protect small household savings while leaving a significant percentage of the value unprotected. Coverage limits in the ASEAN+3 countries are generally within or below this rule of thumb (Table 11.2).

The three countries with high coverage relative to GDP are explained by transitioning from a blanket guarantee (Thailand) and an increased limit introduced as a precautionary measure during the global financial turmoil (Indonesia and the Philippines). Coverage in Singapore is quite low, with a conscious decision at introduction in 2006 to provide a limit of S$20,000,
well below prevailing practice elsewhere. An increase to S$500000 was introduced following the end of 2010 removal of the temporary full guarantee introduced as a precautionary measure in 2008. Owing to its currency peg and convertibility agreement with Singapore, selection of the same limit when introducing deposit insurance in Brunei Darussalam in 2011 was sensible, even though relative to per capita GDP the limit is below the generally recommended range.

The limit in Lao PDR, unchanged since the introduction of deposit insurance, has been reduced over time in relative terms due to growth in GDP per capita. This highlights the need for regular review of coverage limits to ensure they remain consistent with the objectives of protecting depositors and contributing to financial stability while mitigating moral hazard.

### 4.7 Transitioning from a Blanket Guarantee

The Deposit Insurance Core Principles advocate transitioning from a blanket guarantee to a limited deposit insurance system as quickly as a country’s circumstances permit (Core Principle 10). Key considerations include the state of the banking industry, the strength of prudential regulation and supervision, the effectiveness of the legal framework and the soundness of the accounting and disclosure regime. Premature transition

### Table 11.2 Coverage limits

<table>
<thead>
<tr>
<th>Country</th>
<th>Local currency</th>
<th>$ equivalent</th>
<th>Times per capita GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>BD50000</td>
<td>38 565</td>
<td>1.1</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Rp2 billion</td>
<td>220000</td>
<td>64.9</td>
</tr>
<tr>
<td>Japan*</td>
<td>¥10 million</td>
<td>129 676</td>
<td>2.7</td>
</tr>
<tr>
<td>The Republic of Korea</td>
<td>KRW50 million</td>
<td>43 178</td>
<td>2.0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>LAK15 million</td>
<td>1 880</td>
<td>1.5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>RMY250 000</td>
<td>78 889</td>
<td>2.6</td>
</tr>
<tr>
<td>The Philippines</td>
<td>₱500 000</td>
<td>11 414</td>
<td>4.9</td>
</tr>
<tr>
<td>Singapore</td>
<td>S$50 000</td>
<td>38 565</td>
<td>0.8</td>
</tr>
<tr>
<td>Thailand</td>
<td>THB1 million</td>
<td>31 700</td>
<td>6.1</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>VND50 million</td>
<td>2 377</td>
<td>2.1</td>
</tr>
</tbody>
</table>

**Notes:**
* Accounts for payment and settlement, that is, demand deposits remain fully guaranteed, making the effective per depositor limit much higher.
$ exchange rate and per capita GDP calculated using end of 2011 data.

**Source:** Deposit insurance agencies, International Monetary Fund.
could undermine confidence in the banking system, but continuation of a blanket guarantee after it has served the purpose of stabilizing funding during a crisis removes one of the principle means to address moral hazard, ensuring that large deposits are at risk.

Limited deposit insurance had been established in the Republic of Korea prior to the Asian crisis, but as part of the stabilizing package an unlimited guarantee of all deposits was introduced in November, 1977. Limited deposit insurance was reintroduced in 2001, following a period of restructuring and significant legal and institutional changes with respect to financial sector oversight. The transition to limited deposit insurance had no impact on bank liquidity or public confidence, indicating that the transition was well sequenced.

Limited deposit insurance in Japan had been in place since 1971. A full guarantee was introduced in 1996 to facilitate bank restructuring. Transitioning back to limited deposit insurance began in April 2002, when a limit of ¥10 million was introduced for time and savings deposits, with other deposits continuing to be fully guaranteed. From April 2005, full coverage remains in place only for fully liquid payment and settlement deposits, with all others subject to the ¥10 million limit.

Indonesia and Malaysia introduced limited deposit insurance in 2004 and 2005, five and six years respectively after the onset of the Asian crisis. In both cases, the transition to limited deposit insurance was a non-event with respect to public confidence and funding of the banking system, reflecting perceptions that the banking systems and prudential oversight were sufficiently strong and the limited deposit insurance coverage was appropriate.

Thailand introduced limited deposit insurance in 2008, with the intention of reducing the coverage limit in stages. As part of the response to the global financial turmoil, the unlimited guarantee was extended to August 2011. It was then replaced by a limit of TBH50 million in August 2011, and TBH1 million in August 2012. The decision to defer the transition to limited deposit insurance owing to conditions in 2008 highlights the importance of making the transition during a period of economic and financial stability.

4.8 Funding

A deposit insurance system requires access to sufficient funding to ensure prompt payment of depositor claims (Core Principle 11). This can involve *ex ante* funding, where insured institutions are assessed regular premiums which are used to build a fund, *ex post* funding where surviving institutions are assessed after a failure, or a combination of the two.
The advantage of *ex post* funding is that it does not incur ongoing costs to institutions, and that it also avoids an opportunity cost. A deposit insurance fund must necessarily be invested only in liquid securities of the highest quality – generally government paper – to ensure the funds are readily available if needed on short notice. This has an opportunity cost to the economy as the funds would otherwise have been retained within the banking system and available for productive lending to the private sector. On the other hand, pre-funding reduces the likelihood of the surviving institutions having to shoulder large assessments in an economic downturn, and potentially ensures faster payment of insured deposits as there should be no delay to arrange financing or levy assessments.

While *ex post* funding is still an acceptable option under Core Principle 11, there is a strong and increasing preference for *ex ante* funding. About 85 percent of all deposit insurance systems are *ex ante* funded, and this is likely to increase if current proposals to require all EU systems to be prefunded to 1.5 percent of total deposits are adopted.

### Fund size

All deposit insurance systems in the ASEAN+3 are *ex ante* funded. Five of the deposit insurers have publicized their fund target size (Table 11.3). These targets are within the ranges seen internationally, with the variation reflecting the many factors that influence target fund size. Conceptually, a fund should be large enough to meet likely losses. In practice, determining the size and probability of losses is fraught with difficulty.

Precise determination of fund sizes requires accurate prediction of inherently uncertain future events – the failure of financial institutions. Most fund targets around the world are established on the basis of informed judgment about likely future losses. A few jurisdictions rely exclusively on statistical approaches, but serious data limitations and the

<table>
<thead>
<tr>
<th>Country</th>
<th>Target fund size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>2.5 percent of insured deposits</td>
</tr>
<tr>
<td>The Republic of Korea</td>
<td>Range of 0.66 to 1.925 percent of insured deposits, depending on type of institution</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.6 to 0.9 percent of insured deposits</td>
</tr>
<tr>
<td>The Philippines</td>
<td>Peso amount revised annually, ₱75.5 billion at the end of 2010, approximately 5.3 percent of insured deposits</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.3 percent of insured deposits</td>
</tr>
</tbody>
</table>

*Source:* Deposit insurers annual reports and websites.
overriding uncertainty of whether historical experience will accurately predict future performance leads most jurisdictions to make qualitative assessments informed by quantitative analysis.

The question of fund size cannot be considered in isolation. Preconditions for an effective deposit insurance system influence the likelihood and expected sizes of losses. A sound regulatory framework and effective supervisory action when weaknesses are identified will reduce the probability of loss and the size of the loss. Another factor with implications for the adequacy of the size of fund is the availability of resolution options. Only in liquidation are funds required to pay out to all insured depositors – when some or all of the assets can be sold, with the purchase price paid by an assumption of deposit liabilities, the funding requirements of the deposit insurance system are limited to the amount necessary to ‘top up’ the difference between the value of the assets and the value of the deposits.

The ASEAN+3 country with the largest target fund size, the Philippines, operates in a challenging legal environment. It has not been possible to implement resolutions other than liquidation and deposit payout, and actions of the central bank and deposit insurer are frequently subject to litigation. The country with the lowest target fund size, Singapore, is in a regime with all preconditions for effective deposit insurance in place. The target is based on statistical analysis akin to the credit risk models used by banks, considering the probabilities of default, loss given default, and exposure at default for the portfolio of institutions covered by the fund. A major challenge is that Singapore has no actual loss experience, so all the analysis is based on proxies and estimates.

Assessments
Practice around the world is evenly split on levying assessments on a base of total deposits or a base of protected deposits, which is reflected in the approaches of the ASEAN+3 countries. Brunei Darussalam, Japan, the Republic of Korea, Malaysia, Singapore and Viet Nam determine assessments as a percentage of insured deposits, with the systems in the other countries using total deposits. Using insured deposits matches the assessment base with the coverage provided. Using total deposits is administratively easier, and is sometimes viewed as a tax on the implicit benefit of being too big to fail, which helps large banks attract large deposits. Using total deposits also means that banks highly reliant on wholesale funding do not pay lower deposit insurance premiums than banks with a large retail deposit base, which may be appropriate given the risks inherent in the wholesale funding model that became evident during the global financial turmoil.

A variation on using total deposits or insured deposits as the assess-
ment base is the new approach mandated by the US Dodd–Frank Act – total assets less equity. This means that banks with higher capital will pay lower insurance premiums, and that banks heavily reliant on non-deposit funding will not pay lower deposit insurance premiums relative to banks relying wholly on deposits, as was the case with the previous total deposits assessment base.

The Deposit Insurance Core Principles endorse both flat-rate and risk-based assessments. International practice is divided. At least in theory, premiums that vary in accordance with the riskiness of institutions provide incentives for institutions to reduce their risk profile. In practice, the range in assessments may be too small to actually influence behavior, however the signaling effect may be more important as senior management of an institution should be required by boards of directors to explain why the institution has been assessed as higher risk. Malaysia, Singapore and the Republic of Korea all use risk-based assessments.

Country authorities should revisit their approach to assessments and fund targets as part of the broader review of the role of deposit insurance in the financial safety net and resolution framework. In particular, the authorities should consider the possible counter-cyclical benefits of increasing target fund sizes or possibly eliminating the target. This would mean that even during an extended period of stability institutions would continue to pay deposit insurance premiums.

Levying a steady premium over an extended period has been explicitly recognized as an alternative to adjusting assessments to achieve and maintain a target fund size. This would build a larger fund and ensure that financial institutions would continue to pay for deposit insurance even in good times.

With a larger fund, it would be less likely to be necessary to increase deposit insurance assessments during a downturn, thus avoiding the imposition of higher costs at a time when institutions are under stress. Continuing to levy premiums even with a large fund established would impose a continuing cost on rapidly growing banks during good economic times, which might serve to moderate the rapid growth frequently found to be a leading indicator of distress, as well as building a larger fund capable to dealing with larger shocks in a cyclical downturn.

**Backup financing**

A key aspect of providing credible deposit insurance is the availability of backup or standby financing. In common with most deposit insurance systems around the world, all of the ASEAN+3 deposit insurers are empowered to borrow to make payments to depositors, with repayment of these amounts expected to come from recoveries on the assets of failed
institutions and the levying of assessments on surviving institutions over time. However, in most ASEAN+3 countries the ability to borrow has not been complemented with arrangements for committed backup financing.

Country authorities should revisit standby funding arrangements to ensure there is either a pre-positioned credit facility with government or other public source, or multiple private-sector backup facilities. This would meet the requirements of Core Principle 11, and thus provide credibility to the deposit insurance system that could contribute to financial stability even during a crisis by ensuring the availability of sufficient funds to meet any obligations.

### 4.9 Public Awareness

Effective deposit insurance requires that the public be informed on an ongoing basis about the benefits and limitations of coverage (Core Principle 12). Some ASEAN+3 countries such as Malaysia, Thailand, and Indonesia have implemented extensive public awareness programs, while others such as Brunei Darussalam, Lao PDR, and Viet Nam are much more passive in their approach, relying on websites and occasional press releases.

The Deposit Insurance Core Principles introduce a new focus on public awareness in the context of failure resolution. All country authorities will need to expressly address this contingency planning aspect of public awareness. This is a part of crisis preparedness more generally, and includes arrangements to cooperate and coordinate with other safety-net participants in public statements and other communication with respect to the failure of individual institutions or in dealing with more wide-spread turmoil.

### 4.10 Selected Legal Issues

Key legal considerations for effective deposit insurance are the protection of the agency and its staff from liability for good faith actions taken while discharging their mandates (Core Principle 13), and powers to seek redress against parties at fault in a bank failure (Core Principle 14). Worldwide, these principles are among the most problematic in practice, as many countries lack the specific legal provisions, and even where they exist, the judicial system can be unpredictable.

In reviewing their deposit insurance systems against the Deposit Insurance Core Principles, ASEAN+3 country authorities should ensure that the necessary legal protections are in place, and that either the deposit insurer or other relevant authority, such as the bank supervisor, has the
power to review the conduct of parties responsible for or contributing to the failure of an institution. If such a review indicates culpability, sanction or redress measures such as criminal prosecution and civil proceedings for damages should result.

4.11 Failure Resolution

Best practices require that the deposit insurer be part of a framework that provides for early detection and timely intervention and resolution of troubled banks (Core Principles 15 and 16). The specific role played by the deposit insurance agency needs to be established through an appropriate mandate and powers which are wholly consistent with the rest of the framework for dealing with problem institutions. Regardless of the mandate and powers of the deposit insurer, effective failure resolution requires:

- prompt payment of insured deposits;
- minimizing the resolution costs and disruption to markets;
- maximizing recoveries on the assets; and
- legal action against officers and directors of failed institutions in the event of negligence or wilful misconduct.

There is also a need for flexible resolution options to preserve critical banking functions. These will include facilitating the acquisition of all or part of the assets and assumption of the liabilities of a failed bank to provide depositors with continuous access to their funds and maintain clearing and settlement activities. In order to participate in these types of resolution, the deposit insurer must be legally empowered to make payments to an acquiring institution as an alternative to paying depositors directly.

The resolution options provided by the legal framework should specifically include:

- Sale of all or part of the bank to another financial institution. The deposit insurance agency should have the express power to discharge its obligations to depositors by making payment to an acquiring bank to ‘top up’ the difference in value between the assets of the failed bank and the liabilities assumed by the purchaser.
- Transfer of all or part of the business of the bank to a ‘bridge bank’ incorporated under official ownership for the purpose of continuing the good parts of the bank as a going concern for a short period while a new owner is sought. Transferring the assets to a bridge bank
serves to extinguish the rights of shareholders, aside from their claim to any residual value after depositors and creditors have been paid.

- Winding-up of the bank. The deposit insurance agency should have the express power to use an agent bank to meet its obligation to depositors, facilitating a minimally disruptive transfer of the deposit business to another institution, rather than requiring depositors to claim and receive payment directly from the agency.

Deposit insurers in five ASEAN+3 countries have recent experience with failure resolution. In Indonesia, 47 banks have been intervened since 2006, 46 resolved by liquidation and one by restructuring. Uninsured depositors in the liquidated banks were compensated only to the extent that there were recoveries in liquidation sufficient to pay a portion of creditors’ claims.

The main resolution methods for the 181 failed financial institutions in Japan since 1992 have involved financial assistance in the form of monetary grants, purchase of assets, capital injection or asset purchase to support consolidation or stand-alone recovery, protecting all depositors even in the period prior to the introduction of a full guarantee in 1996. Incubator Bank, which failed in September 2010, was the first case of imposition of the insured limit since its partial reintroduction in 2002. Selected assets and liabilities were transferred to a bridge bank which was ultimately sold to Aeon Bank. Insured deposits were transferred in full, and uninsured depositors will be reimbursed to the extent there are recoveries in the bankruptcy proceedings of Incubator Bank.

Resolution of failed institutions in the Republic of Korea can be divided into those determined to be insolvent prior to end-2002, which are administered under the Deposit Insurance Bond Redemption Fund, and those which failed later and are administered under the new Deposit Insurance Fund. The Redemption Fund was established to complete the financial restructuring and manage the recovery of public funds injected to support restructuring of the financial sector following the 1997 crisis. Since the establishment of the new Deposit Insurance Fund in 2003, there have been depositor payouts for 37 failed mutual savings banks through to the end of 2012. In addition, mutual savings banks have received equity injections, cash contribution and loans to support the restructuring of insolvent institutions.

From 2008 through end-2012 almost 150 insolvent rural, thrift banks and savings banks have been resolved through the appointment of the Philippines Deposit Insurance Corporation (PDIC) as receiver. Once appointed as receiver, the PDIC verifies depositor records, reimburses depositors either by check or transfer of the deposit to an agent bank for payment, and proceeds with liquidation. Uninsured depositors are reim-
bursed only to the extent there are recoveries in liquidation exceeding the amounts due to the PDIC and other preferred and secured creditors. Deposit Insurance of Viet Nam has compensated depositors in the failure of about 35 small institutions, most recently the People’s Credit Fund of Tru Huu, which was dissolved June 2011. Financial assistance has also been provided to support the restructuring of a number of People’s Credit Funds.

4.12 Reimbursing Depositors and Recoveries

Prompt reimbursement of insured depositors is an essential element of effective deposit insurance (Core Principle 17). Many deposit insurance laws specify maximum periods between the date of failure and payment of insured depositors. The EU standard is 20 days, reduced from the previous 90 days owing to the post-crisis recognition that depositors who were uncertain about when they would be repaid were just as likely to run as depositors who feared permanent loss. The objective should be to repay depositors as quickly as possible, ideally depriving them of access for no longer than a weekend, as is typical in the US.

Deposit insurance regimes frequently require depositors to provide evidence such as statements or passbooks to substantiate their claims. This is generally motivated by a desire to guard against fraudulent claims, but can slow down the process of payment and lead to disputes when depositors have misplaced their records, or have records that differ from the books of the bank. An alternative and generally superior approach is to provide in law that the deposit insurer may rely on the books and records of the failed bank to establish the amount of depositors’ claims. Experience shows that a depositor presented with the choice of immediate access to the amount reflected in the bank’s books, or a delay while a dispute is resolved, will only choose to dispute the amount if they believe the difference is substantial.

Law and practice varies across the ASEAN+3 countries with respect to depositor reimbursement. The legal provisions in Brunei Darussalam, Lao PDR, the Philippines, Singapore, Thailand, and Viet Nam contemplate that deposit insurance payments would be made only on the closure – generally defined as liquidation or winding-up – of an institution. This does not necessarily preclude other resolutions as the powers of a liquidator or receiver may permit the sale of some or all of the assets of the failed institution and payment by assumption of liabilities. However, it could facilitate minimally disruptive and cost efficient resolutions if all countries ensured that there were specific legal provisions for these types of transactions.

Maximum time periods for depositor reimbursement exist in law in some ASEAN+3 countries. For example, there is a 90-day deadline in
Global shock, risks, and Asian financial reform

Brunei Darussalam and 60 days in Viet Nam, both from the commencement of liquidation. Practice in the Republic of Korea has frequently been to suspend the operations of mutual savings banks for a period up to six months prior to effecting a resolution, so that even if reimbursement is then promptly completed, depositors have been without access to their funds for an extended period. In the Philippines, reimbursement of depositors generally commences within 90 days of the appointment of the PDIC as receiver.

Country authorities could usefully revisit the legal provisions and policies with respect to insured depositor reimbursement. Prompt reimbursement of insured depositors is essential to meet the objectives of deposit insurance. Being deprived of access to funds can be almost as great a hardship as permanent loss, so protecting depositors requires prompt repayments. Key elements of a regime to ensure prompt repayment are:

- deposit insurer legally entitled to rely on the records of the failed institution;
- short maximum time period for reimbursement established in law or by policy; and
- express power to discharge deposit insurance obligations through means other than direct payment to depositors, facilitating deposit transfers.

Deposit insurance regimes in the ASEAN+3 countries generally meet the requirement for legal provision to share in the recoveries of the failed institution (Core Principle 18). In most cases there is an express subrogation provision so that the deposit insurer ‘steps into the shoes’ of depositors that have been reimbursed, and thus has a claim on the estate of the failed institution to the extent of any payments made to insured depositors.

5 REFORM AGENDA

Review of deposit insurance systems should be part of a broader review of the role, mandate and powers of all of the financial safety-net participants and the arrangement for coordination among them. Perspectives on the role and requirements for deposit insurance have changed, and the implications go well beyond an abstract need to adhere to changing international standards. The changes in the standards, and expected additional guidance on deposit insurance practices to be developed over the coming few years, are central to ensuring that all countries have a well-functioning safety net.
that provides credible alternatives to bailouts for dealing with the failure of even very large institutions.

A starting point for ASEAN+3 countries with deposit insurance systems already in place is an assessment of compliance with the Deposit Insurance Core Principles, stringently applying the 2010 methodology. The FSB identified a number of reforms required in multiple member countries to fully implement the Deposit Insurance Core Principles. Those which may be applicable across the ASEAN+3 countries involve:

- including as members in the deposit insurance system all financial institutions accepting deposits from those deemed most in need, for example, cooperatives and microfinance organizations where these are significant deposit takers;
- reviewing coverage levels to ensure an appropriate balance between depositor protection and market discipline, and that the coverage promotes financial stability. High coverage should be accompanied by compensatory measures to mitigate moral hazard. Unlimited deposit insurance coverage should be avoided;
- ensuring that the current resources, including any backup financing, are adequate and immediately available;
- establishing and publicly communicating a prompt target time frame for reimbursing depositors, and making all necessary arrangements to meet the payout target;
- adjusting the deposit insurance agency governance arrangements to ensure adequate public oversight and to mitigate the potential for conflicts of interest; and
- formalizing information sharing and coordination arrangements among the deposit insurance agency and other safety-net participants and foreign deposit insurance agencies.

Each country should develop an appropriate action plan, taking into account the specific conditions within the jurisdiction.

In developing an action plan, countries should consider that the standards for deposit insurance will continue to evolve. The FSB called on the IADI, in consultation with the Basel Committee on Banking Supervision, to issue additional guidance on:

- benchmarks to monitor the effectiveness and adequacy of coverage levels;
- instruments and good practices to help mitigate moral hazard;
- ensuring effective coordination across systems in jurisdictions with multiple deposit insurance systems;
conducting regular scenario planning and simulations to assess the capability of making prompt payouts;

- the feasibility and desirability of greater use of *ex ante* funding; and

- appropriate mechanisms to regularly monitor public awareness of deposit insurance systems.

Consequently, the IADI published a series of guidance papers in 2012 and 2013 covering the topics of mitigating moral hazard, effective resolution and payout, public awareness and early detection and intervention.\(^{13}\)

These guidance papers provide further detail on how deposit insurance systems can meet the essential criteria of the Deposit Insurance Core Principles. The IADI has an ongoing research and consultation agenda to address the topics still outstanding from the FSB direction.

FSB member countries will be expected to play a leadership role in fully implementing the current Deposit Insurance Core Principles and the requested additional guidance on best practices. Within the ASEAN+3 the FSB members are the PRC, Indonesia, Japan, the Republic of Korea, and Singapore. Non-FSB member countries would also benefit from implementing the Deposit Insurance Core Principles and expected additional guidance as a means of helping to ensure a robust safety net is in place.

The FSB member countries will be subject to Financial Sector Assessment Program (FSAP) reviews every five years, with FSB peer reviews occurring two to three years after the FASP. This is part of the internationally agreed initiative to enhance the assessment of financial sector vulnerabilities and compliance with standards and codes. Deposit insurance will be specifically addressed if the Deposit Insurance Core Principles are one of the standards selected for inclusion in the FSAP. Even if there is not a full assessment of compliance with the Deposit Insurance Core Principles, the deposit insurance system in a country will be reviewed as part of the assessment of the safety-net arrangements. Thus, FSB members can expect a formal international review of their deposit insurance arrangements every two to three years as part of an FSAP or FSB peer review. Other ASEAN+3 countries will also be subject to FSAP reviews of their safety-net arrangements, but on a less frequent basis.

The PRC, has indicated its intention to introduce deposit insurance.\(^{14}\) Cambodia and Myanmar are the other ASEAN+3 countries yet to implement a deposit insurance system. For these countries, the sequencing of reform prior to introduction of deposit insurance, and in particular a focus on the preconditions for effective deposit insurance, is important for successful introduction.

The Core Principles for Effective Deposit Insurance identifies six preconditions – elements generally outside the jurisdiction of a deposit insurance scheme.
The role of deposit insurance in financial stability

insurance agency – which may have a direct effect on its ability to fulfil its mandate:

- macroeconomic stability;
- a sound banking system;
- sound governance of agencies comprising the financial safety-net;
- strong prudential regulation and supervision;
- a well-developed legal framework; and
- a sound accounting and disclosure regime.

Introducing deposit insurance without the preconditions in place can undermine the effectiveness of the deposit insurance regime specifically, and the effectiveness of the safety net more generally. Without sound macroeconomic policies the banking sector may be vulnerable to the effects of high inflation, fiscal imbalances or volatile exchange rates, none of which can be effectively addressed by deposit insurance or the other elements of the safety net.

Introducing deposit insurance when the banking system is unsound risks undermining the credibility of the system from the outset. Ideally there should be a period of time for a deposit insurance fund to be accumulated and failure resolution procedures to be developed and tested before they are actually required. Sound governance of all the participants in the safety net, including an appropriate mandate, independence and accountability, is required to ensure that emerging problems are identified and addressed on a timely basis, without overt political or industry influence on the decision-making process.

Effective prudential rules and supervision are an essential part of the risk minimization process for the deposit insurance fund. The required legal framework includes not only provisions for deposit insurance, bank supervision and failure resolution, but commercial law more generally including contract and company law, the taking and enforcement of securities interests, and insolvency law. This needs to be complemented by accounting principles aligned with international standards, particularly with respect to valuation and impairment of financial assets.

Perhaps the most challenging aspect of introducing deposit insurance is ensuring that it is appropriately designed considering the nature of the country’s financial system, legal traditions, and the provisions for the other safety-net participants. There are a range of approaches to deposit insurance and resolution of troubled institutions that can work in practice. One of the commonly observed shortcomings, especially in countries receiving technical assistance from different sources for different aspects of financial sector development, is that the various legislative and institutional
elements, although when considered independently incorporate best practices, do not work effectively together.

For example, a robust safety net should include clear legal power to seize control of an institution before actual insolvency occurs as a means of limiting the costs to the deposit insurance fund and other creditors. The power to impose a resolution without shareholder and creditor consent is also a key part of an efficient regime to address problem institutions. These powers do not need to be vested specifically in the either the supervisory authority or the deposit insurer – the important thing is that they exist and can be effectively used with proper coordination among the authorities to achieve prompt and minimally disruptive resolution of failing institutions.

The paybox approach can be effective if combined with a supervision regime ensuring prompt intervention in troubled institutions, and may have advantages in terms of lower setup and ongoing costs. These considerations can be especially important in jurisdictions with small numbers of institutions and scarce managerial resources, as the costs of having a fully staffed and proactive deposit insurer may be difficult to justify.

In addition to protecting depositors and contributing to financial stability, there are additional policy considerations that can influence a decision to introduce deposit insurance. These include increasing competition and encouraging savings. Deposit insurance can also help to differentiate regulated financial institutions from unregulated entities. If deposit insurance is well publicized, this can provide some measure of protection against pyramid schemes and similar illegal deposit-taking activities undertaken by unlicensed entities.

Deposit insurance can contribute to competition in financial services in several ways. First, it can provide a level playing field to help smaller privately owned institutions attract deposits when competing with very large or government-owned institutions. The public may implicitly assume that a large institution is safer, perhaps because of size and its well-known brand, but also because of the presumption that large and systemically important institutions will receive government support if required. For government-owned institutions there is at least an implicit, if not explicit, commitment on the part of government to ensure the institution honors its commitments to depositors. Deposit insurance can provide the same assurance to depositors in smaller private institutions, making it easier for them to attract deposits and grow.

Deposit insurance can facilitate the development of non-bank deposit-taking institutions. Arrangements covering deposit-taking microfinance organizations have been established in many countries as a means of helping these institutions compete with banks at the lower end of the
The role of deposit insurance in financial stability

447

deposit-taking market. A prerequisite is an appropriate regulatory and supervisory regime. When this is in place, a well-publicized deposit insurance system can help to build public awareness of the regulatory perimeter and thus discourage unlicensed deposit-taking activity, in addition to promoting confidence in licensed non-bank institutions. This can help to promote savings by drawing deposits into the formal sector.

NOTES

1. Financial Stability Forum (2001). In addition, two IMF papers have been commonly used to design or assess deposit insurance systems: Hoelscher et al. (2006) and Garcia (2000).
3. Moral hazard arises when the provision of insurance reduces the incentive for the insured to mitigate risk. An insured depositor has no incentive to monitor the soundness of banks or to withdraw deposits from weak banks.
9. A Financial System Stability Assessment is the summary of findings of the International Monetary Fund (and World Bank in the case of developing countries) pursuant to the Financial Sector Assessment Program. See, for example, IMF (2009).

BIBLIOGRAPHY


Borio, C. (2008), ‘The financial turmoil of 2007–?: a preliminary assessment and
Hong Kong Monetary Authority (2002), ‘Introducing deposit insurance in Hong
International Monetary Fund (2010), ‘Report to the Financial Stability Board: note by the staffs of the International Association of Deposit Insurers and the International Monetary Fund on update on unwinding temporary deposit insurance arrangements,’ International Monetary Fund, Washington, DC.
Monetary Authority of Singapore (2002), ‘Deposit insurance scheme’, Monetary


APPENDIX 11A.1 OVERVIEW OF ASEAN+3 DEPOSIT INSURANCE SYSTEMS

The summaries below have been compiled from publicly available information for the ten ASEAN+3 countries with explicit deposit insurance. Up to September 2013, deposit insurance systems had not been established in Cambodia, the PRC, and Myanmar.

This overview provides a high-level summary and facilitates broad comparisons, but is not intended to provide the depth of analysis that would arise from an assessment of compliance using the Basel Committee on Banking Supervision and International Association of Deposit Insurers methodology. While organized and presented using the key headings of ‘The Core Principles for Effective Deposit Insurance Systems’, the summary for each system does not include two principles which may not be applicable to all jurisdictions: Principle 7, Cross border issues; and Principle 10, Transitioning to a blanket guarantee. It also does not include several principles that are especially challenging to interpret without completing a full assessment of compliance: Principle 6, Relationship with other safety-net participants; Principle 12, Public awareness; Principles 13 and 14, Selected legal issues; and Principle 18, Recoveries.

**Brunei Darussalam**

Brunei Darussalam Deposit Protection Corporation, established 2011.

*Principles 1–4, Objectives, mandate, powers*

- Narrow paybox mandate and commensurate powers to assess premiums, manage the fund and make payments.

*Principle 5, Governance*

- Fund domiciled in the Ministry of Finance.

*Principles 8, 9, Membership and coverage*

- Compulsory membership for all licensed financial institutions.
- Eligible deposits are protected up to BND50,000 per depositor per member institution.
Principle 11, Funding

- *Ex ante* funding.
- Fund target size – no publicly available information.
- Actual fund size – newly established fund.
- Standby or backup funding – the corporation may borrow from the consolidated fund or raise funds in such manner and upon such terms and conditions as may be approved by the Minister with the approval of His Majesty the Sultan and Yand Di-Pertuan.
- Assessment or premium rates – initial premium BND 50000 paid by a member institution in the year that it becomes a member, with annual premiums set by the corporation, not to exceed 0.5 percent of the total protected deposits.

Principles 15–16, Failure resolution

- No failures since establishment of the fund.

Principle 17, Reimbursing depositors

- Payment required to be made as soon as practicable, and not longer than three months from the date of winding-up.

Indonesia

Indonesia Deposit Insurance Corporation, established 2004.

Principles 1–4, Objectives, mandate, powers

- Loss minimizer mandate with broad powers to manage the fund and participate in the selection of appropriate resolution strategies:
  - Formulate and determine deposit insurance policies;
  - Implement deposit insurance;
  - Formulate and determine policies pertaining to its active maintenance of the banking system’s stability;
  - Formulate, determine, and implement policies pertaining to the resolution of non-systemic banks, including taking over and performing all bank shareholder rights and responsibilities including the rights and authority of the General Shareholders Meeting;
  - Take over and manage assets and liabilities of a bank; and
  - Sell and/or turn over bank assets without the debtor’s approval and/or the bank’s liabilities without the creditor’s approval.
Principle 5, Governance

- Government agency.

Principles 8, 9, Membership and coverage

- Mandatory membership for all Indonesian banks.
- Insured limit of Rp2 billion per depositor per bank.

Principle 11, Funding

- Ex ante funding.
- Target fund size 2.5 percent of insured deposits.
- Actual fund size 0.77 percent of insured deposits (end of 2010).
- Standby or backup funding – IDIC may borrow from government.
- Assessment or premium rates – initial premium of 0.1 percent of paid up capital, and annual premium of 0.1 percent of average monthly total deposits.

Principles 15–16, Failure resolution

- 47 bank failures since the inception of the deposit insurance fund, 46 resolved by liquidation and depositor payout and one resolved by restructuring.

Principle 17, Reimbursing depositors

- Eligible deposits are paid through an agent bank appointed by IDIC.
- IDIC is empowered to meet its obligations by means other than directly paying depositors when this will result in a lower cost resolution than liquidation and payout.

Japan

Deposit Insurance Corporation of Japan, established 1971. Also the Agricultural and Fishery Cooperative Savings Insurance Corporation which provides a similar deposit insurance system for the relatively small amount of deposits held by cooperatives. The details below are for the DICJ.
Principles 1–4, Objectives, mandate, powers

- Broad loss minimizer mandate and powers:
  - Collect and manage premiums;
  - Provide financial assistance to institutions;
  - Reimburse insured depositors;
  - Inspections of financial institutions;
  - Manage the assets of failed financial institutions; and
  - Collection of non-performing loans through the Resolution and Collection Corporation, a subsidiary of the DICJ.

Principle 5, Governance

- Autonomous organization with mixed public–private administration (semi-government).

Principles 8, 9, Membership and coverage

- Membership is compulsory for all licensed banks and credit cooperatives.
- Non-interest bearing demand deposits are protected in full, other eligible deposits top a maximum of ¥10 million per depositor per institution.

Principle 11, Funding

- Ex ante funding.
- No specific target fund size.
- Actual fund size ¥4.1 trillion, 0.04 percent of insured deposits (end 2010).
- The DICJ may borrow or issue bonds, government provides a guarantee of such borrowings to a limit established in the general provisions of the budget.
- Assessment or premium rates – 0.084 percent of insured deposits.

Principles 15–16, Failure resolution

- Since 1992 the DICJ has provided financial assistance in 181 cases of financial institution failure, comprising monetary grants, asset purchases, capital injection, loans and debt assumption, with all deposits being projected through these transactions.
Incubator bank, which failed in September 2010, was the first case of imposition of the insured limit. Selected assets and liabilities were transferred to a bridge bank which was ultimately sold to Aeon Bank. Insured depositors were transferred in full, and uninsured depositors will be reimbursed to the extent there are recoveries in the bankruptcy proceedings of Incubator Bank.

Principle 17, Reimbursing depositors

- The DICJ is empowered to transfer business to a sound financial institution, providing financial assistance to meet depositor’s claims, as well as paying depositors directly.
- In all cases of resolution there have been no depositor payouts.

The Republic of Korea

Korea Deposit Insurance Corporation, established 1996.

Principles 1–4, Objectives, mandate, powers

- Broad risk minimizer mandate including prudential oversight responsibilities:
  - Collection premiums and manage the fund;
  - Ongoing risk surveillance;
  - Resolution of insolvent institutions; and
  - Management of the estates of bankrupt institutions.

Principle 5, Governance

- Independent government agency.

Principles 8, 9, Membership and coverage

- Compulsory membership for all banks, merchant banks, mutual savings banks, insurance companies and asset management firms licensed for investment brokerage and trading.
- Eligible deposits are covered to a maximum of KRW50 million per depositor per institution.
Principle 11, Funding

- *Ex ante* funding.
- Target reserves are established as a range of percentage of insured deposits and vary by institution type:
  - Banks, 0.825 to 1.1 percent;
  - Investment brokerage and trading, 0.825 to 1.1 percent;
  - Life insurers, 0.66 to 0.935 percent; and
  - Mutual savings banks, 1.650 to 1.925 percent.
- Actual fund size, 1.61 percent of total insured deposits (end of 2010).
- Standby or backup financing – the KDIC is empowered to borrow from government, the central bank and financial institutions and corporations as required for payment of insured deposits or resolution of insolvent institutions.
- Assessment or premium rates:
  - Banks, 0.08 percent of insured deposits;
  - Investment brokerage and trading, merchant banks, 0.15 percent of insured deposits;
  - Mutual savings banks, 0.4 percent of insured deposits; and
  - Insurance companies, 0.15 percent of arithmetic average of policy reserves and premiums earned.

Principles 15–16, Failure resolution

- At the end of 2002 the former Deposit Insurance Fund was split in two – one for completing the financial restructuring efforts and recoveries to redeem the public funds used for financial restructuring in the Asian crisis, and the new Deposit Insurance Fund, which started with a clean slate in 2003.
- Up to the end of 2012, the new Deposit Insurance Fund had paid depositors of 37 mutual savings banks and 14 credit unions.

Principle 17, Reimbursing depositors

- In addition to direct payment of claims in bankruptcy or liquidation, the KDIC has broad powers to transfer claims to another institution, assist in a merger, or provide a range of financial assistance.

Lao PDR

Bank of Lao PDR fund established 1999.
The role of deposit insurance in financial stability

Principles 1–4, Objectives, mandate, powers

● Narrow paybox mandate:
  ● Collect premiums and manage the fund; and
  ● Compensate depositors of failed institutions.

Principle 5, Governance

● Fund domiciled in and managed by the central bank.

Principles 8, 9, Membership and coverage

● Mandatory membership for licensed banks.
● Eligible deposits insured to a limit of LAK15 million per depositor per institution.

Principle 11, Funding

● Ex ante, fund established with LAK100 million capital contribution from the Ministry of Finance.
● No publicly available information on target and actual fund size.
● The fund is legally able to borrow – no information on standby or backup financing.
● Premiums are 0.1 percent of the average annual LAK deposit base.

Principles 15–16, Failure resolution

● No information on recent bank resolutions.

Principle 17, Reimbursing depositors

● The fund is able to determine how to compensate depositors – not clear whether this would include transferring claims to another institution rather than paying depositors directly.

Malaysia

Malaysia Deposit Insurance Corporation, established 2005.

Principles 1–4, Objectives, mandate, powers
Global shock, risks, and Asian financial reform

- Loss minimizer mandate to manage the fund and participate in the selection of appropriate resolution strategies, with corresponding powers:
  - Administer a deposit insurance system and a takaful and insurance benefits protection system;
  - Provide incentives for sound risk management in the financial system;
  - Promote or contribute to the stability of the financial system;
  - Make payment to insured depositors including by transferring the insured amount to another institution; and
  - Establish a bridge institution to receive some or all of the assets or liabilities of a failing institution.

**Principle 5, Governance**

- Independent government agency.

**Principles 8, 9, Membership and coverage**

- Compulsory membership for all conventional and Islamic banks, insurance companies and takaful operators.
- Coverage of eligible deposits to a maximum of RYM250000 per depositor per institution.

**Principle 11, Funding**

- *Ex ante* funding, six separate funds for conventional and Islamic banks, as well as newly established funds for life insurance, general insurance, general takaful and family takaful.
- Target fund size is a range of 0.6 to 0.9 of total insured deposits for the funds for both conventional and Islamic banks.
- Actual fund size at the end of 2011 was 0.14 and 0.17 percent respectively of conventional and Islamic total insured deposits.
- Standby financing – the deposit insurer is empowered to borrow from government or private sources, and is in the process of pre-positioning and agreement and documentation to facilitate borrowing from government if required.

**Principles 15–16, Failure resolution**

- There has been no failure since the introduction of deposit insurance.
Principle 17, Reimbursing depositors

- A wide range of options are available including transferring claims to another institution, establishing a bridge institution, and payout using an agent institution.

The Philippines

Philippine Deposit Insurance Corporation, established 1963.

Principles 1–4, Objectives, mandate, powers

- Broad risk minimizer mandate and powers including:
  - Collecting premiums, managing the fund and compensating depositors;
  - Provide financial assistance to eligible banks in danger of closing;
  - Receiver and liquidator of failed institutions; and
  - Examination and investigative authority.

Principle 5, Governance

- Government corporation.

Principles 8, 9, Membership and coverage

- Compulsory membership for all banks.
- Coverage ₱500,000 per depositor per institution.

Principle 11, Funding

- Ex ante funding.
- Fund target reviewed annually, set at ₱75.5 billion in 2010.
- Actual fund size ₱64.6 billion (end of 2010).
- Premium assessments 0.2 percent of total deposits.
- Standby or backup financing – authorized to borrow from the central bank and to issue bonds or other debt.

Principles 15–16, Failure resolution

- From 2008 to the end of 2012, 148 banks were resolved through the appointment of the PDIC as receiver.
**Principle 17, Reimbursing depositors**

- The PDIC liquidates the bank and pays depositors, generally within three months of closure, by direct payment or use of an agent bank.

**Singapore**

Singapore Deposit Insurance Corporation, established 2006.

**Principles 1–4, Objectives, mandate, powers**

- Narrow ‘paybox’ mandate to collect premiums, manage the fund, make payments and educate the public.

**Principle 5, Governance**

- Government corporation.

**Principles 8, 9, Membership and coverage**

- Compulsory membership for all banks and finance companies, although the Monetary Authority of Singapore is empowered to exempt institutions from membership.
- Coverage of eligible deposits to a maximum of S$50,000 per individual per institution.

**Principle 11, Funding**

- *Ex ante* funding.
- Fund target 0.3 percent of insured deposits.
- Actual fund size, 0.13 percent of insured deposits (end of 2010).
- Assessments are risk based ranging from 0.02 to 0.07 percent of insured deposits.

**Principles 15–16, Failure resolution**

- No failures since inception of deposit insurance.

**Principle 17, Reimbursing depositors**

- Payment by check or deposit transfer when an institution is being wound up, or the deposit insurance corporation determines the
institution is insolvent, unable or is likely to become unable to meet its obligations.

**Thailand**

Deposit Protection Agency, established 2008.

**Principles 1–4, Objectives, mandate, powers**

- Narrow paybox mandate to assess premiums, manage the fund and reimburse depositors, plus the power to act as liquidator of failed financial institutions.

**Principle 5, Governance**

- Government agency.

**Principle 6, Relationships with other safety-net participants**

**Principles 8, 9, Membership and coverage**

- Compulsory membership for all commercial banks, finance companies and credit fanciers.
- Blanket guarantee introduced in 1997 remained in place until August 2011, when replaced by a limit of THB50 million per depositor per institution, which will further reduce to THB1 million in 2012.

**Principle 11, Funding**

- Ex ante funding, no information on target fund size, actual fund THB52.1 billion (end of 2010).
- Premium assessment 0.4 percent of total insured deposits.

**Principles 15–16, Failure resolution**

- No failures since introduction of limited deposit insurance.

**Principle 17, Reimbursing depositors**

- Depositors reimbursed when a financial institution’s license is revoked.
Viet Nam

Deposit Insurance of Viet Nam, established 1999, commencing operation in 2000.

Principles 1–4, Objectives, mandate, powers

- Broad risk minimiser mandate and powers, including:
  - Collecting premiums, managing the fund and compensating depositors;
  - Monitoring through on-site and off-site supervision compliance by institutions of the prudential regulations as well as regulations on deposit insurance;
  - Recommending to the State Bank of Viet Nam remedial measures for institutions violating prudential standards or at risk of insolvency;
  - Providing financial support to institutions placed under special control;
  - Providing financial support to systemically important institutions even if not placed under special control;
  - Participating in the receivership and liquidation of bankrupt institutions; and
  - Participating in the management and liquidation of the assets of failed institutions.

Principle 5, Governance

- Established as a state-owned financial institution.

Principles 8, 9, Membership and coverage

- Compulsory membership for banks and credit institutions operating pursuant to the Law on Credit Institutions.
- Deposits other than those of insiders are insured to a maximum of VND50 million per individual per institution.

Principle 11, Funding

- Ex ante funding including original VND1 trillion capital provided by government.
- No information on target fund size, actual fund size VND3.7 trillion (end of 2008).
● Premiums are 0.15 percent of insured deposits.
● The DIV may obtain government guaranteed loans from financial institutions if the fund is inadequate to meet its obligations.

*Principles 15–16, Failure resolution*

● The DIV has compensated depositors in the failure of about 35 small institutions, most recently the People’s Credit Fund of Tru Huu, which was dissolved June 2011, with 104 depositors paid a total of VND3 billion. The DIV is the liquidator of the failed institutions.
● The DIV has provided financial assistance for a number of People’s Credit Funds.

*Principle 17, Reimbursing depositors*

● Requirement to pay within 60 days of the commencement of liquidation.
● Payment may be made directly to depositors or through arrangements with a credit institution.
12. Effective resolution regimes for financial institutions in ASEAN+3

A. Michael Andrews

1 INTRODUCTION

The high costs of rescuing banks and other financial institutions during the 2007–09 financial turmoil led to a post-crisis focus on the importance of effective resolution regimes to provide credible alternatives to bail-outs. Experience in the crisis revealed that many European countries lacked a legal regime capable of seizing control of a failing bank and imposing a resolution while at the same time preserving essential functions to minimize disruption to the financial sector and real economy. Experience in the crisis also highlighted the need for a regime to deal in the same way with systemically important non-bank institutions.

The post-crisis focus on resolution frameworks is evident in several strands of the efforts to enhance the international financial architecture and standards, although not yet formally endorsed as an international standard, the ‘Key attributes of effective resolution regimes for financial institutions’ (hereafter Key Attributes)\(^1\) have emerged as de facto best practices. Considerable international attention has been directed at improving the regimes for G-SIFIs and cross-border resolution, but the essential requirement for effective cross-border resolution, and the avenue offering the greatest scope for practical progress, is strengthening national resolution regimes.

The ASEAN+3 countries were not directly affected by the recent crisis. Nevertheless there is an opportunity to apply the lessons learned elsewhere to review and strengthen national resolution regimes. Several ASEAN+3 countries have revised their resolution regimes and related elements of the safety net and framework for crisis management, however most ASEAN+3 countries have yet to establish regimes incorporating the 12 Key Attributes. The few ASEAN+3 countries with potentially systemically important non-banks already have special resolution regimes in place, so the reform priorities within the region are strengthening domestic bank resolution frameworks in the countries where special regimes are
not already in place, and ensuring regional coordination and cooperation arrangements are effective for the growing number of regionally active banks, particularly those headquartered in Malaysia and Singapore.

In order to provide the context for a stock-take of the current resolution regimes for financial institutions in the ASEAN+3 countries, the next section of this chapter reviews the role of the resolution regime within the broader context of the financial safety net. This is followed by an overview of effective resolution regimes, including the global policy response to the recent financial turmoil and implementation to date of newly codified best practices. The fourth section summarizes the current resolution regimes in the ASEAN+3 jurisdictions relative to the Key Attributes. The chapter concludes with recommendations on priorities for reforming the resolution framework for financial institutions in ASEAN+3.

2 THE SAFETY NET

The focus of this chapter is special resolution regimes for banks and other financial institutions, but it is important to consider resolution within the broader context of the safety net, contingency planning for crisis management, and initiatives to reduce the likelihood or severity of distress in the financial system. A special resolution regime cannot function effectively in the absence of the other elements of the safety net, including an effective coordination mechanism among the authorities with a mandate to contribute to financial stability.

These other elements include the framework for prudential regulation and supervision, lender of last resort liquidity support, and deposit insurance. Effective prudential regulation and supervision is a necessary precondition for a resolution regime as it minimizes the chances of financial distress and provides a mechanism for early intervention in weak financial institutions. Early intervention coupled with an effective resolution regime maximizes the chances of least cost and minimally disruptive solutions to weak institutions.

The framework for contingency planning and crisis management is a key dimension of an effective safety net. This requires a structure for coordination among all the authorities with a mandate for financial stability – typically prudential supervisors, deposit insurers, the central bank (if not a supervisory authority) and the government, usually represented by the ministry of finance. Experience highlights the difficulties of coordinating and decision-making in a crisis. Post-crisis, there has been increased focus on the importance of having coordinating committees and other mechanisms pre-positioned.
Initiatives to reduce the likelihood of institutions facing financial distress constitute an important strand of the international response to the crisis. The Basel III requirements for more and higher-quality capital, new prudential liquidity standards, ensuring that all systemically important institutions are within the regulatory perimeter, and enhancing supervisory oversight, particularly for G-SIFIs, are all measures intended to reduce the likelihood that it will be necessary to use the special resolution framework. While these initiatives can reduce the probability and severity of financial distress, experience suggests that the risks of failure cannot be eliminated, so an appropriate resolution regime is essential to provide an alternative to bailing-out weak institutions. The absence of an alternative contributed to the decision to commit taxpayer funds to support large banks and non-banks in Europe and the US during the 2007–09 turmoil.

3 EFFECTIVE RESOLUTION REGIMES

It has long been recognized that general insolvency law is not well suited to dealing with failing deposit-taking institutions. The special nature of financial institutions means that the value of assets can deteriorate rapidly, and funding sources – deposits and borrowings – quickly dry up if confidence is lost, thus requiring much faster action than is typically required in a corporate insolvency to maximize recoveries for the benefit of all creditors. Thus, some of the elements commonly found in a general insolvency process – an extended stand-still period while proposals to creditors are prepared, a resolution process requiring voting or consensus by creditors, time-consuming judicial decisions, or potentially protracted legal challenges – can all result in loss of the opportunity to preserve some or all of the functions of the failing institution on a going-concern basis.

More fundamentally, there is a public policy interest in protecting depositors and the stability of the financial system which does not apply under general insolvency law. So quite aside from the need for speed to maximize recoveries in failing financial institutions, this broader policy objective requires a resolution regime which has a number of fundamental differences from a general insolvency regime:

- The ability to intervene (take control) before an institution is actually insolvent, maximizing the chances of preserving some or all of the business and minimizing disruption to the financial sector and real economy, for example by selling on a going-concern basis to another institution.
• The ability to quickly impose a resolution without the consent of creditors and shareholders, in the interests of financial stability.
• Providing that use of the resolution regime, for instance to transfer financial contracts from a failing institution to an acquiring institution or public entity, does not trigger acceleration or default provisions in financial contracts.
• Restricting the power to initiate insolvency proceedings to the authorities, or requiring the consent of the authorities, to prevent proceedings initiated by individual creditors causing a loss of confidence in the institution or triggering acceleration or default provisions in financial contracts.

3.1 Conflicting Policy Objectives

The required special powers for an appropriate resolution regime to protect depositors and financial stability potentially impinge on the rights of creditors and shareholders. This is one reason why many countries do not have all of the required attributes of an effective resolution regime despite the need evident from experience around the world with banking crises and the ‘normal times’ situation of dealing with one or more weak institutions in an otherwise sound system.

Consider the case of a financial institution identified by the supervisory authority as being at risk of failure. If the supervisor does assume control of the institution before insolvency, on the basis that this offers the best chance for a minimally disruptive and lesser cost resolution, the supervisor is acting in the best interests of financial stability. However, if the supervisor does not intervene there is still a possibility, however remote, that the institution might recover and thus the intervention has deprived the shareholders the exercise of their ownership rights. Similarly, even if the institution is insolvent, imposing a resolution may be in the best interests of the financial system, but could be detrimental to the interests of some or all of the creditors of the failing institution.

The case for special resolution regimes that may impinge on the rights of shareholders or creditors is built on two foundations. The first is the concept of public good – the benefit to society as a whole of actions to preserve financial stability outweighs the interference with the rights of adversely affected shareholders and creditors. The second, which is related to the first, is that prudential requirements attach conditions to the ownership of financial institutions. Banks must maintain minimum capital levels to protect depositors and financial stability. Failure to meet this prudential standard leads to remedial action, which can include curtailing ownership rights.
3.2 The Practical Case for Special Resolution Regimes

In some jurisdictions a special regime for bank resolution is well established. The US has the oldest and perhaps best well-known regime, with the receivership powers of the FDIC having been used in thousands of bank resolutions. Important revisions to the powers of the FDIC in light of experience with the savings and loan crisis in the US included introduction of ‘Prompt Corrective Action’, requiring among other things appointment of the FDIC as receiver of a critically undercapitalized institution (capital adequacy less than 2 percent of risk-weighted assets). The US has the oldest and perhaps best well-known regime, with the receivership powers of the FDIC having been used in thousands of bank resolutions.

The legal frameworks in many countries do not provide a full suite of resolution powers. An approach commonly found in Europe and many other countries is intervention powers provided under the banking, central bank or supervision statutes, combined with insolvency and liquidation governed by company law or general insolvency statute. The general shortcoming in these regimes is that the intervention power is predicated on the concept of the failing institution being rehabilitated while under official direction. While the authorities may exercise management control, selling all or part of the business or selling equity to a new investor would require shareholder consent, or alternatively would have to be completed using the powers of a liquidator or receiver pursuant to the general company or insolvency law.

Tangible examples of the potential problems include the cases of Fortis, Hypo Real Estate (HRE) and Northern Rock. The sale of part of the Fortis Group to BNP Paribas was held up by Fortis shareholders, who were ultimately able to negotiate a better deal for themselves as the price of consent to a transaction intended to preserve stability and minimize the costs of taxpayer bail-outs. The takeover of HRE by the government’s Special Fund for Financial Market Stabilization was threatened by the need to obtain shareholder approval. Takeover was ultimately achieved through enactment of special legislation.

Directors of Northern Rock proposed a regular dividend while receiving emergency liquidity support from the Bank of England. While ultimately persuaded to reconsider, at the time there was no formal power to compel the board of directors to suspend the dividend to conserve capital. Negotiations to sell Northern Rock dragged on for months before ultimately collapsing, in part because shareholders were dissatisfied with offers well below their perception of the value of the shares. Special legislation was ultimately used to nationalize Northern Rock. Although challenged by shareholders, the courts upheld the action taken, noting that Northern Rock would have failed without the provision of liquidity support by the Bank of England.
3.3 Introducing Special Regimes during a Crisis

One of the responses to the crisis in the UK, Germany and Ireland – emergency legislation to provide necessary resolution powers – is a tool commonly used in responding to banking crises. During the Asian crisis, amendments to the Commercial Banking Act provided the Bank of Thailand with the power to write down capital and change management in troubled banks. The Indonesia Bank Restructuring Agency (IBRA) was given the power to resolve banks without shareholder consent. In the Republic of Korea, the Act on the Structural Improvement of the Financial Industry provided new resolutions powers. Other examples can be found in all of the crises immediately preceding the global financial turmoil – Latin America, the Nordic crisis, Russia and Turkey.10

Experience with emergency legislation highlights the difficulties that can arise. In the case of Ecuador in 1998 it took almost two years to enact the necessary legislation, and even then the legal basis for crisis management was only partially implemented. During the Asian crisis, the rapid drafting and enactment of the legislation to provide the IBRA with resolution powers resulted in some inconsistencies with existing laws, creating uncertainty during lengthy legal challenges. These and other examples should clearly establish the desirability of putting in place an effective resolution regime when the financial system is stable, allowing the necessary time for measured drafting, debate and consultation.

3.4 Why Have the Lessons Not Been Learned?

Given the long history of discovering in the middle of a crisis that existing resolution frameworks are inadequate, and the known pitfalls in enacting emergency legislation, it is perhaps puzzling that so few countries have introduced the required regimes. There are several contributing factors to the widespread inaction.

One factor is a common presumption that a crisis is something that only happens somewhere else, despite the evidence that periods of severe banking distress have been experienced by the majority of countries, including economies at all stages of development.11 Another is that even when the risk of a crisis is acknowledged, there may be a belief that enhancements in prudential standards, supervision and banks’ risk management have rendered remote the possibility that financial institutions will fail. A third factor is the difficulty in enacting the required regime – politically well-connected bank shareholders may be able to block legislation that would provide a legal basis for their ownership rights to be abridged in the interests of depositors and financial stability.
A fourth factor is that the resolution frameworks may in good faith have been considered adequate. In part this could have been due to failure to consider a scenario so severe as to require immediate action to preserve at least a portion of an insolvent financial sector, or failure to anticipate the legal recourse open to shareholders or creditors acting in their self-interest. This suggests that in many countries contingency planning and crisis preparedness may have insufficiently focused on the details of the ‘plumbing’ – the legal framework, decision-making process, and role of the safety-net participants – on the presumption that adequate powers and processes existed to ensure that ‘it would be all right on the night’.

3.5 The Global Policy Response

The policy response to the global financial turmoil began in October 2007 even as the crisis was still unfolding, when the G7 countries tasked the Financial Stability Forum (FSF – subsequently renamed the Financial Stability Board) with preparing recommendations for increasing the resilience of institutions and markets. The initial FSF report in April 2008 included commitments to clarify and strengthen national and cross-border arrangements for dealing with weak banks. Leadership of the international reform process subsequently passed to the G-20, with 39 recommendations on nine topics emerging from the 2010 and 2011 summit meetings. Two of the G-20 topics – ending ‘too big to fail’, and strengthening adherence to international supervisory and regulatory standards – are central to ongoing international developments regarding resolution frameworks.

Initially there were several strands to the international initiative to strengthen resolution regimes. In addition to the work of the FSB which culminated in the publication of the Key Attributes, the Basel Committee on Banking Supervision and the International Monetary Fund both carried forward work on cross-border resolution. The conclusion that the optimal solution for cross-border resolution – a binding international agreement or treaty – was impractical led to further focus on achievable steps: strengthening national resolution regimes; enhanced supervisory cooperation; and contingency planning. These elements are reflected in many of the 12 Key Attributes, and also in ongoing work to enhance the supervision, resilience and resolvability of G-SIFIs and D-SIFIs.

Best practices for resolution frameworks have become more clearly defined, but despite the codification in the Key Attributes, there is still no formal international standard. The FSB has indicated its intention to add one or more standards with respect to resolution frameworks, however, failure to do so to date is likely indicative of absence of broad consensus on some elements of the standard. In addition to further work on particu-
lar attributes, the FSB is also considering how the application of the Key Attributes may need to be modified for systemically important non-banks and infrastructures.\textsuperscript{15}

The Key Attributes have become a \textit{de facto} standard despite the absence of formal designation. The FSB released for consultation in August 2013 an assessment methodology,\textsuperscript{16} which upon finalization would be used to assess a jurisdiction’s compliance with the Key Attributes. In future it is expected that assessments of a country’s implementation of the Key Attributes will be completed as part of the FSAP and FSB Country Peer Reviews,\textsuperscript{17} in common with other standards and codes such as the Basel Core Principles for Effective Banking Supervision.

In addition, the FSB completed in early 2013 a thematic peer review of resolution frameworks.\textsuperscript{18} This review evaluated FSB member jurisdictions’ existing frameworks and any planned revisions against the Key Attributes, providing a stock-take of national resolution regimes, identifying good practices and evaluating progress with implementation of the Key Attributes. The thematic review concluded that implementation of the Key Attributes is at an early stage. While some jurisdictions have made significant strides, there are significant divergences from or inconsistencies with the Key Attributes in many jurisdictions. In particular, few jurisdictions provide the full suite of recommended powers for bank resolution, and even fewer have appropriate special resolution regimes for non-banks.

The thematic review provides three recommendations for further progress. Two relate specifically to the FSB – the need to provide additional clarification and guidance on the application of the Key Attributes, and the need for ongoing monitoring of national implementation. The other recommendation is for FSB members to pursue full implementation. Most of the specific measures recommended are likely to be equally relevant for non-FSB member ASEAN+3 countries:

- Reviewing and revising as needed by resolution regimes to provide the full suite of powers enumerated in Key Attribute 3.
- Reviewing and revising as needed by the resolution regimes for non-banks.
- Extending the scope of resolution regimes to financial holding companies, unregulated entities providing critical functions, and branches of foreign financial firms.
- Strengthening coordination frameworks.
- Enhancing the mandates of resolution authorities for cross-border cooperation.
- Reviewing domestic legal frameworks to ensure effective information sharing.
Providing the legal power to ensure a temporary stay on the exercise of contractual acceleration or early termination rights in financial contracts.

Introducing recovery and resolution plans for all domestic systemically important firms.

Empowering authorities to require institutions to change structure or business practices where necessary to improve resolvability.

As identified later in this chapter, the shortcomings in the resolution frameworks of most ASEAN+3 countries are not dissimilar to those found in the FSB member countries.

3.6 National Implementation

Special resolution regimes may be established in the banking law or the law establishing the supervisory authority, the deposit insurance law, or a specialized insolvency law. The most appropriate approach depends on the legal traditions of the country and the institutional structure for routine supervision and crisis management. Recognizing the differing approaches that can work in practice, global policy development is principles based rather than prescribing specific legal constructs.

Few jurisdictions currently have resolution regimes that incorporate most of the Key Attributes and the Basel Committee recommendations. This reflects substantive progress with global policy development – the Key Attributes and ongoing work on cross-border resolution – but slow progress with implementation in many G-20 jurisdictions and more broadly among non-G-20 countries. Only a relatively small number of countries having revised their resolution frameworks in light of experience in the global financial turmoil and the emerging consensus on best practices. Highlights of the changes in Europe, the US and ASEAN+3 are outlined below.

Europe

Despite the magnitude of the taxpayer commitments to bail out banks in Europe, as yet there is no consensus on an enhanced resolution framework, and only a few countries have established regimes that would provide credible alternatives to bail-outs in the event of a new crisis. Among countries that have implemented reforms, serious deficiencies remain in a number of cases. This limited progress within Europe is of particular concern given ongoing uncertainties about the possible fallout of a sovereign crisis.

European Union legislative proposals released in June 2012 could possibly lead to EU-wide minimum standards by 2015. However,
prospects for final agreement and timing for implementation remain uncertain, and the proposed special resolution regime would only be mandatory for systemically important institutions.

Key elements of the EU proposal are an emphasis on prevention and crisis preparation, powers for early intervention, a general rule that failing credit institutions should be liquidated under ordinary insolvency law, and an orderly wind-down option that should be available in the case of financial stability concerns. The orderly wind-down options would include most of the powers specifically cited in the Key Attributes – a bridge bank, sale of all or part of the business, a write down of debt or conversion of debt to equity. The EU has also initiated consultation on a resolution framework for systemically important non-banks, although the prospects for agreement and implementation are even more uncertain than for the bank resolution framework.

The UK introduced a special resolution regime drawing heavily on the US and Canadian models through amendments to the Banking Act in February 2009. Among the specific powers provided are the ability to intervene in a solvent bank, impose a resolution without shareholder and creditor consent, and to sell assets to a private purchaser or pass bank assets to temporary public ownership – a bridge bank. In 2011 Ireland introduced a permanent regime, modeled on the UK special resolution regime, to replace legislation enacted to specifically deal with nationalization of banks during the crisis.

Belgium introduced the Financial Crisis Law in 2010 to provide a special resolution regime for banks, insurance companies and supporting infrastructure (payment and settlements) in a situation where failure could affect the stability of the financial system. While the regime provides the power to expropriate and dispose of all or part of the business or equity of a failing institution, the requirement for judicial review taking up to 27 days in large part defeats the prompt resolution objectives of a special regime.

Following on from legislation enacted to provide emergency powers to deal with the crisis, Germany introduced a special resolution regime in 2011. The Bank Restructuring Act provides additional powers with respect to banks that had previously been subject to general insolvency provisions. It introduced a streamlined process for voluntary reorganizations including a legal basis for ‘super senior’ funding to facilitate reorganizations, and a one-day moratorium on contract termination to provide for going concern sales by a failing institutions. The law also introduces the power for the supervisory authority to issue an order to transfer all or part of a troubled bank to a new entity.

Greece introduced in 2011 the basis for a special resolution regime
for banks to provide alternatives to liquidation. While purchase and assumption-type transactions and the establishment of a bridge bank are permitted, many of specifics and the modalities for coordination among the authorities involved in resolution decisions needed to be worked out during 2012–13 to ensure that the revised framework would be effective if needed.

The Netherlands Intervention Act came into force in 2012, amending the Financial Markets Supervision Act and the Bankruptcy Act to provide a special resolution regime for financial institutions. De Nederlandsche Bank (DNB – the central bank and supervisory authority) may, after a court has agreed that the resolution criteria are met, exercise intrusive resolution powers. The resolution criteria are that there must be signs of a dangerous development regarding the equity capital, liquidity, solvency or technical provisions of a bank or insurer, and that it is reasonably foreseeable that this development will not be reversed sufficiently or in good time.

De Nederlandsche Bank may transfer the equity of the institution to a private party, transfer deposits, or transfer some or all of the assets and liabilities of the problem institution. If there are no private purchasers, DNB may temporarily pass all or part of a problem institution to a bridge bank. In addition to the powers provided to DNB, the Minister of Finance has extraordinary powers to intervene in the operations of an institution, for example by requiring restructuring, or to expropriate all or part of a financial institution. The regime also provides that use of resolution powers will not serve to trigger acceleration or default clauses in financial contracts.

Spain addressed weaknesses in its resolution regime through a new legal framework introduced in August, 2012. Spain had established the Fondo de Reestructuración Ordenada Bancaria in 2009 with the objective of fostering the consolidation and restructuring of the Spanish banking industry. It operates in parallel with the previously established deposit insurance agency, the Fondo de Garantía de Depósitos. Providing a legal foundation for the powers envisaged by the Key Attributes had been identified as a priority to facilitate orderly liquidations or transfer of all or part of the business of a weak institution to a healthy acquirer. This was addressed in 2012 through the provision of power to impose resolutions without shareholder consent, including the sale of all or part of the business of a failing bank and transfer to a bridge bank.

The United States
Notwithstanding the generally effective use of the existing resolution regime in dealing with US bank failures since the onset of the crisis in 2007, the US legislative response – the Dodd–Frank Act – includes a number of changes. Potentially the most far reaching change is the
creation of the Orderly Liquidation Authority for systemically important non-banks – essentially the extension of the FDIC’s receivership powers so that non-banks such as insurance companies or investment banks will be subject to a special resolution regime. This, of course, reflects the experience with the government bail-out of insurer AIG due to the potentially systemic consequences of allowing it to fail, and the disorderly wind-up of investment bank Lehman Brothers under general insolvency law. Other changes include the requirement for ‘funeral plans’ to provide for the orderly wind-up of systemically important institutions – parallel to the Key Attribute requirement for resolution plans – and the provision of a government priority claim in the liquidation of a financial institution so that any government funding provided to support a systemically important institution would be recovered.

**ASEAN+3**

Although not directly affected by the global financial turmoil, over the last three years several ASEAN+3 jurisdictions have revised their resolution regimes in line with evolving best practices. The Malaysian legal framework was revised by the enactment of the Malaysian Deposit Insurance Corporation Act 2011, expanding on the resolution powers previously available to specifically include most of the provisions of the Key Attributes. Bank Negara Malaysia (BNM), the supervisory authority, has extensive remedial powers with respect to viable institutions. It has the sole authority to determine an institution to be unviable, at which time it is passed to the Malaysian Deposit Insurance Corporation for resolution.

Resolution powers include the ability to impose a resolution and transfer all or part of the business to an acquiring institution, including a bridge institution. The Malaysian special resolution regime extends to insurance companies, and there is a policy holder protection fund established by the 2011 legislation which could facilitate minimally disruptive resolutions of insurance companies in the same way that deposit insurance can contribute to bank resolution. The only specific power in the Key Attributes not provided by the Malaysian regime is the conversion of debt to equity (bail-in provisions).

Singapore revised its banking, insurance and deposit insurance legislation in 2011 to expand the available resolution powers. As with Malaysia, the special resolution regime covers both banks and insurance companies, and the only specific power cited in the Key Attributes which is not provided in the Singaporean regime is the ability to ‘bail-in’ through conversion of debt to equity.

The Monetary Authority of Singapore (MAS) may assume control of a
bank or financial institution, and may, with the consent of the Minister of Finance, make a determination that the whole or part of the business of a financial institution be compulsorily transferred to another institution when in the best interests of depositors or policyholders and the stability of the financial system. The policyholder protection fund established in 2011 to complement the existing deposit insurance fund could contribute to minimally disruptive resolution of a failing insurance company.

The Republic of Korea enacted extensive revisions to the Act on the Structural Improvement of the Financial Industry in 2010. The Act was originally introduced as part of the response to the Asian crisis, with revisions in 2010 providing powers broadly in line with Key Attributes. The Financial Services Commission (FSC) may determine an institution to be insolvent or grossly non-compliant with prudential standards, and thus subject to the special provisions of the Act.

The FSC is empowered to take actions that would impinge on the rights of shareholders in the interests of financial stability or the rights of depositors. Powers include ordering the transfer of business without the consent of shareholders and writing down the value of equity. The Republic of Korea Deposit Insurance Corporation has a wide range of powers to resolve insolvent institutions, including completion of purchase and assumption-type transactions and use of a bridge bank. The special resolution regime applies to all financial institutions, including all types of deposit-taking institutions, insurance companies, investment dealers and brokers, and financial holding companies. There is a policyholder protection fund that could contribute to minimally disruptive resolution of a failing insurance company.

4 RESOLUTION REGIMES IN ASEAN+3

The resolution regimes currently in place in the ASEAN+3 countries are representative of the divergent approaches seen worldwide. Seven countries – Brunei Darussalam, Cambodia, the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam – currently have regimes that rely on general insolvency law for resolution. Two countries – the Republic of Korea and Japan – have special resolution regimes that rely in part on special purpose legislation for the legal framework, with Indonesia also taking this approach although the legal framework is currently incomplete. Three countries – Malaysia, the Philippines and Singapore – have special resolution regimes not based on special purpose legislation, but rather derived from some or all of banking or other financial institution legislation, deposit insurance legislation, and law governing the supervisory authority.
Brunei Darussalam, Cambodia, the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam all have legal provisions to permit the authorities, usually the bank supervisor, to assume control of a bank. However, the underlying premise of these provisions is that the bank will either be rehabilitated while under official control, or liquidated pursuant to the general insolvency law, so there is no special resolution regime incorporating the Key Attributes. The potential problem is that taking control of an institution is not a resolution, and a weak bank operating under official control is likely to continue to deteriorate. A resolution other than liquidation may be difficult to implement over the objections of shareholders and creditors, and the degree of control provided – usually management control with the rights of shareholders preserved – may be insufficient to maintain stability or minimize costs.

The Republic of Korea and Japan have regimes that involve multiple official bodies and special purpose legislation in addition to the financial institution and deposit insurance laws. In each case, the regimes are a product of legislation introduced to address significant financial sector distress and practical experience in resolution. Both frameworks have provisions for extraordinary financial support for distressed institutions – in Japan the Financial Functions Strengthening Act, and in the Republic of Korea the Financial Stabilization Fund established pursuant to the Structural Improvement of the Financial Industry Act.

In Japan, despite the availability of a wide range of resolution powers, there is a long-established preference for publicly supported restructuring or mergers, with over 100 institutions resolved at great public expense since the 1990s, and many institutions receiving capital injections or other support. The first use of a resolution option imposing losses on uninsured depositors was Incubator Bank in 2010, with selected assets and liabilities sold to a bridge bank which was ultimately resolved by sale to Aeon Bank.

The Republic of Korea also has a full range of resolution options. Since the Asian crisis, experience with the resolution regime has been limited to smaller institutions – credit unions and mutual savings banks. There have been depositor payouts in the liquidation of 37 institutions, with a number of mutual savings banks receiving equity injections, cash contribution, and loans to support the restructuring of insolvent institutions.

The Indonesian resolution framework contemplates that the Indonesia Deposit Insurance Corporation would manage the resolution of banks, with a provision for the Financial System Stability Committee to determine that an institution is systemically important and thus subject to special measures. These include the ability for the Deposit Insurance Corporation to take over a bank with or without the participation of existing shareholders. However, the law to establish the committee has not
been enacted, leaving some question as to the operation of the resolution framework. The Indonesia Deposit Insurance Corporation has a range of resolution options for insolvent non-systemic institutions. Since its establishment, 46 banks have been resolved by liquidation and deposit payout, and one by restructuring.

The regimes in Malaysia and Singapore are similar insofar as they are structured to provide timely and minimally disruptive resolutions, if necessary without shareholder consent. The way the powers would be used differs due to the mandate of the deposit insurer. Once the BNM has determined an institution to be unviable, control is passed to the Malaysia Deposit Insurance Corporation which has a wide range of resolution options, including the ability to sell all or part of the business. In contrast, the MAS, subject to consent of the Minister of Finance, would decide on a resolution option, with the Singapore Deposit Insurance Corporation playing only a narrow ‘paybox’ role in the resolution. Either approach to decision-making can work. The important considerations are that the legal framework be appropriate for the mandate and powers of the resolution authorities, and that it creates the ability to impose timely resolutions.

The Philippines has a resolution regime based on the banking law, central bank law, and deposit insurance law that could, in theory, provide a range of resolution options for insolvent banks. While the Philippines regime does not provide a mechanism to take control of or impose a resolution on a solvent institution, the Monetary Board of the Bankgo Sentral Ng Pilipinas (BSP) is empowered to appoint the Philippine Deposit Insurance Corporation (PDIC) as the receiver of an insolvent bank. Receivership powers would normally be expected to facilitate transactions such as the sale of all or part of the failed institution. However, the absence of specific provisions permitting purchase and assumption-type transactions, restrictions in the banking law and PDIC Charter on access to institutions and specific account information that inhibit the necessary advance planning, and the prevailing proclivity of shareholders to undertake extended legal challenges of actions taken by the BSP and PDIC have, in practice, restricted resolutions to liquidation and depositor payout.

Special resolution regimes for non-bank institutions are still relatively rare worldwide, but are in place in four of the ASEAN+3 countries. Malaysia, Singapore, Japan and the Republic of Korea all have special resolution provisions for insurance companies, including policyholder protection funds that can facilitate the same type of minimally disruptive transfer of business that deposit insurance provides for banks.

This balance of this section provides an overview of the bank resolution regimes of ASEAN+3 countries relative to the 12 Key Attributes. Further detail is provided in the appendix to this chapter.36
Effective resolution regimes in ASEAN+3

4.1 Scope

The regime should cover any financial institution that could be systemically significant or critical if it fails.

Four of the ASEAN+3 countries – the Republic of Korea, Japan, Malaysia and Singapore – have special resolution regimes for other financial institutions as well as banks. The financial sectors of the other ASEAN+3 countries tend to be bank dominated (Figure 12.1). The small size of insurance and other financial institutions relative to banks lessens the likelihood that the failure of a non-bank institution would be of systemic importance. While it is desirable to have a special regime including a policyholder protection fund to facilitate minimally disruptive resolutions of insurance companies, the first priority should be ensuring an appropriate regime is in place for banks, as these are far more likely to be of systemic importance.

![Figure 12.1 Total assets, percentage of GDP, end 2011](image)

Note: BN = Brunei Darussalam, KH = Cambodia, CN = the PRC, LA = Lao PDR; ID = Indonesia, PH = the Philippines, TH = Thailand, VN = Viet Nam.

4.2 Resolution Authority

The regime should be administered by a resolution authority (or authorities) with a statutory mandate to promote financial stability and the continued performance of critical functions.

In seven of the ASEAN+3 countries – Brunei Darussalam, Cambodia, the PRC, Lao PDR, Myanmar, Thailand and Viet Nam – the resolution of failed banks would take place pursuant to general insolvency laws. While there are generally provisions for the supervisory authority to have a role, for instance the China Banking Regulatory Commission must consent to the commencement of insolvency proceedings in the People’s Court, the bankruptcy is generally administered by the courts. The weakness in this approach is that the court process may not be sufficiently timely to maximize the value of financial assets and minimize disruption to depositors and other customers of the bank. Further, general insolvency law does not take into account the policy objective of maintaining financial stability.

The general weakness in a resolution process governed by insolvency law is compounded in several ASEAN countries by an incomplete or overlapping legal framework. Although the Banking Law in Cambodia provides that liquidation would be subject to ordinary bankruptcy proceedings, a bankruptcy law has yet to be enacted. In Viet Nam the decree providing for the application of the bankruptcy law to credit institutions (No. 05.2010/ND-CP) predates the current Law on Credit Institutions, creating some uncertainty regarding its application. In Lao PDR the Law on Bankruptcy of Enterprises likely applies to an insolvent bank, but there are some potentially conflicting provisions in the banking law, for example requiring the Bank of Lao to oversee the liquidation committee of a bank.

In Indonesia, Japan, the Republic of Korea, Malaysia, the Philippines, and Singapore the resolution regime is administered by authorities with mandates for financial stability. The specifics vary due to the differing institutional structures in each country, but generally the supervisory authority, central bank and deposit insurance agency all play a role. One of the key challenges is effective coordination among the authorities, and ensuring there is a clearly established decision-making process. The recent FSAP in Japan highlighted the importance of having well defined mandates for the authorities involved and a clear decision-making process for crisis management. The lack of one of the key legal components of the resolution regime – establishment of the Coordinating Committee – creates uncertainty in Indonesia about the administration of the process for dealing with systemically important institutions. Litigiousness and the
possibility of unpredictable judicial decisions impairs the administration of the resolution regime in the Philippines.

4.3 Resolution Powers

The regime should provide for a broad range of resolution powers, including powers to transfer the critical functions of a failing firm to a third party; powers to convert debt instruments into equity and preserve critical functions (‘bail-in within resolution’); powers to impose a temporary stay on the exercise of termination rights under financial contracts (subject to safeguards for counterparties) and impose a moratorium on payments and on debt enforcement actions against the failing firm; and powers to achieve the orderly closure and wind-down of all or parts of the firm’s business with timely pay-out or transfer of insured deposits.

The availability of at least some of the specific resolution powers cited in this Key Attribute is crucial to establishing a regime which provides a credible alternative to bailing-out a failing systemically important institution. The temporary stay on exercise of termination rights in financial contracts (acceleration or default) is intended to provide a brief – generally one day – period to complete a transfer of business to an acquiring institution or bridge bank. This requires a special regime for the insolvency of a financial institution, since under general insolvency law, the act of appointing a receiver or initiating bankruptcy proceedings is a trigger event in financial contracts. Similarly, the power to ensure that contracts are subsequently enforceable when transferred by a receiver or other official authority to an acquiring institution or bridge bank is essential to permit the sale on a going concern basis of some or all of the business of a failing financial institution.

Japan, the Republic of Korea, Malaysia, and Singapore have regimes providing a broad range of resolution powers to deal with deposit-taking institutions and insurance companies. The mechanisms differ due to the country-specific institutional structures and legal traditions, but all provide a means to transfer all or part of the business of a failing institution to an acquiring institution. The existence of deposit insurance and policy holder protection funds should ensure timely payout in the event of liquidation, as well as facilitating a minimally disruptive transfer of the business of a failing institutions.

The power to convert debt to equity (‘bail-in’ provisions) is not explicitly provided in any ASEAN+3 resolution regime. This power is a relatively new addition to the international framework, having gained prominence
only in the aftermath of the recent global turmoil. Absence of this power means that the authorities may be unable to compulsorily recapitalize an institution, however the imposition of losses on creditors can be achieved through bridge bank provisions that would facilitate the transfer of only selected liabilities, leaving creditors’ claims to be worked out in the liquidation of the failed bank.

Aside from Japan, the Republic of Korea, Malaysia, and Singapore, only Indonesia provides a significant number of the specific powers cited in this Key Attribute. As noted above, the incomplete Indonesian legal framework may jeopardize the use of these powers. The other ASEAN+3 jurisdictions provide for few if any of the resolution powers cited in this Key Attribute. This would be a serious handicap in dealing with a failing systemically important institution or widespread weakness in the financial sector, as there is no legal foundation for an orderly closure which would at the same time preserve essential functions through transfer of all or part of the business to an acquiring institution or bridge institution.

4.4 Set-off, Netting, Collateralization, Segregation of Client Assets

The segregation of client assets should be effective in resolutions. Financial contracts, including netting and collateralization agreements, should be enforceable. However, entry into resolution and the exercise of any resolution powers should not in principle constitute an event that entitles any counterparty of the firm in resolution to exercise acceleration or early termination rights under such agreements provided the substantive obligations under the contract continue to be performed (as would be the case if the contracts were transferred to a sound financial firm or bridge institutions).

The resolution regimes of most of the ASEAN+3 countries lack the specific provisions of this Key Attribute. These provisions are intended to ensure there are no legal obstacles to a transfer of all or part of the business of a failing institution to a sound institution or bridge institution. In the absence of specific provisions it is possible that the use of receivership or liquidation powers to effect a transfer could provide counterparties of the failing institution with the ability to exercise termination or acceleration clauses in financial contracts, jeopardizing continued operation of the transferred business on a going concern basis. There may also be legal challenges to the enforceability of transferred contacts, which again impedes going concern sale of all or part of the business of failing firms. Currently, only Japan, the Republic of Korea, Malaysia, and Singapore have specific
provisions in their resolution regimes intended to ensure that contracts can be transferred to and enforced by an acquiring institution.

4.5 Safeguards

All creditors should receive at a minimum what they would have received in a liquidation of the firms (‘no creditor worse off than in liquidation’ safeguard). Resolution powers should be exercised in a way that respects the hierarchy of claims, subject to some flexibility for authorities to depart from the general principle of equal treatment of creditors of the same class where necessary to contain the potential systemic impact of a firm’s failure or to maximize the value of the benefit of all creditors as a whole. Rights to judicial review should be available for affected parties to challenge actions that are outside the legal powers of the resolution authority.

The resolution regimes of the ASEAN+3 countries are generally silent with respect to the safeguards specified in this Key Attribute. These safeguards are only relevant in cases where the resolution regime provides the power to impose a resolution without the consent of shareholders and creditors. ASEAN+3 countries where this power currently exists are:

- The PRC (Article 37 of the Banking Supervision Law);
- Indonesia (resolution powers of the Indonesia Deposit Insurance Corporation);
- Japan (Financial Crisis Management Council may, where necessary, nationalize institutions);
- The Republic of Korea (the Act on the Structural Improvement of the Financial Industry);
- Malaysia (Malaysian Deposit Insurance Corporation Act 2011); and
- Singapore (Banking Law and Insurance Law).

4.6 Funding of Firms in Resolution

The resolution regime should include funding mechanisms that can provide temporary financing to continue critical operations as part of the resolution of a failing firm. Such funding should be derived, or recovered, from private sources.

Few of the ASEAN+3 resolution regimes specially provide for this Key Attribute. The deposit insurers in Indonesia, Japan, the Republic of Korea, Malaysia, the Philippines, and Viet Nam are all empowered to make loans
Global shock, risks, and Asian financial reform

to financial institutions, providing a potential source of funding derived from private sources – the assessments on the industry to build the deposit insurance fund. However, deposit insurance funds many not be of adequate size to deal with a systemic situation. Several jurisdictions including Indonesia and Malaysia have provisions for the central bank to provide funding in extraordinary circumstances. Special approvals are required – authorization by the President in the case of Indonesia and the Minister of Finance in Malaysia, since in such circumstances the institutions would likely lack the usual collateral for central bank borrowing and may not be solvent. While this funding could support an institution in resolution, the public source exposes taxpayers to potential loss.38

4.7 Legal Framework Conditions for Cross-border Cooperation

Resolution regimes should empower and encourage resolution authorities wherever possible to act to achieve a cooperative solution with their foreign counterparties. Authorities should be able to give effect in their jurisdiction to resolution measures taken by a foreign resolution authority.

There are no specific provisions in the resolution regimes of the ASEAN + 3 countries addressing cross-border cooperation. As a practical matter, cross-border cooperation will be addressed through home-host supervisory relationships. Key elements include the establishments of memoranda of understanding among all the supervisors with a material interest in a cross-border group, and for large international groups, the establishment by the home supervisory of a supervisory college.

The PRC and Japan have established supervisory colleges for each of the G-SIFIs domiciled in their respective jurisdictions. Japan was assessed as largely compliant with Basel Core Principle 24, consolidated supervision, and 25, home host relationships, as part of the recently completed FSAP.39 The main recommendation was to enhance the contact, cooperation and information sharing by the Japanese authorities with host supervisors. The PRC was assessed as compliant with Principle 24 and largely compliant with Principle 25.40 While consolidated supervision is capably undertaken in most cases, the legal framework could be improved to give the China Banking Regulatory Commission more effective powers to oversee complex structures by directly examining subsidiaries’ risk management.

Cross-border cooperation is also important in the case of banks with a significant regional presence even if not G-SIFIs. Within ASEAN, banks in Malaysia and Singapore are notable for their regional presence.

The two largest Malaysian banks have significant operations in the
Depending on the metric, Maybank has between 12 and 20 percent of its business in Singapore, and a further 8 to 16 percent in Indonesia. Operations in Viet Nam, Cambodia, the Philippines, and Thailand collectively account for about 1 percent of the group. The CIMB Group has about 20 percent of group business in Indonesia, and about 6 percent in Thailand. Other countries collectively, which includes Singapore and Cambodia, amount to about 1 percent of the CIMB group. The third largest bank, Public Bank, is more domestically focused with less than 10 percent of its business outside Malaysia, the bulk of which is in Hong Kong, China. The Cambodian subsidiary accounts for about one percent of group business.

The three largest Singaporean banks all do significant portions of their group business within the ASEAN region. The Overseas China Banking Corporation has about 19 percent of its assets domiciled in Malaysia, and a further 4 percent in the rest of Southeast Asia. United Overseas Bank has about 12 percent of its assets in Malaysia, and 5 and 3 percent in Thailand and Indonesia, respectively. The DBS Group has about 5 percent of total assets in Southeast Asia. This means that the MAS requires effective cooperation and information sharing with regional supervisors to have an understanding of the risks throughout the banking groups.

While the Singaporean bank operations in most of the countries are generally small in the context of the host country banking markets, Malaysia is an exception. The Malaysian subsidiaries of the United Overseas Bank and the Overseas China Banking Corporation each account for about 4 percent of total Malaysian commercial bank assets.

Given the significance of the Malaysian and Singaporean banks in the region, it is important that appropriate home-host relationships be in place. The MAS hosts supervisory colleges for the three Singaporean banks with a major regional presence. In 2011, the BNM hosted the inaugural supervisory college for a regionally active Malaysian bank, with plans to establish a supervisory college for other large Malaysian banks.

### 4.8 Key Attributes for G-SIFIs

There are three Key Attributes applicable specifically to G-SIFIs:

**Crisis Management Groups**

Home and key host authorities of all G-SIFIs should maintain Crisis Management Groups (CMGs) with the objective of enhancing preparedness for, and facilitating the resolution of a G-SIFI.
Institution-Specific Cross-Border Cooperation Agreements

Institution-Specific Cross-Border Cooperation Agreements should be in place between the home and relevant host authorities that need to be involved in the preparation and management of a crisis affecting a G-SIFI.

Resolvability Assessments

Resolvability assessments should be carried out for all G-SIFIs. Authorities should have appropriate powers to require the adoption of appropriate measures to ensure that a firm is resolvable under the applicable regime.

Since the ASEAN operations of G-SIFIs generally are neither material to the group nor systemic in the host jurisdiction, these three Key Attributes would be mandatory for only the two jurisdictions home to G-SIFIs – the PRC and Japan. However, the principles underlying these attributes may make it worthwhile to ensure they are met in the case of regionally important institutions or domestic institutions with multiple supervisors – for example, when insurance, capital markets and banking are undertaken within the same group in a jurisdiction without a unified supervisory authority.

The BNM and the MAS have already convened supervisory colleges for banks with significant international operations, involving other authorities from the ASEAN+3 region. A further regional aspect to this attribute is the participation of host-country authorities in the supervisory colleges of G-SIFIs. A number of home country supervisors, including the Bank of England, have adopted regional groupings within the context of a core and expanded supervisory college. In this way, authorities overseeing subsidiaries that may not be material in the context of the entire group are provided with a mechanism for effective coordination and information sharing through regional arrangements.

There is limited publicly available information on the establishment of CMGs, Institution Specific Cross-border Cooperation Agreements, and Resolvability Assessments for the Bank of China, Mitsubishi UFJ, Sumitomo Mitsui Financial Group, or Mizuho Financial Group. References in the recently completed FSAPs for the PRC and Japan indicate that work on all three Key Attributes applicable to G-SIFIs is ongoing.
4.9 Recovery and Resolution Planning

Recovery and resolutions plans (including high level resolution strategies) should be in place for all firms that may be systemic or critical in the event of failure.

This Key Attribute is a new addition to international best practices, having come to prominence only in the aftermath of the global financial turmoil, which illustrated the practical difficulties in resolving complex institutions such as Lehman Brothers and Fortis. Some ASEAN authorities have indicated their intention to establish recovery and resolution plans for D-SIFIs, but there is generally a lack of publicly available information on the implementation of this Key Attribute.

4.10 Access to Information and Information Sharing

Jurisdictions should remove legal, regulatory or policy impediments that hinder the domestic and cross-border exchange of information – in normal times and during a crisis – necessary for recovery and resolution planning and for resolution.

There is limited publicly available information on the technical issues that may impede cross-border information exchange. Basel Core Principle assessments, where published as part of an FSAP, provide insights into this Key Attribute. With respect to Core Principle 1.6, cooperation, the recent assessment of Japan noted the need to supplement existing informal arrangements among the domestic authorities and with foreign authorities, and to intensify the exchange of information. The PRC was assessed as fully compliant with Principle 1.6, reflecting a plethora of arrangements among domestic and foreign supervisory authorities. The establishment of supervisory colleges for the regionally active Malaysian and Singaporean banks provides a good foundation for effective working relationships among the home and host supervisors within ASEAN.

5 REFORM AGENDA

Experience in the global financial turmoil reinforced the long-established view that general insolvency regimes provide an inappropriate resolution framework for financial institutions. Some of the ASEAN+3 jurisdictions, notably the Republic of Korea, Malaysia, and Singapore have recently enacted legislative changes to provide for most of the specific powers cited
in the Key Attributes. For those that do not yet have special resolution regimes, the priority focus should be on the elements required to deal with problem banks. The jurisdictions with the largest (relative to GDP) non-bank financial institutions – Japan, the Republic of Korea, Malaysia, and Singapore – already have special resolution regimes that extend beyond banks. The other ASEAN+3 jurisdictions have bank-dominated financial sectors, meaning that systemic risk is most likely to arise in the banking sector. Special resolution regimes for non-banks will be of increasing importance as the insurance and other sectors begin to grow, but need not be a top priority over the near term.

The development of a resolution regime needs to take place in the broader context of ensuring an appropriate and effective safety net and coordination mechanism for crisis management. The situations of Malaysia and Singapore illustrate the importance of aligning powers and responsibility with the institutional structure. Both countries have well-conceived safety nets and resolution regimes, but their operation would be quite different in practice. The Malaysian deposit insurer has a broad mandate and would play an active role in the decision-making process to resolve a problem institution, while in Singapore the MAS would be the primary decision-maker, with the deposit-insurer having a narrow pay-box mandate. The clear lesson for other ASEAN countries is that there are different ways to achieve the objectives of the Key Attributes, and the approach must be tailored to the specific circumstances of each country.

Cross-border resolution has not yet been a significant issue in the ASEAN+3 countries, but is likely to grow in importance as banks and other financial institutions expand within the region. ASEAN+3 countries should apply to regional institutions the approach being implemented for G-SIFIs. This entails a two pronged approach: ensuring robust domestic resolution regimes in the home and key host jurisdictions; and enhancing supervisory coordination and cooperation. The merits of institution-specific cooperation agreements, crisis management groups, and recovery and resolution plans should be carefully considered for all regionally active financial groups. In line with the Key Attributes, ASEAN+3 jurisdictions should also consider how these elements should be applied to D-SIFIs.

NOTES

2. For a summary of the global initiatives and progress to date, see Financial Stability Board (2013g).
3. See, for example, Asser (2001) and Hupkes (2000).
4. For further discussion of these overriding public policy objectives, see Brierley (2009) and Attinger (2011).
5. For a discussion of the potential conflicts and the legal principles involved in various jurisdictions, see Kern (2009).
6. This is central to EU proposals to establish effective resolution regimes. See Attinger (2011).
7. Prompt Corrective Action was introduced in 1991 by the Federal Deposit Insurance Corporation Improvement Act.
9. These examples are from Cihak and Nier (2009).
10. This is central to EU proposals to establish effective resolution regimes. See Attinger (2011).
11. Prompt Corrective Action was introduced in 1991 by the Federal Deposit Insurance Corporation Improvement Act.
13. These examples are from Cihak and Nier (2009).
14. As part of its mandate to coordinate at the international level the work of national financial authorities and international standard-setting bodies, and to develop and promote the implementation of effective regulatory, supervisory and other financial sector policies in the interest of financial stability, the FSB designates international standards and codes as key for sound financial systems and deserving of priority implementation. There are currently 14 such standards and codes. Implementation of the standards and codes is assessed during FSAP reviews and FSB Peer Reviews.
17. As part of the effort to ensure implementation of international standards, all G-20 countries plus other countries with systemically important financial systems are now subject to FSAP reviews every five years. Financial Stability Board Country Peer Reviews are conducted two to three years after FSAPs to assess a country's progress with implementation of FSAP recommendations.
26. For a summary of the German regime, see Deutsch Bundesbank (2011).
27. International Monetary Fund (2011b).
34. Viet Nam is not included in the following discussion because the June 2010 Law on Credit Institutions establishes liquidation pursuant to the general bankruptcy law as the only resolution option for an insolvent institution. The decree providing for the application of the bankruptcy law to credit institutions (No. 05.2010/ND-CP) predates...
the current Law on Credit Institutions, creating some uncertainty regarding its application. Deposit Insurance of Viet Nam is empowered to provide financial support to institutions under special control, but its resolution options are limited to liquidation in bankruptcy.

36. The information is drawn from publicly available sources, and thus lacks the detail and precision that would be obtained in a Financial Sector Stability Assessment or FSB Peer Review.
37. International Monetary Fund (2012b).
38. The Indonesian Emergency Liquidity Assistance would only be advanced by Bank Indonesia on the strength of a guarantee from government. While the Malaysian facility would not require a guarantee from government, were Bank Negara to incur a loss on the extraordinary financing facility, taxpayers would indirectly absorb the loss through reduced dividends from the central bank to government, or in an extreme case due to the need to recapitalize the central bank.
41. Data taken from the segmented reporting in the banks’ 2011 audited financial statements.
42. Ibid.

REFERENCES


International Monetary Fund (2010), ‘Resolution of cross-border banks – a proposed framework for enhanced coordination’, International Monetary Fund, Washington, DC.


International Monetary Fund (2012d), ‘People’s Republic of China: detailed
APPENDIX 12A.1  CURRENT STATUS OF IMPLEMENTATION OF THE KEY ATTRIBUTES IN ASEAN+3*  

1. Scope: The regime should cover any financial institution that could be systemically significant or critical if it fails.

<table>
<thead>
<tr>
<th>Country</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>The Companies Act applies subject to the provision that The Banking Order takes precedence over the Companies Act (Banking Order section 117). The Banking Order provides that the Autoriti Monetari Brunei Darussalam may take control of and carry on the business of a bank. The Banking Order is generally silent with respect to receivership and winding up, although section 62(5) provides that a receiver or liquidator requires the consent of the Autoriti to exercise the powers of a receiver or liquidator with respect to an institution under the control of the Autoriti, and section 60(c) provides that the Autoriti may present petition to the High Court for the winding-up of the bank by the High Court.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>The Banking Law 1999 provides for appointment of a provisional administrator by the supervisory authority, or court appointment of a liquidator.</td>
</tr>
<tr>
<td>The People's Republic of China</td>
<td>The Commercial Bank Law and Law on Banking Supervision provide resolution powers to the China Banking Regulatory Commission. The People's Bank of China is developing criteria to identify domestic SIFIs. China is home to one G-SIFI, Bank of China.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Weak banks are subject to special surveillance by Bank Indonesia. Resolution of failing banks is managed by Indonesia Deposit Insurance Corporation. Non-systemic banks are resolved using least-cost criteria. Systemic institutions should be resolved under a coordinating committee pursuant to the Financial System Safety Net Law, but this has not been enacted and the temporary regime established by Presidential Decree has lapsed.</td>
</tr>
<tr>
<td>Japan</td>
<td>The Financial Crisis Management Council (Prime Minister, Chief Cabinet Secretary, Minister for Financial Services, Ministry of Finance, Commissioner for Financial Services and Governor of the Bank of Japan) advises on the resolution of financial institutions whose failure may disrupt financial stability, and, where appropriate, seek a systemic risk exception for use of public funds for capital injections, establishing a blanket guarantee or nationalizing financial institutions. There is a well-established framework for resolution of deposit-taking institutions. Japan is home to three G-SIFIs: Mitsubishi UFJ Financial Group, Mizuho Financial Group, and Sumitomo Mitsui Financial Group.</td>
</tr>
</tbody>
</table>
Republic of Korea

The Act on the Structural Improvement of the Financial Industry, based on legislation introduced to deal with the Asian financial crisis and extensively revised in 2010, provides a broad range of resolution powers covering all types of financial institutions. The Financial Supervisory Service has extensive remedial powers to address weaknesses in solvent institutions as well as the ability to determine an institution to be insolvent, and thus subject to the provisions of the Act on the Structural Improvement of the Financial Industry. Korea Deposit Insurance Corporation is empowered to deal with insolvent deposit-taking institutions. There is a special bankruptcy regime for financial institutions established by the Act on the Structural Improvement of the Financial Industry which requires the courts to hear the view of the relevant supervisory authorities and be guided by their recommendations in the appointment of a liquidator or trustee in bankruptcy (Article 15).

Lao PDR

The Law on Commercial Banks provides for rehabilitation under the direction of a rehabilitation committee appointed by the Bank of Lao PDR (Articles 70–72) and bankruptcy (Articles 73–79). A bankruptcy order may be issued by the court subsequent to an application by the Bank of Lao PDR.

Malaysia

Once an institution is determined by Bank Negara Malaysia to be unviable, the Malaysian Deposit Insurance Agency Act provides a broad range of resolution options for both deposit taking institutions and insurance companies.

Myanmar

Financial Institutions of Myanmar Act provides for Administratorship (Chapter VII). Bankruptcy and liquidation would be subject to the Companies Act.

The Philippines

The New Central Bank Act provides that the Monetary Board of the Bangko Sentral ng Pilipinas (BSP) may take temporary managerial control of an institution by the appointment of a conservator (Section 29), and that it may appoint Philippine Deposit Insurance Corporation (PDIC) as receiver (Section 30).

Singapore

The Singapore Banking Law provides broad remedial powers to the Monetary Authority of Singapore including the power to assume control of the business of a bank (Article 50). Subject to the consent of the Minister of Finance, the Monetary Authority of Singapore may make a determination that the whole or part of the business of a bank will be compulsorily transferred to another bank when in the interest of depositors and stability of the financial system (Article 55E). Article 49FF of the Insurance Act provides parallel powers to the Monetary Authority of Singapore with respect to the resolution of insurance companies. Article 55I of the Banking Act and Article 49FJ of the Insurance Act provide
1. Scope: The regime should cover any financial institution that could be systemically significant or critical if it fails.

<table>
<thead>
<tr>
<th>Country</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>The Minister of Finance has the power to order an institution to be placed under control or withdraw the license of a bank (Commercial Bank Law). Resolution would be governed by the general insolvency law.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Chapter 8 of the Law on Credit Institutions (June 2010) provides for special control, restructuring, bankruptcy, dissolution and liquidation of credit institutions, which includes banks and non-bank credit institutions.</td>
</tr>
</tbody>
</table>

2. Resolution authority: The regime should be administered by a resolution authority (or authorities) with a statutory mandate to promote financial stability and the continued performance of critical functions.

<table>
<thead>
<tr>
<th>Country</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>While the Autoriti Monetari Brunei Darussalam may take control of and carry on the business of a bank, receivership, liquidation and winding-up would be governed by the provisions of the Companies Act. The Deposit Protection Order 2010 provided for the establishment of the Brunei Darussalam Deposit Protection Corporation, a narrow mandate 'paybox' deposit insurer. Winding up of a bank would be administered by the High Court.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Provisional administration under the supervision of the National Bank of Cambodia provides a means to take temporary control, but resolution would be the responsibility of a court appointed liquidator. The liquidation would be subject to ordinary bankruptcy proceedings (Banking Law Article 62), however a bankruptcy law is yet to be enacted.</td>
</tr>
<tr>
<td>The People’s Republic of China</td>
<td>The China Banking Regulatory Commission is empowered pursuant to the Commercial Bank Law to assume control over a bank it determines has suffered or is likely to suffer a crisis (Articles 64–68). The China Banking Regulatory Commission may revoke the license of a bank, which would lead to its...</td>
</tr>
</tbody>
</table>
liquidation under a liquidation team appointed by the Commission (Article 70). Bankruptcy proceedings may be initiated in the People’s Court, which with the approval of the China Banking Regulatory Commission, would appoint a liquidator which may be the China Banking Regulatory Commission (Article 71).

<table>
<thead>
<tr>
<th>Country</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>Indonesia Deposit Insurance Corporation manages the resolution of banks. The process for resolving systemically important banks is unclear pending enactment of the Financial System Safety Net Law.</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan has a well-developed resolution framework, coordinated in times of crisis by the Financial Crisis Management Council. Deposit Insurance Corporation of Japan has a broad range of resolution powers, which are paralleled for insurance companies by the Insurance Policyholders Protection Corporation of Japan. The regime for securities firms is more limited, and is being reviewed in light of experience elsewhere – specifically Lehman Brothers – in the global financial turmoil.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>The Financial Supervisory Service plays a central role in the resolution of failing financial institutions. Significant powers would be exercised by Presidential decree. In addition to payment of deposits in liquidation, Korea Deposit Insurance Corporation has broad powers to transfer claims to another institution, assist in a merger or provide financial assistance. There would be a need to coordinate among several authorities including the Bank of Korea, Korea Deposit Insurance Corporation, Korea Finance Corporation and government. Bankruptcy and liquidation are court administered with a special regime provided by the Act on the Structural Improvement of the Financial Industry.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>Bank of Lao PDR would oversee the liquidation committee. The Law on Bankruptcy of Enterprises applies to ‘all enterprises which are insolvent and which are located or conduct business in the Lao People’s Democratic Republic’, and thus likely would apply to an insolvent bank.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Administrator may be appointed by the Central Bank. Liquidation subject to court order and would be completed in accordance with general insolvency proceedings.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Bank Negara Malaysia has the sole authority to determine if a bank has failed, and thus transferred to the Malaysian Deposit Insurance Agency (PIDM) for resolution.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>While the New Central Bank Law and Philippine Deposit Insurance Corporation Charter provide that the BSP and PDIC should administer the resolution regime, in practice bank resolution is frequently subject to litigation.</td>
</tr>
</tbody>
</table>
2. Resolution authority: The regime should be administered by a resolution authority (or authorities) with a statutory mandate to promote financial stability and the continued performance of critical functions.

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>The Monetary Authority of Singapore plays a central role in resolution. Approval of the Minister of Finance is required for the compulsory transfer of business of a bank or insurance company. The Singapore Deposit Insurance Corporation has a narrow paybox mandate. Liquidation will be carried out under court supervision pursuant to the Companies Act and special provisions in the Insurance Act (Division 5) and Banking Act (Articles 54A).</td>
</tr>
<tr>
<td>Thailand</td>
<td>The Commercial Banking Law provides that when the Minister of Finance is of the opinion that the condition or operation of a commercial bank is such that serious damage may be caused to the public interest, the Minister may order such a commercial bank to be placed under control or order the withdrawal of its license (Section 25). Liquidation shall be carried out under the provisions of the Civil and Commercial Code relating to the liquidation of a limited liability company, except that the power and duty of the general meeting shall devolve on the Minister (Section 34).</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>State Bank of Viet Nam may place an institution under special control, which provides a means to take control of a weak institution. Bankruptcy originates from an application to open procedures submitted to the court in accordance with the Bankruptcy Law. Liquidation is governed by the Bankruptcy Law. Deposit Insurance of Viet Nam has been appointed liquidator of failed institutions.</td>
</tr>
</tbody>
</table>

3. Resolution power: The regime should provide for a broad range of resolution powers, including powers to transfer the critical functions of a failing firm to a third party; powers to convert debt instruments into equity and preserve critical functions (‘bail-in within resolution’); powers to impose a temporary stay on the exercise of termination rights under financial contracts (subject to safeguards for counterparties) and impose a moratorium on payments and on debt enforcement actions against the failing firm; and powers to achieve the orderly closure and wind-down of all or parts of the firm’s business with timely pay-out or transfer of insured deposits.
<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>Specific powers are not provided in either the Banking Order or Companies Act.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No specific powers.</td>
</tr>
<tr>
<td>People's Republic of China</td>
<td>The Commercial Bank Law and Banking Supervision Law provide broad powers for the China Banking Regulatory Commission to take over or direct a bank. Aside from the power to require a shareholder to transfer its ownership or restrict the rights of shareholders (Article 37 of the Banking Supervision Laws), there are no express provisions for the powers cited in this key attribute.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>The Indonesia Deposit Insurance Corporation has a range of resolution powers including the ability to dispose of bank assets and liabilities without debtor or creditor approval. No specific powers to convert debt to equity or impose a temporary stay on the exercise of termination rights under financial contracts or impose a moratorium on payments and debt enforcement actions.</td>
</tr>
<tr>
<td>Japan</td>
<td>The Deposit Insurance Corporation of Japan has a wide range of resolution powers including the ability to purchase equity, purchase selected assets, and provide financial assistance. The Life Insurance Policyholders Protection Corporation of Japan has similar powers, including the power to establish a bridge institution.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>The Act on the Structural Improvement of the Financial Industry provides broad powers to the Financial Services Commission with respect to an insolvent institution, including transfer of all business, transfer of contracts, and writing down equity (Article 10). Consent of the institution's board of directors or shareholders is not required (Article 14). Korea Deposit Insurance Corporation has broad powers to transfer claims to another institution, assist in a merger or provide financial assistance.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>No specific powers.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Bank Negara Malaysia has wide remedial powers with respect to viable institutions. Once an institution is determined by Bank Negara Malaysia to be non-viable, the Malaysia Deposit Insurance Corporation Act 2011 provides a wide range of resolution powers including the ability to transfer critical functions to a third party (Section 99(1)(c)). Section 109 provides for a stay in proceedings. Section 112 provides that the transfer or assignment of any agreement to another institution or bridge institution is not a default. The value of shareholdings may be written down, but there is no explicit power for conversion of debt to equity.</td>
</tr>
</tbody>
</table>
3. **Resolution power:** The regime should be provide for a broad range of resolution powers, including powers to transfer the critical functions of a failing firm to a third party; powers to convert debt instruments into equity and preserve critical functions ('bail-in within resolution'); powers to impose a temporary stay on the exercise of termination rights under financial contracts (subject to safeguards for counterparties) and impose a moratorium on payments and on debt enforcement actions against the failing firm; and powers to achieve the orderly closure and wind-down of all or parts of the firm’s business with timely pay-out or transfer of insured deposits.

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myanmar</td>
<td>Administrator has full managerial power, the powers of officers and directors are suspended. No specific provisions for the powers cited in this key attribute.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>The PDIC Charter provides broad receivership powers, but as a practical matter all bank failures have been resolved by liquidation and deposit payout. The uncertain legal environment makes other resolutions problematic.</td>
</tr>
<tr>
<td>Singapore</td>
<td>The insurance and banking laws provide for the compulsory transfer of all or part of the business when in the best interests of depositors or policyholders, or the stability of the financial system. There is also a moratorium provided on enforcement actions against the failing firm (Insurance Act Article 55 G, Banking Law Article 49 FH). There is no specific provision for conversion of debt to equity. Article 55L of the Banking Act and Article 49FM of the Insurance Act provide for the compulsory restructuring of capital including the write-down of equity.</td>
</tr>
<tr>
<td>Thailand</td>
<td>The Control Committee has power over the management of the bank. The Minister may order the withdrawal of the licence, which triggers liquidation. No specific provisions for the powers cited in this key attribute.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Special control provides a range of managerial powers, and the power to require the institution to submit an application to the courts to commence bankruptcy proceedings. (Law on Credit Institutions, Article 148). No specific provisions for the powers cited in this key attribute.</td>
</tr>
</tbody>
</table>
4. Set-off, netting, collateralization, segregation of client assets: The segregation of client assets should be effective in resolutions. Financial contracts, including netting and collateralization agreements, should be enforceable. However, entry into resolution and the exercise of any resolution powers should not in principle constitute an event that entitles any counterparty of the firm in resolution to exercise acceleration or early termination rights under such agreements provided the substantive obligations under the contract continue to be performed (as would be the case if the contracts were transferred to a sound financial firm or bridge institutions).

<table>
<thead>
<tr>
<th>Country</th>
<th>Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>No specific provisions in the Banking Order or Companies Act.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>China PRC The People’s</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Republic of China</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Japan</td>
<td>Deposit Insurance Corporation of Japan has broad powers as financial administrator of a failed financial institution including the ability to execute a business transfer agreement.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Article 14–2 of the Act on the Structural Improvement of the Financial Industry provides for the continuation of contracts transferred from an insolvent institution to a succeeding institution.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Section 112 of the Malaysian Deposit Insurance Corporation Act 2011 explicitly provides that transfer of assignment of a contract as part of the resolution process does not entitle counterparties to exercise acceleration or early termination.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Singapore</td>
<td>Article 55F of the Banking Act and Article 49FG of the Insurance Act provide that all deeds, bonds, agreements and other arrangements would continue in effect after compulsory transfer of all or part of the business of an institution.</td>
</tr>
<tr>
<td>Thailand</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>No specific provisions.</td>
</tr>
</tbody>
</table>
5. Safeguards: All creditors should receive at a minimum what they would have received in a liquidation of the firms ('no creditor worse off than in liquidation' safeguard). Resolution powers should be exercised in a way that respects the hierarchy of claims, subject to some flexibility for authorities to depart from the general principle of equal treatment of creditors of the same class where necessary to contain the potential systemic impact of a firm’s failure or to maximize the value of the benefit of all creditors as a whole. Rights to judicial review should be available for affected parties to challenge actions that are outside the legal powers of the resolution authority.

<table>
<thead>
<tr>
<th>Country</th>
<th>Legal Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>Banking Order Section 62 establishes priorities for settlement of deposit liabilities. No other specific provisions.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>People’s Republic of China</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Japan</td>
<td>No specific provisions. As a practical matter, depositors and creditor have generally been protected through restructuring.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>Law on Commercial Banking Article 78 establishes the priority of payments in bankruptcy. No other specific provisions.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>The Banking and Financial Institutions Act 1989 provides a priority claim for depositors. The Malaysian Deposit Insurance Corporation Act 2011 provides that the costs of liquidation and amounts due to government take priority over reimbursement of depositors (Section 134). No other specific provisions.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Singapore</td>
<td>Articles 55E and 55I of the Banking Act, and Articles 49FF and 49FJ of the Insurance Act, require that the Monetary Authority of Singapore have regard to the interests of the depositors and policyholders in accordance with the priority established in legislation in determining compulsory transfer of some or all of the business of the institution or its shares. There is no specific provision for the treatment of other creditors when these extraordinary resolution powers are exercised.</td>
</tr>
</tbody>
</table>
6. Funding of firms in resolution: Resolution regime should include finding mechanisms that can provide temporary financing to continue critical operations as part of the resolution of a failing firm. Such funding should be derived, or recovered, from private sources.

<table>
<thead>
<tr>
<th>Country</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>The People’s Republic of China</td>
<td>No specific provisions, but as a practical matter distressed banks have been resolved through takeover by a healthy bank or restructuring.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Emergency Liquidity Assistance (ELA) can be provided by Bank Indonesia to systemically important banks lacking the collateral for the normal short-term funding facility. It is not clear how the ELA would work in practice without enactment of the Financial System Safety Net Law. The draft law provides that ELA would be authorized by the President and advanced by Bank Indonesia pursuant to a guarantee provided by the Ministry of Finance.</td>
</tr>
<tr>
<td>Japan</td>
<td>The Deposit Insurance Corporation of Japan may provide a wide range of financial assistance including loans, purchase of assets and purchase of equity. In the case of systemically important institutions, public funds may be provided for recapitalization, a blanket guarantee or nationalizing financial institutions.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>The Act on the Structural Improvement of the Financial Industry provides that The Korea Deposit Insurance Corporation may provide financial assistance (Article 10), and government may make investments in or give support to merged financial institutions (Article 8) or any insolvent institutions (Article 12). Korea Deposit Insurance Corporation covers the life insurance and investment sectors in addition to deposit-taking. There is also a Financial Stabilization Fund established in the Korea Finance Corporation to be used to assist institutions deal with sudden changes in market conditions (Article 23–2).</td>
</tr>
</tbody>
</table>
6. Funding of firms in resolution: Resolution regime should include finding mechanisms that can provide temporary financing to continue critical operations as part of the resolution of a failing firm. Such funding should be derived, or recovered, from private sources.

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lao PDR</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>With respect to a bank likely to become unable to meet its obligations, Bank Negara Malaysia may, with the concurrence of the Minister of Finance, grant loans to the institution, purchase shares of the institution, or provide loans to another institution to purchase shares or assets of the institution (Section 78). The Deposit Insurance Corporation of Malaysia Act 2011 provides that the deposit insurer may make loans to any member institution (Section 25(2)).</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Financial Institutions Law provides that the Central Bank may provide liquidity support during Administratorship. Repayment of liquidity support a condition for termination of Administratorship (Article 61).</td>
</tr>
<tr>
<td>The Philippines</td>
<td>PDIC may provide financial assistance to banks in danger of closing (PDIC Charter, Section 17).</td>
</tr>
<tr>
<td>Singapore</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Thailand</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>The State Bank of Viet Nam may extend special loans and/or purchase shares in a credit institution subject to special control (Article 149). Deposit Insurance of Viet Nam has the power to provide financial support to institutions placed under special control, and to systemically important institutions even if not under special control.</td>
</tr>
</tbody>
</table>

7. Legal framework conditions for cross-border cooperation: Resolution regimes should empower and encourage resolution authorities wherever possible to act to achieve a cooperative solution with their foreign counterparties. Authorities should be able to give effect in their jurisdiction to resolution measure taken by a foreign resolution authority.

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No specific provisions.</td>
</tr>
</tbody>
</table>
8. Crisis Management Groups (CMGs): Home and key host authorities of all G-SIFIs should maintain CMGs with the objective of enhancing preparedness for, and facilitating the resolution of a G-SIFI.

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Singapore</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Thailand</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>No specific provisions.</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>The People’s Republic of China</td>
<td>The China Banking Regulatory Commission is the home supervisor of one G-SIFI, Bank of China. The inaugural supervisory college meeting was convened in 2011, providing a foundation for enhanced supervisory cooperation. No public information available on the establishment of a Crisis Management Group for Bank of China. FSB deadline was May 2012, six months after Bank of China’s designation as a G-SIFI.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Japan</td>
<td>No public information available on the establishment of a Crisis Management Group for Japan’s three G-SIFIs. FSB deadline was May 2012, six months designation of Mitsubishi UFJ Financial Group, Mizuho Financial Group, and Sumitomo Mitsui Financial Group as G-SIFIs.</td>
</tr>
</tbody>
</table>
8. Crisis Management Groups (CMGs): Home and key host authorities of all G-SIFIs should maintain CMGs with the objective of enhancing preparedness for, and facilitating the resolution of a G-SIFI.

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Republic of Korea</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Singapore</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Thailand</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

9. Institution-specific cross-border cooperation agreements (COAGs): COAGs should be in place between the home and relevant host authorities that need to be involved in the preparation and management of a crisis affecting a G-SIFI.

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>The People's Republic of China</td>
<td>No publicly available information. FSB deadline is May 2013, 18 months after Bank of China's designation as a G-SIFI.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Japan</td>
<td>No publicly available information. FSB deadline is May 2013, 18 months after Mitsubishi UFJ Financial Group, Mizuho Financial Group, and Sumitomo Mitsui Financial Group designated as G-SIFIs.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
10. Resolvability assessments: Resolvability assessments should be carried out for all G-SIFIs. Authorities should have appropriate powers to require the adoption of appropriate measures to ensure that a firm is resolvable under the applicable regime.

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>Not applicable. Bruneian operations are immaterial in the context of a G-SIFI.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Not applicable. Cambodia hosts no G-SIFIs</td>
</tr>
<tr>
<td>The People's Republic of China</td>
<td>No publicly available information. FSB deadline is November 2013, 24 months after Bank of China’s designation as a G-SIFI.</td>
</tr>
<tr>
<td>Indonesia.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Japan</td>
<td>No publicly available information. FSB deadline is November 2013, 24 months after designation of Mitsubishi UFJ Financial Group, Mizuho Financial Group, and Sumitomo Mitsui Financial Group as G-SIFIs.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lao PFR</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Singapore</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Thailand</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

11. Recovery and resolution planning: Recovery and resolutions plans (including high level resolution strategies) should be in place for all firms that may be systemic or critical in the event of failure.

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>No information available.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No information available.</td>
</tr>
</tbody>
</table>
11. Recovery and resolution planning: Recovery and resolutions plans (including high level resolution strategies) should be in place for all firms that may be systemic or critical in the event of failure.

<table>
<thead>
<tr>
<th>Country</th>
<th>Information Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>The People's Republic of China</td>
<td>In progress as of the June 2012 update provided to the Financial Stability Board. The Peoples’ Bank of China is drafting identification standards and an assessment framework for D-SIFIs, which will incorporate quantitative indicator-based approach and qualitative judgment to identify D-SIFIs, as well as proposing regulatory requirements, formulating recovery and resolution plan.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>No information available.</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan is in the process of establishing recovery and resolution plans for its three G-SIFISs, and is considering establishing recovery and resolution plans for additional institutions.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>No information available.</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>No information available.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>No information available.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>No information available.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>No information available.</td>
</tr>
<tr>
<td>Singapore</td>
<td>No information available.</td>
</tr>
<tr>
<td>Thailand</td>
<td>No information available.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

12. Access to information and information sharing: Jurisdictions should remove legal, regulatory or policy impediments that hinder the domestic and cross-border exchange of information – in normal times and during a crisis – necessary for recovery and resolution planning and for resolution.

<table>
<thead>
<tr>
<th>Country</th>
<th>Information Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>No information available.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No information available.</td>
</tr>
<tr>
<td>Country</td>
<td>Summary</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The People’s Republic of China</td>
<td>In 2012 China was assessed as compliant or largely compliant with the Basel Core Principles governing information sharing (1.6) and home-host relationships (24 and 25). As home supervisor of one G-SIFI, the China Banking Regulatory Commission has convened a supervisory college for Bank of China.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Lack of effective information sharing and coordination among domestic and foreign supervisory authorities (Indonesia Financial System Stability Assessment, 2010)</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>No information available.</td>
</tr>
<tr>
<td>Japan</td>
<td>In 2012 Japan was assessed as largely compliant with the Basel Core Principles governing information sharing (1.6) and home-host relationships (24 and 25). Supervisory colleges are in place for the three G-SIFIs, and it is intended to establish institution-specific information sharing agreements for these institutions.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>No information available.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>BNM hosted its first supervisory college in 2011, with colleges to be put in place for all regionally active institutions.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>No information available.</td>
</tr>
<tr>
<td>The Philippines</td>
<td>Philippine Banks Secrecy Law impedes the exchange of supervisory information.</td>
</tr>
<tr>
<td>Singapore</td>
<td>MAS hosts supervisory colleges for systemically important local financial institutions.</td>
</tr>
<tr>
<td>Thailand</td>
<td>No information available.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

*Note:* The summaries in this appendix have been prepared from publicly available information and thus do not contain the detail and precision to be expected in a Financial Sector Assessment Program or FSB Peer Review.
13. Capital structure and the issuance of corporate bonds in emerging Asia

Paul Mizen, Frank Packer, Eli Remolona and Serafeim Tsoukas

1 INTRODUCTION

What drives the issuance of local-currency bonds? This question has been prominent in the minds of policymakers in the emerging economies of Asia. In 2005, the finance ministers of the ASEAN+3 countries met in Madrid and launched a new roadmap for developing local-currency bond markets under the Asian Bond Markets Initiative. The roadmap identified four critical areas: (1) promoting the issuance of local-currency bonds; (2) fostering demand for these bonds; (3) improving the regulatory framework; and (4) improving the infrastructure. This chapter is about the first of these critical areas, that of increasing the issuance of local-currency bonds.

Siackhachanh (2012) has recently assessed the progress made under the new ABMI roadmap. She points out that the authorities in the region have encouraged bond issuance by state-owned firms, including financial institutions, utilities and airlines. By 2011, the Chinese policy banks accounted for 31 percent of the PRC’s outstanding local-currency bonds. Throughout the ASEAN+3 countries, multilateral development banks have been allowed to issue in local currencies, most notably in Malaysia and Thailand. Until the subprime mortgage crisis in 2008, there had also been some progress in the securitization of mortgages and consumer finance. Notably absent in all these developments has been the corporate bond market.

A second major initiative for bond markets in Asia has been the Asian Bond Fund 2 (ABF2). Here the initiative focused only on promoting local-currency government bond markets in the region. The initiative was driven by central banks rather than finance ministries. The central banks involved were those belonging to the Executives’ Meeting of East Asia and the Pacific, which includes the five larger ASEAN countries. The ABF2 was launched in 2005, almost at the same time as the new ABMI roadmap,
with an initial investment of US$2 billion. The money was invested in eight local-currency government bond markets. The fund has since grown to about US$5 billion. In their assessment of this initiative, Packer and Remolona (2012) show that the local-currency government bond markets in the fund made impressive strides since the fund’s inception, in part because of the removal of cross-border restrictions. The ABF2 played an ‘important catalytic role’ in these market reforms.

Unlike the ABF2’s clear focus on just the government bond markets, the new ABMI roadmap identifies its four critical areas without making a clear distinction between government bonds and corporate bonds. Yet, as suggested by Packer and Remolona (2012), the government bond markets in the larger ASEAN countries – in Indonesia, Malaysia, the Philippines, Thailand, and Singapore – have already achieved the depth and liquidity that they need to play their appropriate economic roles, such as allowing market-based financing for the government and providing a benchmark yield curve. In these places, it is mainly the corporate bond markets that have remained small and inadequate, stuck in illiquid pockets of the local-currency bond markets. For policy purposes, the question of how to increase local-currency bond issuance is really a question largely for the corporate bond markets.

In this chapter, we focus first on the relevant policy question of what drives corporate bond issuance in emerging Asia. To shed light on this question, we analyze the financing decisions of over 4600 firms in eight Asian economies – the PRC; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; and Thailand. It is these eight also in which the ABF2 invested in local-currency government bond markets. We analyze firm-level financing decisions using a probit model and assess the importance of firm characteristics for the decision to seek bond finance in local-currency and foreign-currency bonds. We find that the firm size, growth rate, leverage, and profitability are all positive influences on the decision firms make to obtain bond finance. We also distinguish between seasoned issuers and unseasoned issuers, and find seasoned issuers are more sensitive to firm characteristics than unseasoned issuers, suggesting that improvements on their balance sheet as well as greater size and growth greatly increase the probability of issuance. To take account of the varying degrees of market development across the region and over time, we draw on a BIS dataset that includes dynamic indicators of market depth based on BIS international banking, securities and derivatives statistics. Remolona (1990), for example, attributes the global rise of corporate leverage in the 1980s to the development of the junk bond market. These include indicators of the ability to hedge currency exposures, as well as the access of foreign investors.
The chapter also considers the capital structure of the firm. We measure the ratio of foreign-currency bonds outstanding to total liabilities, and making use of a Tobit regression technique to control for left-censored observations (zeros in the dependent variable) we demonstrate that firm-specific and market development variables influence capital structure. The results provide support for market depth, agency, static trade-off and risk management theories, consistent with our earlier work (see Mizen et al. 2012). When we allow for ABF2/ABMI effects on capital structure, we find support for the market depth hypothesis as the mechanism by which these reforms have influenced corporate capital structure.

The rest of the chapter is organized as follows. Section 2 discusses the literature on capital structure theories. In section 3 we describe the data sources used in this study. Section 4 then gives an extended review of the data characteristics over the period since the Asian crisis. Section 5 reports the econometric evaluation of the impact of firm characteristics and market developments for corporate capital structure in Asia. Section 6 draws together the conclusions of the chapter and offers an extended policy discussion.

2 LITERATURE REVIEW ON CAPITAL STRUCTURE

The financial theory of capital structure, which does not directly address the bond issuance decision, still offers insights into why corporations would issue bonds and what type of bonds they would be. The literature on optimal capital structure of the firm (cf. Rajan and Zingales 1995; Booth et al. 2001; Allayannis et al. 2003), generally applies to both advanced and emerging economies. In the following we briefly review the relevant literature on capital structure and the implications of different theories for the decision to issue corporate bonds, in domestic or foreign currency.

2.1 Capital Structure and the Bond Issuance Decision

2.1.1 Pecking order
Myers and Majluf (1984) argue that firms may prefer to access internal finance before external finance, and will generally exhaust the opportunities in the preferred source before extending to other sources further down the pecking order. Firms with strong earnings and profitability are less likely to need to access external markets. Recently, Allayannis et al. (2003) posited a pecking order for foreign and domestic currency debt, arguing
that foreign-currency debt complements domestic currency debt since firms use the former only after exhausting the latter; and that firms with foreign listings for equity issuance (even lower down the pecking order) are likely to have obtained as much debt as they desire.

2.1.2 Market depth
This argument that the capital structure of firms may be influenced by the depth and liquidity of markets is particularly relevant to emerging financial markets, where depth and liquidity are often not as great as in advanced markets. Allayannis et al. (2003) and Chan et al. (2011) suggest that Asian firms tend to experience lack of depth for large bond issues, and having exhausted the possibilities in local markets they issue in foreign markets. This may also explain why longer-term debt issuers use foreign markets. It may also explain why some Asian borrowers have tended to rely more on banks than bond markets.

2.1.3 Static trade-offs
Firms increase total debt, as well as local and foreign debt, in response to cost advantages. These can be due to tax treatment (Newberry 1998; Newberry and Dhaliwal 2001); the level of interest rates, which can result in ‘clientele effects’ (Kim and Stulz 1988), interest differentials between domestic and foreign markets as discussed above (see Graham and Harvey 2001; McBrady and Schill 2007; Habib and Joy 2010; Munro and Wooldridge 2010); and cost differentials can also reflect the swaps, options and derivatives markets used to hedge foreign earnings for example (see Kedia and Mozumdar 2003).

2.1.4 Agency costs
The need for monitoring raises the cost of borrowing externally, but this may be mitigated by collateral assets (for example, Demirguc-Kunt and Maksimovic 1999; Booth et al. 2001), and signaling through greater information provision (often associated with firms of greater size) and access to high-quality lenders and markets (see Ross 1977; Titman and Trueman 1986). Relationships with a preferred lender can also influence the choice of capital structure, as explained by Hoshi et al. (1990). The agency costs of debt can explain why larger, more profitable, and less risky firms may obtain better terms and be more likely to issue.

2.1.5 Risk management
Corporations may have incentives to adjust capital structure to reflect the source of their earnings or to hedge against foreign-currency exposure. A stream of foreign earnings may induce the firm to issue in foreign currency,
in order that it can use the earnings to service the debt. Management of FX risks can occur more effectively if there is a well-developed derivatives market (see Froot et al. 1993; Black and Munro 2010).

The application of the above-cited capital structure theories to the decision to issue in different currencies comes down to the question of preferences between markets owing to a pecking order, costs or convenience owing to the development of respective markets, the costs of issuance owing to static trade-offs or agency costs, or the desire to offset exchange rate risks for risk management purposes. In practice it is easier to measure the costs of issuance and the indicators of market development than it is to identify the preferences between markets in terms of a pecking order. Evidence of substitution between alternative sources of funding can provide an indication of the pecking order of finance, but it is hard to isolate the pecking order theory from theories that focus on the costs of issue, since the pecking order is established by the relative cost of obtaining finance from different sources.

In the literature, the static trade-off theory has perhaps been tested the most. The costs of issue are closely related to short-term interest rates and the differentials between rates for currency pairs. Using the short-term interest differentials as a proxy for the advantage of opportunity to issue cheaply in local currency has parallels in earlier work by Graham and Harvey (2001), McBrady and Schill (2007), and Munro and Wooldridge (2010). Their analysis points to financially sophisticated corporations taking advantage of market windows of opportunity in overseas currencies – that is, deviations from covered interest parity – to issue and then swap the obligations back into the domestic currency. While McBrady and Schill (2007) restrict their analysis to sovereign and agency issuers that have no foreign-currency cash flows to hedge, Graham and Harvey (2001) find the level of foreign interest rates to be an important factor in their survey of firms issuing foreign bonds. Cohen (2005) also finds that interest rate differentials matter for the decision to issue, suggesting a persistent role for uncovered returns. Habib and Joy (2010) consider the opportunities that arise from covered and uncovered interest parity deviations, across a range of major currencies in the period 1999–2008. They find that the scope for uncovered interest cost savings is a significant influence on the choice of issuing currency, as is the fact that a currency has low nominal rates. The phenomenon is not dependent on the maturity of the issue, but does appear to be stronger for some types of issuers such as financial issuers. A paper focusing only on firms in Australia, Hong Kong, China, the Republic of Korea, Japan, and Singapore finds that firms take advantage of deviations from covered interest parity in long-term swap markets (Black and Munro 2010).
2.2 Measures of Market Development

Our own interest in this chapter lies in exploring the influence of market development on capital structure of the firm, which is influenced indirectly by the decision to seek bond finance. The measures of market development have tended to focus on the most readily measured indicators such as market size and turnover. Chinn and Ito (2006), and many other studies, use market size and turnover as measures of market development. A major focus of the BIS report was on the determinants of liquidity, and on the policies that could enhance liquidity (BIS 2007). Time-varying policies, such as the ABMI or the ABF2, designed to increase market liquidity and turnover in bond markets, have also been taken into account in some studies (Chan et al. 2011; Mizen et al. 2012; Mizen and Tsoukas 2014). Development of the government bond market may also provide a ‘benchmark effect’ that facilitates the pricing of bonds for corporate borrowers. Siegfried et al. (2003) thus include measures of duration in government bond markets as an explanatory variable, noting that the choice of currency for long-duration bond issuance can depend on the existence of long government duration in the same currency.

In this chapter we broaden our definition of market development to include wider indicators of market depth. The first of these is the size of the foreign investor base. The decision to issue in foreign currency or abroad is often affected by the desire to widen the investor base to include foreign investors. Thus the extent to which domestic markets are open to foreign investment is a critical factor in the domestic versus offshore bond issuance decision. That withholding taxes is often a significant deterrent to investing in local markets for foreign investors, and thus can hinder the depth and liquidity of those markets, has been greatly emphasized by market participants in Asia (see Chan et al. 2011). Similarly, the same report identifies restrictions on foreign investors investing in domestic bonds as a further area for market development. Where countries impede cross-border investment, they will enhance the offshore market. These factors are relevant to the static trade-off and the risk management theories as well as the market depth hypothesis, therefore we consider how the tax incentives for foreign investors affect the depth of the market, and its development. Chan et al. (2011) document that countries in Asia have varied the application of withholding taxes over time, and this potentially has an influence on the attractiveness of local-currency bonds to foreign investors.

Another measure we use to indicate market development is the scale of the derivatives market. The development of FX markets and derivatives in emerging market economies (EMEs) usually depends on the depth and
liquidity of local debt markets as a proxy measure for the ability to swap easily in and out of the domestic and other currencies, and has also been used as a market-specific factor that might determine the extent of bond issuance. To the extent that firms can transform their interest payments on foreign (or domestic) bond issues into synthetic domestic (or foreign) payments that can be serviced by domestic (or foreign) cash flows, better developed swaps and derivatives markets could in principal enhance the growth of both foreign-currency and domestic-currency bond issues. Firms might ordinarily attempt to avoid currency mismatch by issuing debt in currencies in which they receive an income stream, but sufficient scale in the swap market may allow firms to transform their interest payments or their income into the home (or foreign) currency (see Munro and Wooldridge 2010; Habib and Joy 2010). Interestingly, Mehl and Reynaud (2005) find that in emerging economies lack of local-currency debt in derivatives markets is not intrinsic to EMEs but is related to macroeconomic policies and conditions and also the size of the investor base.

Whether these markets support foreign currency relative to domestic currency issuance is ultimately an empirical question. Geczy et al. (1997) find that the likelihood of using derivatives instruments is positively related to the exposure to FX risk and to the use of foreign-currency debt. Allayannis and Ofek (2001) find that large multinationals are indifferent as to whether use is made of foreign-currency bonds or of instruments to create synthetic foreign-currency positions. Elliot et al. (2003) find that US firms use actual debt and derivatives to hedge themselves against currency risk, while Clark and Judge (2008) find that forwards and options are used as short-term complements to foreign bond issuance, but swaps are used as substitutes. The use of this measure is possible due to the availability of detailed BIS statistics on the daily average turnover in the Triennial Survey by country, currency and reporting counterparty.

The institutional characteristics of the jurisdiction of the bond market can also affect the degree of issuance in that market. Many papers (for example, Eichengreen and Luengnaruemitchai 2004; Burger and Warnock 2006; Eichengreen et al. 2006; Siegfried et al. 2003) examine the impact of accounting standards, legal standards, political-macro risk, tax regime and creditor rights on bond market development, as well as quantity of issuance – as these qualitative factors are naturally expected to influence the costs of borrowing and issuing bonds. These characteristics vary very slowly over time and are highly correlated with other market characteristics discussed above.

In the sections that follow, we examine the significance of these market variables to establish support for the market depth hypothesis as well as other theories of capital structure outlined in this section and to under-
stand the firm-level decision to issue in different currencies. The next section describes the data and the construction of variables in further detail.

3 DATA

Our data are drawn from the bond issues, balance sheet and profit and loss information provided at the firm level for eight Asian economies. This sets our study apart from the majority of studies that do not use firm-level data. We use Bloomberg to identify all corporate bonds issued by firms in the PRC, Hong Kong, China, Indonesia, the Republic of Korea, Malaysia, the Philippines, Singapore, and Thailand during the time period 1995–2007; we gather information about the issue dates, denomination, currency, location, and maturity of the bonds measured. Our coverage of bond issues therefore embraces firms with issues in hard currencies, which are almost exclusively US-dollar denominated, and firms with local-currency denominated bonds. Although local-currency issuance first started to capture the market’s attention in the late 1990s, new issues in local currency now exceed new issues in dollars for most countries; therefore it is important to consider both the local and international currency issues in the Asian markets in order to avoid misrepresenting the scale of corporate bond issuance.

The Thomson Financial Primark database offers balance sheet and profit and loss account data for firms in the East Asian region. Our initial sample includes a total of 41,921 annual observations on 4,661 companies. We provide information on financial accounts and ratios for Asian firms operating in all sectors of the economy for the years 1995–2007. Our chosen variables are determined by the findings in the previous literature. To control for size ($SIZE_{ijt}$), we calculate the logarithm of the firm’s total assets consistent with Calomiris et al. (1995). We also measure investment over total assets ($INV A_{ijt}$) to capture the expansion of the firm, and the greater need for finance. We consider four dimensions of financial health from the balance sheet: leverage ($LEVER_{ijt}$), profitability ($PROF_{ijt}$), liquidity ($LIQUID_{ijt}$), and collateral assets in total assets ($COLL_{ijt}$). Leverage is measured as total debt over total assets indicating the firm’s overall indebtedness used previously by Cantor (1990), Pagano et al. (1998), Datta et al. (2000), and Dennis and Mihov (2003). Profitability ratio is defined as earnings before interest and taxes relative to total assets to measure a firm’s ability to generate profits, and used previously by Dennis and Mihov (2003). The liquidity ratio is measured by current assets over total liabilities, and has been used in earlier studies such as Mizzen and Tsoukas (2014).
as an indicator of the available liquid resources within the firm. We include a measure of tangible assets which proxies for the firm’s ability to pledge collateral for debt finance, measured as tangible assets over total assets, and used previously by Demirgüç-Kunt and Maksimovic (1999), Booth et al. (2001), and Mizen and Tsoukas (2014), to explain debt composition.

We include a set of market variables to capture the impact of market characteristics on the probability of bond issuance, drawn from the statistics of the BIS. First, we measure the size of the bond using the amount of total debt securities outstanding in US$ billions at the end of each year in both domestic (DDS) and international (IDS) markets, following Black and Munro (2010). Chinn and Ito (2006), Eichengreen et al. (2006), Mizen et al. (2012), and Mizen and Tsoukas (2014) also account for size of the bond market. We form a ratio of the total debt securities to GDP to indicate scale or market depth ($DEBTSEC_{jt}$).

We measure the scale of the onshore market in the following way. We employ the ratio of debt securities issued onshore to debt securities issued both onshore and offshore ($ONSRATIO_{jt}$), which is a relative measure of the scale of the onshore market; offshore issues are defined as total international debt securities minus domestic debt securities. All data are taken from the BIS statistics. The definitions of these variables are consistent with BIS (2009).

To measure the incentives to issue, we use short-term interest differentials ($SID_{jt}$) as measures of the uncovered differential creating opportunistic reasons to issue in foreign currency following Graham and Harvey (2001), McBrady and Schill (2007), Habib and Joy (2010) and Munro and Wooldridge (2010). The short-term interest differential is measured as the short-interest differential between the annual averages of local and the US nominal rates ($LCY-US$) on bonds of 3–12 month maturity in percentage points.

To measure investor demand, we use the IMF Coordinated Portfolio Investment Survey (CPIS) to 2001 and International Investment Position (IIP) before 2001 to give the foreign holdings of debt securities in US$ millions, which we then use to form a ratio of investor demand to GDP ($CPIS_{IIP_{jt}}$). Investor demand can also be significantly influenced by tax treatment, so we define a dummy for withholding tax ($WITHTAX_{jt}$) on foreign investors’ holdings of local-currency government bonds that is defined for each country and year, drawn from Chan et al. (2011).

To measure the scale of the foreign exchange swaps, derivatives, and options market in each country from the BIS Triennial Survey, we use the sum of currency swaps, FX swaps, options, outright forwards, and other derivatives based on the daily average turnover in April, by location of the counterparty, currency, and reporting country to provide an indicator of
the scale of the derivatives market ($DEriv_{t}$). We interpolate the intervening years using a semi-annual survey conducted by the BIS.

Following normal selection criteria used in the literature, we exclude companies that did not have complete records for all explanatory variables and firm-years with negative sales. We also require the firms to have at least three consecutive time-series observations. To control for the potential influence of outliers, we exclude observations in the 0.5 percent from upper and lower tails of the distribution of the regression variables. Finally, by allowing for both entry and exit, the panel has an unbalanced structure which helps mitigate potential selection and survivor bias. Our combined sample contains data for 546 firms in the PRC, 442 in Hong Kong, China, 385 in Indonesia, 910 in the Republic of Korea, 961 in Malaysia, 240 in the Philippines, 582 in Singapore, and 595 in Thailand that operated between 1995 and 2007 in a variety of sectors including manufacturing, utilities, resources, services and financials.

4 ANALYZING THE DATA

By way of preliminary analysis we show the evolution of debt securities in Figure 13.1. Total debt securities outstanding in the EMEAP region excluding Australia, New Zealand, and Japan, amounted to less than $300 billion in 1992, but by 2010 the total debt securities outstanding were over $2.5 trillion. The fivefold increase in the size of the corporate bond market, is due primarily to the expansion of domestic debt securities, although there has been an upward trend in international debt securities.

![Figure 13.1](image)

Figure 13.1  Evolution of total debt securities
Figure 13.2 shows the currency breakdown of international debt securities into local-currency and foreign-currency components. Foreign-currency bonds dominate, making up over 90 percent of the bonds outstanding before 2000. But from the 1997 Asian crisis the amount of local-currency bonds outstanding began to increase, and the share of the total rises from 2 percent to 12 percent after six years.

Tables 13.1 and 13.2 report summary statistics. In Table 13.1 we show the means and medians for the firm-specific explanatory variables; these are reported for all firms, and then for issuers and non-issuers. We report p-values from a test of equality of the means for the different types of issuers, which has a null of equality. Table 13.1 reveals that issuing firms are significantly larger and have greater investment needs than non-issuing firms. In addition, we show that bond issuers are more leveraged, less liquid, and marginally less well collateralized than non-issuers. Surprisingly they are not more profitable, however. These statistics are in line with Mizen and Tsoukas (2014).

In Table 13.2 we present the same information as well as market development indicators broken out into individual countries. Table 13.2 shows the differences between firm level and institutional variables across countries. The variables LCY and foreign currency (FCY) show that there are substantial variations in firm-level issue size across countries in local and foreign bond markets. Chinese firms make large issues, while Indonesian firms make small issues, and firms in Malaysia and the Philippines make smaller issues in local currency compared to foreign-currency issues. These features do not reflect the scale of the bond markets in these countries, just the average issue size for firms in those countries. Firms can and do
make multiple issues of bonds in any one year, and we aggregate these up to consider the total volume issued each year for every firm. In general, Indonesian and Korean firms have the largest amount of total debt, followed by the Philippines and Thailand, which is consistent with the scale of firm assets in these countries. This also explains why firms in these countries have such small ratios of foreign-currency bonds outstanding compared with total liabilities (FCY/TL), because the large firms in these countries have large debt levels and small amounts of foreign-currency bonds outstanding. As Allayannis et al. (2003) point out, lack of market depth is one explanation for the high use of domestic and foreign-currency debt not obtained through the bond market, reflected in the low values of these ratios in Table 13.3. We will use FCY/TL ratio to explore directly capital structure.

Turning to the characteristics of the firms, Indonesian and Korean firms are larger, while Malaysian and Singaporean firms are smaller, which
Table 13.2  Summary statistics by country

<table>
<thead>
<tr>
<th></th>
<th>The PRC</th>
<th>Hong Kong, China</th>
<th>Indonesia</th>
<th>The Republic of Korea</th>
<th>Malaysia</th>
<th>The Philippines</th>
<th>Singapore</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
</tr>
<tr>
<td><strong>FCY</strong></td>
<td>156.181</td>
<td>25.350</td>
<td>0.281</td>
<td>19.109</td>
<td>49.153</td>
<td>30.187</td>
<td>32.791</td>
<td>18.552</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.05)</td>
<td>(0.09)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td><strong>LCY</strong></td>
<td>77.805</td>
<td>30.107</td>
<td>1.863</td>
<td>14.561</td>
<td>4.498</td>
<td>3.183</td>
<td>15.341</td>
<td>11.746</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.01)</td>
<td>(0.001)</td>
<td>(0.02)</td>
<td>(0.01)</td>
<td>(0.02)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td><strong>LNTL</strong></td>
<td>15.03</td>
<td>14.443</td>
<td>20.001</td>
<td>19.678</td>
<td>12.923</td>
<td>15.161</td>
<td>12.245</td>
<td>15.032</td>
</tr>
<tr>
<td><strong>FCY/TL</strong></td>
<td>0.008</td>
<td>0.002</td>
<td>0.006</td>
<td>0.00005</td>
<td>0.010</td>
<td>0.017</td>
<td>0.031</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.0001)</td>
<td>(0.000)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td></td>
<td>(15.02)</td>
<td>(14.08)</td>
<td>(20.10)</td>
<td>(19.28)</td>
<td>(12.56)</td>
<td>(15.32)</td>
<td>(11.82)</td>
<td>(14.73)</td>
</tr>
<tr>
<td></td>
<td>(9)</td>
<td>(16)</td>
<td>(12)</td>
<td>(11)</td>
<td>(15)</td>
<td>(14)</td>
<td>(15)</td>
<td>(16)</td>
</tr>
<tr>
<td><strong>INV A</strong></td>
<td>0.062</td>
<td>0.052</td>
<td>0.055</td>
<td>0.061</td>
<td>0.048</td>
<td>0.047</td>
<td>0.052</td>
<td>0.060</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.03)</td>
<td>(0.04)</td>
</tr>
<tr>
<td><strong>LEVER</strong></td>
<td>0.258</td>
<td>0.192</td>
<td>0.374</td>
<td>0.281</td>
<td>0.256</td>
<td>0.222</td>
<td>0.209</td>
<td>0.343</td>
</tr>
<tr>
<td></td>
<td>(0.25)</td>
<td>(0.15)</td>
<td>(0.33)</td>
<td>(0.26)</td>
<td>(0.21)</td>
<td>(0.16)</td>
<td>(0.17)</td>
<td>(0.31)</td>
</tr>
<tr>
<td><strong>PROF</strong></td>
<td>0.067</td>
<td>0.023</td>
<td>0.016</td>
<td>0.031</td>
<td>0.032</td>
<td>0.012</td>
<td>0.045</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.04)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.04)</td>
<td>(0.02)</td>
<td>(0.05)</td>
<td>(0.04)</td>
</tr>
<tr>
<td><strong>LIQUID</strong></td>
<td>0.487</td>
<td>0.442</td>
<td>0.455</td>
<td>0.491</td>
<td>0.469</td>
<td>0.333</td>
<td>0.518</td>
<td>0.412</td>
</tr>
<tr>
<td></td>
<td>(0.49)</td>
<td>(0.41)</td>
<td>(0.45)</td>
<td>(0.49)</td>
<td>(0.47)</td>
<td>(0.28)</td>
<td>(0.53)</td>
<td>(0.41)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>COLL</strong></td>
<td>0.033</td>
<td>0.028</td>
<td>0.017</td>
<td>0.023</td>
<td>0.033</td>
<td>0.031</td>
<td>0.019</td>
<td>0.017</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.001)</td>
<td>(0.002)</td>
<td>(0.004)</td>
<td>(0.003)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.002)</td>
</tr>
<tr>
<td><strong>ONSRATIO</strong></td>
<td>0.942</td>
<td>0.554</td>
<td>0.757</td>
<td>0.898</td>
<td>0.823</td>
<td>0.603</td>
<td>0.766</td>
<td>0.771</td>
</tr>
<tr>
<td></td>
<td>(0.96)</td>
<td>(0.54)</td>
<td>(0.91)</td>
<td>(0.93)</td>
<td>(0.82)</td>
<td>(0.58)</td>
<td>(0.75)</td>
<td>(0.79)</td>
</tr>
<tr>
<td><strong>SID</strong></td>
<td>−1.387</td>
<td>0.022</td>
<td>11.945</td>
<td>2.750</td>
<td>−0.301</td>
<td>4.636</td>
<td>−2.489</td>
<td>0.789</td>
</tr>
<tr>
<td></td>
<td>(−1.51)</td>
<td>(−0.02)</td>
<td>(10.76)</td>
<td>(2.04)</td>
<td>(−0.44)</td>
<td>(4.91)</td>
<td>(−2.12)</td>
<td>(−0.36)</td>
</tr>
<tr>
<td><strong>DEBTSEC</strong></td>
<td>0.0005</td>
<td>0.045</td>
<td>0.004</td>
<td>0.005</td>
<td>0.105</td>
<td>0.074</td>
<td>0.062</td>
<td>0.019</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.04)</td>
<td>(0.002)</td>
<td>(0.004)</td>
<td>(0.09)</td>
<td>(0.08)</td>
<td>(0.05)</td>
<td>(0.01)</td>
</tr>
<tr>
<td><strong>CPIS IIP</strong></td>
<td>6.044</td>
<td>86.035</td>
<td>26.060</td>
<td>58.124</td>
<td>132.261</td>
<td>166.952</td>
<td>185.661</td>
<td>25.797</td>
</tr>
<tr>
<td></td>
<td>(5.87)</td>
<td>(92.16)</td>
<td>(24.18)</td>
<td>(52.72)</td>
<td>(104.57)</td>
<td>(168.68)</td>
<td>(167.26)</td>
<td>(26.90)</td>
</tr>
<tr>
<td><strong>DERIV</strong></td>
<td>1.14</td>
<td>4.061</td>
<td>1.710</td>
<td>10.288</td>
<td>18.531</td>
<td>12.138</td>
<td>7.446</td>
<td>2.754</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(4.36)</td>
<td>(0.20)</td>
<td>(0.68)</td>
<td>(0.19)</td>
<td>(0.05)</td>
<td>(7.52)</td>
<td>(0.30)</td>
</tr>
<tr>
<td><strong>STOCKTV R</strong></td>
<td>1.196</td>
<td>0.567</td>
<td>0.443</td>
<td>2.343</td>
<td>0.389</td>
<td>0.257</td>
<td>0.588</td>
<td>0.742</td>
</tr>
<tr>
<td></td>
<td>(1.22)</td>
<td>(0.52)</td>
<td>(0.42)</td>
<td>(2.09)</td>
<td>(0.34)</td>
<td>(0.24)</td>
<td>(0.51)</td>
<td>(0.74)</td>
</tr>
</tbody>
</table>

**Notes:**
The table reports sample means with median in parentheses.

**FCY:** the amount of foreign denominated bonds in millions of US dollars.

**LCY:** the amount of domestic bonds in millions of US dollars.

**LNTL:** the log of total liabilities.

**FCY**/**TL:** the ratio of foreign bonds to total debt.

**ONSRATIO:** onshore to total debt securitization.

**SID:** short-interest differential between local and the US nominal rates.

**DEBTSEC:** ratio of total debt securitization to GDP.

**CPIS IIP:** foreign holdings on debt.

**DERIV:** turnover of the derivatives market.

**STOCKTV R:** Stock market turnover.

Also see notes to Table 13.1.
Table 13.3  Summary statistics distinguishing between time periods

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>Issuers’ balance sheet variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>17.622</td>
<td>17.817</td>
<td>0.043</td>
</tr>
<tr>
<td></td>
<td>(17.89)</td>
<td>(18.05)</td>
<td></td>
</tr>
<tr>
<td>INV A</td>
<td>0.062</td>
<td>0.052</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
<td></td>
</tr>
<tr>
<td>LEV ER</td>
<td>0.370</td>
<td>0.305</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.35)</td>
<td>(0.30)</td>
<td></td>
</tr>
<tr>
<td>PROF</td>
<td>0.024</td>
<td>0.043</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.04)</td>
<td></td>
</tr>
<tr>
<td>LIQUID</td>
<td>0.404</td>
<td>0.401</td>
<td>0.572</td>
</tr>
<tr>
<td></td>
<td>(0.37)</td>
<td>(0.36)</td>
<td></td>
</tr>
<tr>
<td>COLL</td>
<td>0.021</td>
<td>0.031</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.006)</td>
<td></td>
</tr>
<tr>
<td><strong>Market development variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCY</td>
<td>7.362</td>
<td>32.368</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(18)</td>
<td></td>
</tr>
<tr>
<td>LCY</td>
<td>2.200</td>
<td>18.227</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.10)</td>
<td>(15)</td>
<td></td>
</tr>
<tr>
<td>LNTL</td>
<td>17.524</td>
<td>17.720</td>
<td>0.567</td>
</tr>
<tr>
<td></td>
<td>(17.74)</td>
<td>(17.99)</td>
<td></td>
</tr>
<tr>
<td>FCY=TL</td>
<td>0.003</td>
<td>0.013</td>
<td>0.408</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.001)</td>
<td></td>
</tr>
<tr>
<td>ONSRATIO</td>
<td>0.791</td>
<td>0.848</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.82)</td>
<td>(0.91)</td>
<td></td>
</tr>
<tr>
<td>SID</td>
<td>3.523</td>
<td>0.594</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(2.03)</td>
<td>(0.09)</td>
<td></td>
</tr>
<tr>
<td>DEBTSEC</td>
<td>0.042</td>
<td>0.029</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.004)</td>
<td></td>
</tr>
<tr>
<td>CPIS IIP</td>
<td>65.156</td>
<td>97.301</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(49.38)</td>
<td>(54.54)</td>
<td></td>
</tr>
<tr>
<td>DERIV</td>
<td>0.507</td>
<td>0.881</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.06)</td>
<td></td>
</tr>
<tr>
<td>STOCKTV R</td>
<td>1.207</td>
<td>1.050</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.66)</td>
<td>(0.74)</td>
<td></td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>2940</td>
<td>2168</td>
<td></td>
</tr>
</tbody>
</table>

*Notes:*
The table reports sample means with medians in parentheses. Also see notes to Tables 13.1 and 13.2.
Capital structure and the issuance of corporate bonds

may reflect the combined effect of the size of their domestic markets and their export orientation; Chinese, Korean and Thai firms had the highest investment to total asset ratios, and Malaysia and the Philippines had the lowest ratios. Indonesian and Thai firms were the most levered, but firms in Hong Kong, China and Singapore were less levered, reflecting the higher levels of equity rather than the lower levels of debt for firms in these countries.

Finally, our information on market size, liquidity and ability to hedge is informative about the differences between countries in our panel. The measure of all debt securities to GDP (DEBTSEC) shows that all Asian countries in our sample have small bond markets relative to GDP but the Chinese market is very small indeed. In relative terms, the PRC and the Republic of Korea have large onshore markets and smaller offshore markets for debt, and similarly Malaysia has a large onshore market (owing to the scale of its Islamic bond market), but Hong Kong, China has a large offshore market relative to the onshore market, as does the Philippines. Other variables reflect idiosyncratic features such as the different interest rates, investor participation and tax treatment in the countries we study.

An important issue for our chapter is the evolution over time of the firms in our sample, and the markets. Table 13.3 presents mean values for two sub-samples 1995–2003 and 2004–07. The data show that firms became significantly larger, and more profitable, and more collateralized between these two periods; they also became less levered and invested less heavily. This is evidence of the growth in Asian corporations over the period, but caution over debt levels reveals firms were inclined to use fewer borrowed resources, partly because investment declined, but also because internal resources were used in preference to bank loans (Guariglia and Mizen 2012).

Market development variables show rapid growth in foreign-currency bonds outstanding and local-currency bonds outstanding, the averages between the two periods are significantly different and much higher in the second period, as Figures 13.1 and 13.2 illustrate. The ratio of foreign currency to total liabilities did not rise significantly, indicating that both numerator and denominator increased at a similar pace. The ratio of onshore total debt securities outstanding (ONSRATIO) rose significantly, foreign investor participation (CPIS-IIP) rose, and derivatives markets expanded (DERIV), while the cost of issue (SID) fell, and stock market turnover declined (STOCKTVR).

We turn now to the question of whether these developments at the firm level and in the markets influenced the capital structure of firms in the region.
5 EMPIRICAL RESULTS

Before we consider the question of capital structure and the influence of firms’ financial health, market development and the ABF initiative on this structure, we first ask how these variables influence the decision to issue bonds in the Asian region.

5.1 Bond Issuance

We determine the probability that a firm will opt for bond finance in a given year based on our chosen explanatory variables, using a probit model of the form:

$$Pr(\text{BF}_{ijt} = 1) = F(a_0 + X_{ijt}\beta_t + Z_{jt}\gamma + \epsilon_{ijt})$$

We define the dependent variable, $\text{BF}_{ijt}$, as a dummy variable that equals 1 if firm $i$ issued a bond in domestic or foreign markets, in country $j$, in year $t$, and zero otherwise. Our specification includes firm-specific regressors, $X_{ijt}$, following Mizen and Tsoukas (2014), for firm size, growth of sales, years quoted in the stock market, leverage, long-term debt, profitability, liquid assets and collateral, all defined in the data section. These variables indicate the tendency for the firm to seek bond finance, and its ability to overcome any obstacles such as agency problems, through the strength of its balance sheet.

In Table 13.4 we report the influence of the firm-balance sheet variables added one by one, and we observe two features. First, the variables are on the whole highly significant determinants of the decision to opt for bond finance. Most variables have coefficients that reject the null of a zero value at the 1 percent level. Second, the coefficient values are of the expected sign in all cases, and are stable when additional variables are added to the probit model. Hence we find that size, which is a good proxy for the ability to overcome information asymmetries, has a positive effect on the decision to seek bond finance (cf. Calomiris et al. 1995). Larger firms are typically better placed to obtain market finance because they have name recognition, may well be listed with more detailed published accounts, and a longer track record. We also find that firms with a faster growth rate, that is, faster expansion rate measured by investment over total assets (INVA), have a greater need for finance and better prospects than firms that are growing more slowly, or not at all (see Pagano et al. 1998; Datta et al. 2000), the coefficient on INVA is positive and significant.

The financial health also determines whether a firm can obtain bond finance as noted by Leland and Pyle (1977), Myers and Majluf (1984),
Table 13.4  Bond issuance and the role of firm-specific characteristics

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>0.300***</td>
<td>0.301***</td>
<td>0.298***</td>
<td>0.297***</td>
<td>0.295***</td>
<td>0.296***</td>
</tr>
<tr>
<td></td>
<td>(43.20)</td>
<td>(42.86)</td>
<td>(42.02)</td>
<td>(41.78)</td>
<td>(38.18)</td>
<td>(38.21)</td>
</tr>
<tr>
<td>INVA</td>
<td>0.418***</td>
<td>0.456***</td>
<td>0.374***</td>
<td>0.362***</td>
<td>0.352***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4.43)</td>
<td>(4.79)</td>
<td>(3.89)</td>
<td>(3.74)</td>
<td>(3.62)</td>
<td></td>
</tr>
<tr>
<td>LEVER</td>
<td>0.512***</td>
<td>0.623***</td>
<td>0.619***</td>
<td>0.617***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(14.47)</td>
<td>(15.29)</td>
<td>(15.14)</td>
<td>(15.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROF</td>
<td>0.546***</td>
<td>0.556***</td>
<td>0.556***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(6.02)</td>
<td>(6.09)</td>
<td>(6.11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIQUID</td>
<td>−0.050</td>
<td>−0.047</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−1.02)</td>
<td>(−0.95)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLL</td>
<td>0.206</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>36471</td>
<td>35953</td>
<td>35953</td>
<td>35870</td>
<td>35870</td>
<td>35870</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.164</td>
<td>0.164</td>
<td>0.171</td>
<td>0.172</td>
<td>0.172</td>
<td>0.172</td>
</tr>
</tbody>
</table>

Notes:
The table reports the effects of the variables listed on the probability to issue bonds by a probit model. The dependent variable is a dummy equal to one if the firm is a bond issuer, and zero otherwise. All models include a time trend and country dummies. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.
Rajan (1992), and Pagano et al. (1998). We consider leverage, profitability, and liquidity in total assets as indicators of creditworthiness on the balance sheet. While high leverage can be associated with high debt, it can also be a signal of good credit standing and an indicator of a growing business (see Pagano et al. 1998; Datta et al. 2000; Dennis and Mihov 2003). Similarly, a more profitable firm is one that is more likely to obtain market finance than a less profitable one. We find the coefficients on LEVER and PROF are both positive and strongly significant, confirming creditworthiness influences access to bond finance. However, we do not find any evidence that liquidity matters. It is possible that profitability and liquidity are related, and having included a measure of profitability we would not expect to find a separate influence of liquid assets on access to market finance. In Table 13.5 the coefficient associated with the liquidity ratio (LIQUID) is insignificantly different from zero.

Finally, as a test of the agency theory of debt, we explore the importance of collateral assets as a reassurance for investors that there are tangible assets within the firm. This should positively influence access to bond finance even for unsecured bonds (see, for example, Allayannis et al. 2003). However, we find that the coefficient associated with collateral assets (COLL) is positive but insignificant, hence there is no support for the agency theory for Asian firms in our sample.

In Table 13.5 we consider whether firms that have a track record in the bond market have greater or lesser sensitivity to these variables than firms that have no track record of previous issuance. This was shown to be an important determinant of bond issuance in Mizen et al. (2012). We refer to the former types of firms as seasoned firms and the latter as unseasoned firms. We show that the probability to seek bond finance is much more sensitive to our firm-specific variables for seasoned issuers than for unseasoned variables since the coefficient values are much larger for seasoned firms. We are able to reject the null of equality for coefficients on size, investment over total assets and leverage, where in all these cases the seasoned firms show a larger response to an increase in these variables. Seasoned firms also have large point estimates of coefficients for profitability, but we cannot reject the null that the coefficients are equal for seasoned and unseasoned firms. For liquidity and collateral assets we also fail to reject the null, but in this case the coefficients are insignificant.

### 5.2 Capital Structure

In this section we address the capital structure question, with reference to the ratio of foreign-currency bonds outstanding to total liabilities, which has some similarity to the measures used by Allayannis et al. (2003) and
Table 13.5  Bond issuance for seasoned and unseasoned issuers

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE*SEAS</td>
<td>0.350***</td>
<td>0.348***</td>
<td>0.334***</td>
<td>0.333***</td>
<td>0.335***</td>
<td>0.335***</td>
</tr>
<tr>
<td></td>
<td>(49.74)</td>
<td>(48.00)</td>
<td>(42.29)</td>
<td>(41.81)</td>
<td>(35.19)</td>
<td>(34.86)</td>
</tr>
<tr>
<td>SIZE*(1-SEAS)</td>
<td>0.276***</td>
<td>0.277***</td>
<td>0.275***</td>
<td>0.275***</td>
<td>0.274***</td>
<td>0.274***</td>
</tr>
<tr>
<td></td>
<td>(39.75)</td>
<td>(39.50)</td>
<td>(38.97)</td>
<td>(38.71)</td>
<td>(35.72)</td>
<td>(35.78)</td>
</tr>
<tr>
<td>INVA*SEAS</td>
<td>1.730***</td>
<td>1.694***</td>
<td>1.596***</td>
<td>1.556***</td>
<td>1.542***</td>
<td>1.542***</td>
</tr>
<tr>
<td></td>
<td>(2.80)</td>
<td>(2.88)</td>
<td>(2.71)</td>
<td>(2.61)</td>
<td>(2.58)</td>
<td>(2.58)</td>
</tr>
<tr>
<td>INVA*(1-SEAS)</td>
<td>0.372***</td>
<td>0.415***</td>
<td>0.329***</td>
<td>0.322***</td>
<td>0.310***</td>
<td>0.310***</td>
</tr>
<tr>
<td></td>
<td>(3.84)</td>
<td>(4.27)</td>
<td>(3.34)</td>
<td>(3.25)</td>
<td>(3.11)</td>
<td>(3.11)</td>
</tr>
<tr>
<td>LEVER*SEAS</td>
<td>1.327***</td>
<td>1.502***</td>
<td>1.521***</td>
<td>1.496***</td>
<td>1.496***</td>
<td>1.496***</td>
</tr>
<tr>
<td></td>
<td>(5.07)</td>
<td>(5.93)</td>
<td>(5.91)</td>
<td>(5.83)</td>
<td>(5.83)</td>
<td>(5.83)</td>
</tr>
<tr>
<td>LEVER*(1-SEAS)</td>
<td>0.503***</td>
<td>0.619***</td>
<td>0.616***</td>
<td>0.614***</td>
<td>0.614***</td>
<td>0.614***</td>
</tr>
<tr>
<td>PROF*SEAS</td>
<td>1.065*</td>
<td>1.154**</td>
<td>1.126**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.90)</td>
<td>(2.05)</td>
<td>(2.00)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROF*(1-SEAS)</td>
<td>0.562***</td>
<td>0.566***</td>
<td>0.567***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(6.01)</td>
<td>(6.02)</td>
<td>(6.04)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIQUID*SEAS</td>
<td>−0.221</td>
<td>−0.204</td>
<td></td>
<td>−0.90</td>
<td>−0.83</td>
<td></td>
</tr>
<tr>
<td>LIQUID*(1-SEAS)</td>
<td>−0.027</td>
<td>−0.023</td>
<td></td>
<td>−0.55</td>
<td>−0.47</td>
<td></td>
</tr>
<tr>
<td>COLL*SEAS</td>
<td></td>
<td>0.943</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLL*(1-SEAS)</td>
<td></td>
<td>0.246</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Table 13.5**  (continued)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>36471</td>
<td>35953</td>
<td>35953</td>
<td>35870</td>
<td>35870</td>
<td>35870</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.193</td>
<td>0.194</td>
<td>0.202</td>
<td>0.203</td>
<td>0.203</td>
<td>0.203</td>
</tr>
</tbody>
</table>

Test for the equality of coefficients

<table>
<thead>
<tr>
<th></th>
<th>Col. 1</th>
<th>Col. 2</th>
<th>Col. 3</th>
<th>Col. 4</th>
<th>Col. 5</th>
<th>Col. 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.029</td>
<td>0.000</td>
<td>0.031</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.037</td>
<td>0.000</td>
<td>0.000</td>
<td>0.376</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.041</td>
<td>0.000</td>
<td>0.303</td>
<td>0.429</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.041</td>
<td>0.000</td>
<td>0.327</td>
<td>0.464</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.709</td>
</tr>
</tbody>
</table>

*Notes:*
The table reports the effects of the variables listed on the probability to issue bonds by a probit model. The dependent variable is a dummy equal to one if the firm is a bond issuer, and zero otherwise. All models include a time trend and country dummies. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.
Faulkender and Petersen (2006). Our intention is to explore the significance of market variables in support of different capital structure theories. Our initial observations in the descriptive statistics show that a low mean value for this ratio reveals some initial support for the market depth hypothesis, since debt issued in foreign bond markets is small in relation to firms’ total liabilities.

We employ an empirical approach to identify the relationship between firm-specific indicators, market indicators, and debt structure. A firm (indexed by $i$) either issued bonds at time $t$ or it does not issue bonds, but in this section we consider the scale of foreign-currency issues relative to total liabilities. As in Allayannis et al. (2003), we formulate a Tobit model of debt structure as

$$DS_{ijt} = X_{ijt} \beta + Z_{jt} \gamma + \epsilon_{ijt}$$

where $DS_{ijt}$ denotes the debt structure variable defined as the ratio of foreign-currency bonds to total liabilities of firm $i$ in country $j$ at time $t\left(FCY/TL_{ijt}\right)$. This is as a function of the vector of determinants of debt structure of a vector of firm-specific variables, $X_{ijt}$ and market-specific variables, $Z_{jt}$. We define the relationship between these variables with slope parameters given by the vectors $\beta$ and $\gamma$, and a normally distributed error term $\epsilon_{ijt}$.

At the next stage, we augment the above baseline model with interaction terms with a time period dummy, $ABF$, which takes the value one in years 2003 to 2007, and zero otherwise.

The choice of the explanatory variables is guided by the previous work on capital structure and access to financial markets. Following Mizen et al. (2012) and Mizen and Tsoukas (2014), we include firm size, investment over assets, profitability, liquid assets and collateral, all defined in the data section. These variables indicate a predisposition of the firm to issue in bond markets, and its ability to overcome agency problems through the strength of its balance sheet. We also add two variables to allow for the influence of market-to-book valuation of the company, as a further measure of growth opportunities that may spur the firm to access foreign bond markets, and an indicator variable that shows the firm has accessed the foreign-currency bond market previously.

We include a set of market development indicators, $Z_{jt}$, that allow for variation in debt market size, liquidity, relative scale of the onshore market, the foreign investor base, and the ability to hedge through derivatives markets. We control also for market incentives based on tax treatment of investor returns, and other opportunistic features that may make bond
issuance attractive. Our interest is in the coefficients, $\gamma$, which reveal the sensitivity of the capital structure to market development.

While market development variables are still our main concern, we would now consider the relative advantage of issuing in foreign markets based on the uncovered interest differential ($SID_{jt}$) to be more important compared with the previous model that included both domestic and foreign market issues. Similarly, higher withholding taxes ($WITHTAX_{jt}$) would be more likely to deter foreign holders of bonds issued in foreign markets, and we would expect to see a stronger effect in this model compared to the previous case, which included domestic and foreign markets. The scale of the onshore market ($ONSRATIO_{jt}$) is also likely to be important, because it measures the incentives to issue in domestic markets.

5.2.1 Firm-specific characteristics
The first two columns of Table 13.6 report the influence of firm characteristics on debt structure. We find that larger firms in terms of total assets have a higher ratio of foreign-currency bonds outstanding to total liabilities, this is to be expected since the $SIZE$ is likely to make foreign-currency issues more viable, and it is likely to give firms greater name recognition that foreign investors require. An examination of the issuers that only issued in foreign currency included Cathay Pacific and Hong Kong Mass Transit (Hong Kong, China), Daewoo and Samsung Electronics (the Republic of Korea), and Singapore Telephone (Singapore), all of which are large, and with high external visibility. Firms with higher collateral assets and those with lower profitability also have a higher ratio of foreign-currency bonds outstanding to total liabilities. The positive sign on the $COLL$ variable is consistent with the costly monitoring and agency theory, however, a negative and significant coefficient on profitability ($PROF$) is the opposite of the prediction of the pecking order theory, which argues that domestic bonds should fall relative to total liabilities as firms become more profitable. It is possible that this reveals that more profitable firms increase total liabilities by more than foreign-currency bonds outstanding. Other variables appear to have no influence on the capital structure.

5.2.2 Market indicators and debt structure
Columns 3 and 4 in Table 13.6 report the influence of market development variables after controlling for firm specific variables. The results in these columns show that the rise in the ratio of total debt securities to GDP ($DEBTSEC$) coincided with a reduction in the ratio of foreign-currency bonds outstanding to total liabilities. This can be understood with reference to Figures 13.1 and 13.2, which show that the total debt securities outstanding have risen, while the proportion of local-currency issues
Table 13.6  Debt structure

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>0.005*</td>
<td>0.005</td>
<td>0.018***</td>
<td>0.012**</td>
<td>0.015**</td>
</tr>
<tr>
<td></td>
<td>(1.71)</td>
<td>(1.48)</td>
<td>(3.06)</td>
<td>(2.18)</td>
<td>(2.56)</td>
</tr>
<tr>
<td>PROF</td>
<td>−0.153*</td>
<td>−0.154*</td>
<td>−0.313**</td>
<td>−0.275**</td>
<td>−0.310**</td>
</tr>
<tr>
<td></td>
<td>(−1.93)</td>
<td>(−1.90)</td>
<td>(−2.51)</td>
<td>(−2.20)</td>
<td>(−2.48)</td>
</tr>
<tr>
<td>LIQUID</td>
<td>−0.041</td>
<td>−0.034</td>
<td>−0.004</td>
<td>−0.062</td>
<td>−0.025</td>
</tr>
<tr>
<td></td>
<td>(−0.90)</td>
<td>(−0.71)</td>
<td>(−0.07)</td>
<td>(−1.00)</td>
<td>(−0.39)</td>
</tr>
<tr>
<td>MTBOOK</td>
<td>−0.002</td>
<td>−0.002</td>
<td>−0.0001</td>
<td>−0.002</td>
<td>−0.001</td>
</tr>
<tr>
<td></td>
<td>(−0.63)</td>
<td>(−0.62)</td>
<td>(−0.09)</td>
<td>(−0.74)</td>
<td>(−0.19)</td>
</tr>
<tr>
<td>COLL</td>
<td>0.468***</td>
<td>0.456***</td>
<td>0.308*</td>
<td>0.249</td>
<td>0.270</td>
</tr>
<tr>
<td></td>
<td>(3.32)</td>
<td>(3.21)</td>
<td>(1.81)</td>
<td>(1.47)</td>
<td>(1.58)</td>
</tr>
<tr>
<td>INV A</td>
<td>0.0001</td>
<td>0.063</td>
<td>0.021</td>
<td>0.066</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.71)</td>
<td>(0.29)</td>
<td>(0.74)</td>
<td></td>
</tr>
<tr>
<td>FCDUM</td>
<td>0.023</td>
<td>0.018</td>
<td>0.027</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.17)</td>
<td>(0.69)</td>
<td>(1.06)</td>
<td>(0.74)</td>
<td></td>
</tr>
<tr>
<td>DEBTSEC</td>
<td>−1.816**</td>
<td>1.398</td>
<td>−1.050</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−2.53)</td>
<td>(1.61)</td>
<td>(−1.30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ONSRATIO</td>
<td>−0.033</td>
<td>0.490***</td>
<td>−0.015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−0.27)</td>
<td>(3.23)</td>
<td>(−0.13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STOCKTV R</td>
<td>−0.037**</td>
<td>0.024</td>
<td>−0.013</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−2.10)</td>
<td>(1.16)</td>
<td>(−0.59)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SID</td>
<td>−0.027***</td>
<td>−0.025***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−3.89)</td>
<td>(−3.48)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPIS IIP</td>
<td>0.001***</td>
<td>0.001***</td>
<td>0.001***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.22)</td>
<td>(3.25)</td>
<td>(4.37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DERIV</td>
<td>0.003</td>
<td>−0.010</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.55)</td>
<td>(−1.47)</td>
<td>(0.30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WITHTAX</td>
<td>−0.202***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(−4.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABF</td>
<td></td>
<td></td>
<td></td>
<td>0.086*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1.87)</td>
<td></td>
</tr>
</tbody>
</table>

Observations 1699 1679 1054 1059 1054
Left-censored obs 1480 1461 882 887 882
R-squared 0.134 0.136 0.172 0.235 0.179

Notes:
The table reports Tobit estimates.
The dependent variable is the ratio of foreign-currency bonds to total liabilities.
* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.
has also grown. This has had the effect of reducing the foreign-currency bonds outstanding while the total debt securities increased. An increase in turnover in the stock market ($STOCKTV\ R$) reduced the ratio of foreign-currency bonds to total liabilities, and the short interest differential ($SID$), and scale of foreign investor participation ($CPIS-IIS$) also have the expected effects. The $SID$ measures the static trade-off from issuing in local versus foreign currency, and as it rises the advantages of local issuance decrease, making foreign issues more attractive. This should raise the ratio of foreign-currency bonds outstanding to total liabilities. The $CPIS_{IIP}$ variable has a positive effect on the dependent variable because when investor participation increases, there is an increase in the ratio of foreign-currency bonds outstanding to total liabilities. In column 4 we replace the $SID$ with the withholding tax dummy ($WITHTAX$), which is significant and strongly negative since higher withholding taxes would be more likely to deter foreign holders of bonds issued in foreign markets. This confirms the support for the static trade-off theory.

We find that these results help confirm a number of theories of capital structure including market depth, agency, static trade-off and risk management theories.

5.2.3 The effect of the ABF initiative on debt structure

The final column in Table 13.6 reports the influence of an ABF dummy that takes a value of 1 after 2005, and is otherwise zero. The dummy is added to see if there has been a scale effect on the ratio of foreign-currency bonds outstanding to total liabilities, and we find that there has been a small and significant positive increase in the ratio after the ABF2 fund was established. Most other variables retain their sign and significance when we add this variable, but the $DEBTSEC$ and $ONSRATIO$ variables lose their influence. This is indicative that the increase in the ratio due to the ABF program was largely captured in previous specifications by the increase in market depth and the development of the onshore market. It indicates that the mechanism by which the ABF2 program has influenced capital structure of firms in the EMEAP group is through fostering greater market depth in the onshore and offshore markets.

6 POLICY CONCLUSIONS

An important policy goal of governments in emerging Asia has been the development of local-currency corporate bond markets. Over the past decade, authorities in emerging Asian economies have launched a variety of projects to promote local-currency bond markets. The most significant
of these projects has been ABF2, involving 12 major central banks in the Asia-Pacific region, administered by the BIS, and the ABMI of the ASEAN+3 governments. These projects have acted as catalysts for regulatory reforms and improvements in market practices and infrastructure in the region. Restrictions on the convertibility of local currency have in many cases been gradually dismantled, and in a number of jurisdictions they are under review. Local currencies have become more convertible over the past five years. Liberalization of foreign exchange administration rules has facilitated hedging arrangements entered into by resident and non-resident investors. Meanwhile, the lowering of barriers to the development of FX swaps or derivatives markets, which allows foreign borrowers wishing to convert foreign-currency earnings into local currency to finance their projects in the home country, has been a boon to issuance in some local-currency jurisdictions. Consequently, the size of the local-currency markets has grown considerably.

The results have broad implications for various proposals under consideration for the development of corporate bond markets. Given that the market depth hypothesis is strongly confirmed for the decision to issue bonds, measures to improve the depth and liquidity in local bonds markets are likely to be effective in increasing issuance and size of the markets. More specifically, the rise in foreign investor participation has been shown to increase issuance. For those countries that still impose withholding taxes on bond interest and capital gains, one effective way to attract non-resident portfolio investors would be to lift these taxes, though this may on occasion conflict with the objective of mitigating destabilizing capital inflows. While these taxes are often considered to be important revenue measures, they are in fact revenue-neutral in the case of domestic investors (the government pays in higher interest rates what it collects in taxes) and serve only to dissuade non-resident investors. In the PRC, while the domestic market is large, it can still benefit from the diversity provided by non-resident investors. Further liberalization of foreign exchange administration rules, including the removal of impediments to the development of FX swaps or derivatives markets that allow investors to hedge currency risk, would encourage the entry of non-resident investors in many other ABF2 jurisdictions as well.

The diversification of the issuer base will further improve market depth. Non-resident issuers of corporate bonds often require currency swaps to be able to switch from the currency in which they issue to the currency that they require for investment purposes. Promoting the development of currency swaps or derivatives markets to facilitate the ability of non-resident issuers to hedge currency risk would likely encourage greater bond issuance by this class of borrowers. The empirical evidence presented in
this chapter, as well as anecdotal evidence, indicate that the creation of swap and hedging markets is extremely helpful. Non-resident issuers in the Australian dollar and New Zealand dollar markets, for example, rely heavily on currency swaps. At the same time, Asia has far fewer issuers of non-investment grade bonds than other countries. Barriers to the issuance of bonds by firms – both foreign and domestic – ranked at lower rating levels, which often take the form of simple rules, should be eased wherever feasible.

The importance of derivatives markets to bond market development also includes the trading of credit derivatives. Although the recent financial crisis has given credit default swaps a bad name, a properly supervised market in such contracts has the potential to enhance liquidity and price discovery in the corporate bond market. The PRC is already considering allowing such derivatives to be introduced. In October 2010, the National Association of Financial Market Institutional Investors announced a pilot operation for credit risk mitigation instruments in the interbank market. A healthy CDS market is likely to include an inter-dealer market, trading in CDS indices and a well-capitalized clearing house.

The tests in this chapter also suggest that market liquidity is important, and that policymakers should foster market-making in corporate bonds. Dealers in fixed-income markets should be encouraged to make markets in corporate bonds that they themselves did not underwrite. One way to do this is to pre-qualify certain issues for trading in an inter-dealer market and perhaps even for eligibility as collateral in the repo market. The criteria for pre-qualification could include issue size, availability of a credit rating and adherence to a master agreement. In Europe, the MTS system has in a short period created a liquid corporate bond market through such a market-making and pre-qualification arrangement.

Enhancing the post-trade transparency in corporate bond trading would also be helpful in expanding market liquidity. While the ex ante public revelation of price quote and trader information tends to hinder trading in fixed-income markets, the revelation of such information immediately after the trade has been shown to foster liquidity. In the US, the Trade Reporting and Compliance Engine (TRACE) introduced in 2002 by the National Association of Securities Dealers has evidently bolstered liquidity in the secondary market for corporate bonds by disseminating trade information quickly. In Malaysia, the Electronic Trading Platform (ETP) of Bank Negara Malaysia is another model for introducing real-time post-trade transparency.
ACKNOWLEDGMENTS

The first and fourth authors gratefully acknowledge the support of the Bank for International Settlements and their generous hospitality during the period in which this chapter was prepared. Tsoukas is also grateful to the Adam Smith Research Foundation and Carnegie Trust for financial support. The views expressed in this chapter are those of their authors and not necessarily the views of the BIS. Any remaining errors are our own.

NOTES

1. In a separate paper we explore in more depth the decision to issue in onshore and offshore markets (see Mizen et al. 2012).
2. The analysis of such profitable financing opportunities for firms in global markets goes back to Kim and Stulz (1988), who posit ‘clientele effects’ that only a limited supply of firms can take advantage of in any period.
3. At the same time, it may be possible for just certain key parts of the yield curve to be populated for effective pricing to occur (Chan et al. 2011).
4. Other restrictions discussed by Chan et al. (2011) include restrictions on the convertibility of local currency, restrictions on the ability of non-residents to borrow in the local currency to fund investment, as well as impediments to cross-border borrowing by residents. With regard to transactions costs and settlement, considerable progress was noted on omnibus accounts and global clearing systems integration in the case of the Republic of Korea, although similar arrangements had not been established in a number of other countries.
5. The degree to which risks in operating through swap and FX markets, such as currency risk, interest rate risk, replacement risk and rollover risk, can affect the issuance decision has also been examined by Munro and Wooldridge (2010).
6. Our definition of corporate bonds is in line with recent studies on Asian bond markets (see Gyntelberg et al. 2005) and includes all non-government long-term issues in a given currency. Characteristics of the specific bonds themselves are also used in a number of studies (for example, Munro and Wooldridge 2010), such as the issue size, credit quality, sector, maturity, coupons, and whether there are single or multiple issues. For example, Black and Munro (2010) find that firms in Australia, Hong Kong, China, the Republic of Korea, Japan and Singapore tend to issue abroad when the bonds are lower-rated by the rating agencies.
7. Other authors use a long interest differential on annual average of yields on bonds of five-to ten-year maturity in percentage points. We experimented with this variable, but found the short interest differential to be consistently more important.
8. The elimination of outliers is aimed at deleting observations reflecting particularly large mergers, extraordinary firm shocks, or coding errors. This practise is common in the literature and we employ it to ensure comparability with previous work.
9. The time dimension in the present study is 12 years, and thus the panel is generally too short to conduct structural break tests, but we have done what is standard for panel data econometrics by including a time trend for the whole sample, and then in a separate regression we include year dummies to capture any event that takes place in that year which would not be picked up by other variables. We find that year effects are non-uniform, and we can reject the null that the coefficients are equal across all time periods. This would tend to reject the hypothesis that there was a universal trend beginning at the start of the sample.
REFERENCES


PART V

Financial Supervision and Development Challenges in Asia
Introduction

Ramesh Subramaniam

It is cliché to note that financial sector development is a key ingredient for overall economic development and growth. However, there has been a long-standing debate on how critical it is for growth. Regardless, a well-designed, optimal, and effectively functioning financial sector regulatory and supervisory framework is important. Here again, what is the ‘optimal’ regulatory framework has always been under scrutiny, including most recently in the aftermath of the global financial crisis. Part V looks at various sub-sectors of the financial sector in the context of its broader development, as well as sector-related challenges in the Asia and Pacific region. This background note summarizes the key issues relating to financial supervision, with some discussion on regulation.

Table V.1 presents a qualitative assessment of the basic features of financial sector development across the sub-regions of developing Asia. The first point to note is that the region is not homogeneous. As a result, there is a fair degree of variation in financial regulatory and supervisory approaches in comparison with global standards. A one-size-fits-all approach may not work as policymakers need to balance between the development and growth of individual financial sectors vis-à-vis global requirements.

The GFC has clearly been a game changer. The excessive greed and short-sightedness of the private sector, on the one hand, and the failure of financial regulation and supervision, on the other, are now cited as the clear and fundamental causes of the crisis. As a result, while the 1990s saw major strides toward liberalization and financial innovation, the five years since the GFC have seen a radical shift in focus away from encouraging innovation providing short-term gains only for a few, toward achieving sustainable financial sector development that helps the population at large. The shift has implications for developing Asian economies, which were quite resilient in the face of the crisis, but whose growth momentum was affected by the GFC due to strong inter-linkages with developed economies.

The GFC has clearly demonstrated that rapid financial sector growth can be destabilizing. As a result, there is increasing evidence that the
**Table V.1  Stylized features of financial sectors in sub-regions of Asia and the Pacific**

<table>
<thead>
<tr>
<th>Sub-regions</th>
<th>Banks</th>
<th>Capital markets</th>
<th>Contractual savings institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Asia and Southeast Asia (large economies)</td>
<td>Medium to large banking systems, with some institutions being global players</td>
<td>Strong equity and corporate and public debt markets</td>
<td>Concerted efforts to strengthen pension and insurance industries</td>
</tr>
<tr>
<td></td>
<td>State dominance and gradualist approach to financial liberalization</td>
<td>SME and trade financing is a prominent part of the sector</td>
<td>Financial inclusion is a key reform agenda</td>
</tr>
<tr>
<td></td>
<td>Emerging support for SMEs and trade finance, and financial inclusion in general</td>
<td>Small equity markets with public debt markets emerging in a few cases</td>
<td>Very limited sector coverage</td>
</tr>
<tr>
<td>Southeast Asia (small economies)</td>
<td>Small and majority state-owned banking systems</td>
<td>Strong equity markets with corporate and public debt markets in many countries</td>
<td>Low levels of market penetration</td>
</tr>
<tr>
<td></td>
<td>Emerging support for SMEs and trade finance, and financial inclusion in general</td>
<td>Fairly good public debt markets, with corporate debt emerging in many countries</td>
<td>Gradual liberalization of insurance industries, with very initial moves to widen pension coverage</td>
</tr>
<tr>
<td>South Asia</td>
<td>Medium to large banking sectors, with state dominance (e.g., India)</td>
<td>Wide variation across the region in equity markets</td>
<td>Nascent state of development in smaller economies</td>
</tr>
<tr>
<td></td>
<td>High levels of financial exclusion, leading to strong public policies promoting inclusion</td>
<td>Fairly good public debt markets, with corporate debt emerging in many countries</td>
<td>Nascent state of development in smaller economies</td>
</tr>
<tr>
<td></td>
<td>Drive to boost manufacturing sectors leading to greater SME support</td>
<td>Nascent state of development in smaller economies</td>
<td>Nascent state of development in smaller economies</td>
</tr>
<tr>
<td>Central and West Asia</td>
<td>Nascent but developing banking sectors, with focus on increasing financial access</td>
<td>Initial development supported by a drive to</td>
<td>Administrative reforms under way in public pension systems</td>
</tr>
</tbody>
</table>
sacrifice in growth required by new capital and liquidity requirements will be negligible in relation to their impact on welfare, and that any trade-offs between growth, equity, and stability will be felt only in the short run. However, for the economies – including the developed and developing economies of Asia – that did not contribute to the crisis, financial regulatory (and supervisory) evolution should adopt a proper blend of growth, equity, and stability concerns. Key questions include: where do we strike the balance between growth and stability? And, how much growth are we willing to sacrifice in order to buy insurance against financial instability?2

Policymakers around the world, including in developing Asian economies, have always had to grapple with the issue of ensuring growth with stability. The trade-offs and inter-linkages between the two in shaping financial regulation (and hence supervision) have been recognized for some time. In addition, in the aftermath of the GFC, meeting social equity goals has become another key concern, given the significant negative impact of the crisis on peoples’ welfare. A key question being asked across developing Asia is whether equity and inclusiveness should guide the shape of financial regulation, in addition to financial stability and economic growth? The answer appears to be affirmative, particularly with respect to ensuring access of the poor to finance.3 It is also important that the poor do not lose their savings, and that the lending instruments used by the poor (or those that are not financially sophisticated) are sustainable. In fact, some countries such as India have used regulation to ensure that financial institutions

<table>
<thead>
<tr>
<th>Sub-regions</th>
<th>Banks</th>
<th>Capital markets</th>
<th>Contractual savings institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific</td>
<td>Nascent but developing banking sectors, with the challenge posed by lack of adequate scale economies</td>
<td>Very nascent</td>
<td>Very nascent</td>
</tr>
<tr>
<td></td>
<td>Strong global linkages in the case of 2–3 countries</td>
<td>corporatize and privatize state asset ownership</td>
<td>Kazakhstan has adopted the multi-pillar pension system</td>
</tr>
<tr>
<td></td>
<td>Economic diversification efforts may boost focus on SME lending</td>
<td>Lack of scale economies</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>hampering strong capital markets</td>
<td></td>
</tr>
</tbody>
</table>

Table V.1 (continued)
behave in a socially optimal manner in order to promote financial inclusion. There is also another question if regulation should be light for microfinance institutions and banks who are lending to SMEs. The consensus answer to this question is negative, in view of the general principle that regulatory arbitrage is bad practice.

How the quality and effectiveness of financial supervision shape up to compensate for accommodative regulatory approaches is also critical. Deregulation to achieve growth or social objectives needs to be accompanied by effective supervision. Here, developing Asian economies have much to learn from the experience of developed economies in dealing with the GFC's impacts. Specifically, the 'too big to fail' dictum has been proven to be mainly a passive conclusion owing to a lack of adequate resolution mechanisms for large institutions. Asia has accumulated considerable experience since the 1997–98 financial crisis. In the early 1990s, East Asia grew in a remarkable fashion, while facing instability in later years. The region responded by formulating more effective financial sector policies in response to the crisis. There appears to be a loose correlation between the pace and path of financial sector liberalization, and stability, as seen in Latin America, for instance. That region liberalized its financial sector more rapidly than East Asia, and has grown slower and seen more bouts of economic instability. Whether the model of more cautious liberalization and greater dominance of state ownership in the banking sector, and more directed public policies to achieve equity objectives, will lead to a more robust balance between growth, equity, and stability remains to be seen over the next 10–20 years. Regardless, we now have a body of rich evidence from the developed as well as the developing economies to shape the debate on policy, institutional, and regulatory architecture for the financial sector.

In summary, viewed from the perspective of developing economies, there are two specific sets of issues with respect to the articulation of new regulations for the financial sector. First, there are the implications for regulation and financial sector development in general, and the growth of specific critical segments of the sector, such as SME financing, trade financing, and long-term infrastructure investments. While there is a generally held view that developing economies will gain from any new global regulations through spillover effects, there is also serious concern that financial market growth will be stifled by new regulations. Therefore, special provisions may be needed for certain segments of the financial sector for all economies and for developing economies. The call to ring fence trade credit in the event of any disruption in global financial markets is one example.

Second, the implementation of any new regulatory norms needs to take into account the special circumstances of developing economies. Given the nascent state of the financial sector in many such countries, any new
Introduction

regulatory framework should be easy to understand and straightforward to implement. This is critical to note, since the implementation of Basel II and III has already proven to be quite challenging for a large number of developing economies because of the lack of adequately robust risk management systems, and the lack of human and other resources. These lacunae need to be addressed gradually.

The five chapters in Part V address a host of developmental and regulatory challenges facing developing Asian economies. The first (Chapter 14 by Se Hee Lim and Noel G. Reyes) deals with regulatory issues relating to a select group of countries in the ASEAN. The second (Chapter 15 by Qifeng Zhang and Josephine B. Valle-Sison) tackles the challenging issue of financial inclusion, and thereby deals more squarely with the equity versus stability versus growth issue. The third (Chapter 16 by Shigehiro Shinozaki) looks at the financing landscape for SMEs. The fourth (Chapter 17 by Arup Chatterjee) focuses on the contractual savings industry, an area where not much has been written in the context of global regulatory reforms. Finally, Chapter 18 (by Steven Beck) presents the critical role of trade finance in the aftermath of the GFC, and the role of regulatory policy in sustaining adequate provision of trade finance support.

REGULATORY APPROACHES

Given Asia’s diversity, it is important to understand the implications of global regulatory reforms on large and small economies alike. Lim and Reyes (Chapter 14) look at the impact of global regulatory reforms on five selected economies that are all members of ASEAN. While these economies do not necessarily have the most significant financial sectors in the region, they hold considerable promise in sustaining Asia’s growth performance in the coming years. They include Brunei Darussalam, Cambodia, Lao PDR, Myanmar, and Viet Nam, and are known collectively as the BCLMV countries.

From the overview presented at the beginning of this part introduction, the diversity among developing economies in the regulatory arena is quite clear. What is also clear is that policymakers in developed economies – the starting point of the crisis and home to most of the world’s largest financial institutions – have been steering the post-GFC agenda for global regulatory reforms. As a consequence, the proposed reforms reflect developed economy weaknesses and vulnerabilities.

The GFC has proved the decoupling hypothesis wrong. Financial crises and domestic regulatory policies in any part of the world do have significant external spillover effects. Although many developing economies had
relatively better macroeconomic management, strong external reserves, and well-functioning banking sectors, they were still affected either directly or indirectly by the GFC. Needless to say, post-crisis regulatory reforms will have serious implications for all countries. Hence, it is important to look at some form of cross-border equity in sharing the burden of the impact of crises and policy responses. Yet, discussions on cross-border equity are not yet prominent in international forums. Hence, the overwhelming focus on developed economy sources of weakness leaves the proposed ‘global’ regulatory reform measures open to criticism that they fail to adequately address the distinctive risks and concerns of developing economies in Asia and elsewhere.

The burden-sharing concern is more pronounced after the GFC as the impact on developing economies has been more owing to exogenous or external shocks rather than systemic weaknesses in their own financial systems, unlike the 1997–98 Asian financial crisis. In such an environment, and in countries where the financial sector is still in the early stages of development, higher prudential norms may stifle (instead of support) the development of the sector. Hence, there is a strong call for a more Asian approach to financial regulation, although there is some recognition that the global regulatory reforms will benefit developing Asian economies. Regional groupings such as ASEAN promote regulatory harmonization in order to avoid regulatory arbitrage within their membership.

With these points as background, Chapter 14 examines the impacts of the proposed global regulatory reforms in the BCLMV countries, including: (1) the resilience of financial regulatory and supervisory systems, (2) compliance with capital adequacy requirements and liquidity management guidelines under the Basel reforms, (3) macro-prudential surveillance systems, (4) transparency and disclosure, and (5) capital flow management.

FINANCIAL INCLUSION

Equity considerations have become much more important after the GFC. However, there are vast differences between the concerns of developed and developing economies. In the former, the focus is on protecting those who already have access to finance but are vulnerable. In developing countries, the concern is how to address high rates of financial exclusion. For instance, in India less than 5 percent of the recognized 600,000 habitations have a commercial bank branch. In such an environment, adoption of pro-poor policies in the financial sector can be justified. The G20 has advocated wide-ranging measures to boost financial inclusion around the world (Box V.1). There is greater recognition that countries should support credit
allocation and pricing policies that are more favorable to the poor. At the same time, there is also increasing recognition that such support should not be through regulatory forbearance or less stringent regulatory requirements for supporting pro-poor finance. In summary, adequate regulatory incentives for financial inclusion are critical, while innovation to protect the poor through financial and social safety nets should be supported.

Zhang and Valle-Sison look at these considerations relating to financial inclusion in Chapter 15. Following a presentation of the various facets of financial inclusion, they highlight the special characteristics of the objectives and principles for regulation of financial inclusion. Specifically,
the chapter discusses regulatory implications of financial inclusion with a focus on nine major areas: (1) Basel III requirements, (2) expanding financial outreach, (3) pricing of financial products and services, (4) consumer protection, (5) consumer literacy, (6) promoting inclusion through branchless banking, (7) anti-money laundering, (8) informal finance, and (9) overall regulatory architecture for financial inclusion.

**SME FINANCING**

There are various reasons as to why SME financing is inherently risky even in normal times. Banks are reluctant to lend to SMEs, and are even more reluctant to reschedule their credit. In crisis situations, SMEs typically face serious liquidity constraints as trade flows dry up as a result of negative effects cascading down from larger to smaller firms. Developed and developing economies alike put in place special measures to rejuvenate SME financing in the post-GFC period to mitigate risks and deal with information asymmetries, including targeted credit programs, subsidies, more favorable regulatory provisions, and institutional measures to promote information sharing. There is a generally held market perception that adoption of Basel II and III may constrain the flow of credit to SMEs. A challenging question is whether prudential norms for SME lending should be relaxed. The answer is generally no, given that a better alternative would be to mitigate risks through guarantees and other measures. In parallel, continuous reforms will be required to promote credit ratings for SMEs as well as to improve their financial disclosure.

Shinozaki’s chapter examines the implications of Basel III for SME financing in the region. Given the correlation between global imbalances and lending to SMEs, the chapter proposes two key policy priorities to improve financial accessibility for SMEs: greater bank lending efficiency and the design of diversified financing modalities. The chapter adopts a premise that the regulatory framework should be designed in such a way as to reduce barriers for SMEs in entering formal financial markets and accessing innovative products, as well as to smooth the cash flow of growth-oriented SMEs. The chapter presents a useful analysis of benchmarks for financial regulatory targets under five categories: (1) supply side, (2) demand side, (3) range of products and services, (4) quality of financial infrastructure, and (5) conformity with global standards and principles. Chapter 16 illustrates the critical role of improved financial infrastructure for SMEs; innovative product design, including asset-based finance, credit score-based lending, SME cluster financing, crowd funding, and exit financing; use of credit guarantee systems; and maximizing the
role of public financial institutions in supporting SMEs. Other diversified financing modalities will also be required such as increasing the role that non-bank financial institutions can play in SME financing and promoting supply chain financing, factoring, and capital market financing for SMEs (including the social capital market).

CONTRACTUAL SAVINGS

Pension and insurance coverage has in general been so low in the developing economies of the Asia and Pacific region that they have not had any systemic relevance thus far. In many parts of Asia, life insurance coverage is less than 10 percent while non-life coverage is even smaller at less than 3 percent. With large segments of the population employed in informal economic activities, pension coverage in developing Asia is much smaller than in developed economies, and in fact may be smaller than in developing Latin American economies that have the advantage of early-stage reforms in this area.

Against this context, Chatterjee’s Chapter 17 takes an innovative approach and looks at the conditions under which pension and insurance industries in the region could become systemically relevant. First and foremost from a developmental perspective, insurance and pension sectors must become more relevant by supporting the development of a broader range of financing options for healthcare, education, retirement, and climate-related disasters, and expanding access to insurance. Second, from a regulatory perspective, there are two important issues to consider. In the insurance arena, the reliance on external reinsurance coverage will most likely continue in the foreseeable future. For this, the region needs to harmonize its regulatory frameworks with international financial and regulatory standards. Further, even with the current low levels of penetration in the sector, it is conceivable that the industry can engage in non-core activities that are close to quasi-banking and speculative trading. In order to effectively deal with such a prospect, the region’s regulators need to consider a range of reform measures to revise solvency standards and governance norms.

RING FENCING TRADE FINANCE

The GFC significantly impaired access to trade finance globally, including in developing Asian economies. In a region that pioneered production networks, the disruption of trade finance considerably affected the ability
of Asian economies to supply intermediate inputs after 2008, and it hurt the real sector the most. Almost from the beginning of the GFC, there was widespread concern that the requirements of Basel II and III would have a negative impact on trade finance by increasing an institution’s cost of funds as a result of higher capital requirements. There is an emerging consensus that it is beneficial to regulate trade credit so that it is ring fenced in a period of crisis, in much the same way the integrity of payment systems is assured globally.

Beck’s chapter presents a snapshot of the impact of the GFC on trade finance. Citing recent survey evidence, Chapter 18 notes that there is a fairly significant gap in the availability of trade finance in the Asia and Pacific region, which impacts growth and job creation. The gap is partly due to regulatory requirements; besides, Basel, AML–CFT, and know-your-client requirements also make it harder for banks to lend for trade finance. The gap is further aggravated by weak banking systems and a lack of transparency in some parts of the region. Risk management units in global financial institutions become averse to the provision of trade finance guarantees in the absence of certified financial statements or of adequate regulatory oversight. Chapter 18, while arguing that prudential requirements may need to be revisited, also notes that there is a case for making the supervision of banks and financial institutions stronger in the region, particularly in many of the frontier economies.

The chapters presented in this part essentially look at how to level the playing field, in terms of developing financial sectors as well as strengthening regulatory and supervisory frameworks. On the developmental side, a key point to note is that Asia is not homogeneous, with different sub-regions displaying widely different characteristics. In this context, the equity debate that has emerged globally takes a different perspective in developing Asia, and that centers on how to boost financial inclusion. A general trend that has emerged is that some form of regulatory accommodation complemented by sound supervision will be required to increase formal financial sector coverage. Another dimension that has emerged in the region is the need for developing Asia (and other developing economies elsewhere in the world) to take a stronger role in shaping the global financial sector’s regulatory architecture. The five chapters attempt to take this debate forward by presenting the huge potential for growth, as well as articulating what the region needs to do to ensure stability with equity.
NOTES

1. The views expressed in this note are solely those of the author and do not represent the position of ADB, its management, or the Board of Governors.
2. ‘Financial regulation for growth, equity and stability in the post-crisis world’, paper by Dr D. Subbarao, former Reserve Bank of India Governor, see BIS Papers No. 62, January 2012.
3. See Sriram, Chaturvedi and Neti ‘Too big to fail versus too small to be counted’, in BIS Papers No. 62 (footnote 2) for a useful discussion on equity considerations.
14. Financial monitoring in the new ASEAN-5 countries

Se Hee Lim and Noel G. Reyes

1 INTRODUCTION

Five years after its onset, the adverse effects of the global financial crisis continue to be felt in the developed economies of the US and the Eurozone. At the same time, the developing economies of Asia have remained relatively unscathed from the entire episode. The US economy’s recovery remains anemic and its unemployment rate, while down from its peak, remains stubbornly high even after the US government and Federal Reserve have instituted extraordinary measures and pumped hundreds of billions of dollars into the economy to stabilize financial markets and boost economic activity. In the Eurozone, member economies have suffered recurrent bouts of recession characterized by sovereign debt defaults and steep credit downgrades, bank insolvencies, and record rates of joblessness.

The debilitating effects of the GFC and the overriding objective of preventing another similar crisis from occurring provided the impetus for the major economies to introduce a number of extensive regulatory reforms. These global reform measures – spearheaded by the G20, the FSB, the IMF, and the BIS – seek to bolster the resilience and stability of financial systems by addressing the vulnerabilities exposed by the crisis.

In addition, a new global financial architecture emerged in the wake of the GFC, with the FSB at its apex. Established after the G20 London summit in April 2009 as a successor to the FSF, the FSB coordinates the work of national financial authorities and international standard-setting bodies. It also develops and promotes ‘the implementation of effective regulatory, supervisory, and other financial sector policies’. Its members include all of the major economies that comprise the G20, former FSF members, and the European Commission.

The FSB coordinates proposed global reform measures, which may be broadly categorized into two main areas of interest. The first area concerns safety and soundness standards for financial firms, including
bank capital and liquidity regulations, international accounting standards, and the resolution of financial firms. These standards cover the Basel III capital framework for banks, the overhaul of the international financial reporting standards under the auspices of the International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board (FASB), and the mandatory establishment of the bank recovery and resolution regime in G20 member countries.

The second area of interest for global reform is the regulation of high-risk activities, including OTC derivatives trading, shadow banking, and high-frequency trading. These are to be covered by proposals for, respectively, central counterparty clearing for OTC derivatives, the strengthening of shadow banking oversight with focus on hedge fund activities, and the curtailment or ban of high-frequency trading.

Evident from this discussion is that policymakers in developed economies – the starting point of the crisis and home to most of the world’s largest financial institutions – have been setting the agenda for global regulatory reform. These proposed reforms understandably reflect their concerns and largely tackle the weaknesses and vulnerabilities of the developed economy financial systems that helped trigger the crisis. Yet, this focus on developed economy sources of weakness has left the proposed reform measures open to criticism that they fail to address adequately the distinctive risks and concerns of Asia’s emerging economies.

In contrast to the developed economies, for instance, emerging economies mainly suffer from instability brought about by external shocks that upset trade flows and reverse capital flows, pummeling domestic currencies and the prices of local assets in the process, and thereby stressing the economy. Furthermore, financial sector development in emerging economies remains in a nascent stage, in which the sector relies mainly on banks for financial intermediation. Placing a regulatory burden on Asia’s financial sector, either prematurely or heavy-handedly, could constrain the growth of emerging economies at a crucial stage of their development.

There are those who argue that the reform agenda should be enlarged to accommodate the Asian view. Others argue that implementation of the proposed reforms, even as they relate largely to advanced economies and their sophisticated markets, will still benefit Asia’s emerging economies and embryonic markets since these reforms serve the purpose of enhancing financial stability, preventing financial crises, and providing guidance to Asian policymakers with respect to best practices. The last point is especially relevant to the regional integration initiatives of the ASEAN, which require the harmonization of regulatory regimes across the region in order to avoid the risk of regulatory arbitrage. In addition, implementation of these reforms would help attract foreign investors who seek the
presence of these measures to mitigate investment risks. The ultimate aim would be to wean the region from relying too much on capital inflows by developing capital markets and financial systems. However, the patent reality is that the region will remain reliant on these foreign inflows for the time being.

With these contentious points in mind, this chapter seeks to study the impact of global regulatory reforms on the five newest members of ASEAN: Brunei Darussalam, Cambodia, the Lao PDR, Myanmar, and Viet Nam (known collectively as the BCLMV countries). In assessing the impact of such reforms, this chapter examines a number of key development issues in the BCLMV countries, including: (1) the resilience of financial regulatory and supervisory systems, (2) compliance with capital adequacy requirements and liquidity management guidelines under the Basel reforms, (3) macro-prudential surveillance systems, (4) transparency and disclosure, and (5) capital flow management.

Face-to-face interviews were conducted with officials from the five countries’ monetary authorities, market regulators, and stock exchanges. Interviewees were emailed a set of questions in advance along with a survey questionnaire based on the principles of corporate governance as determined by the Organisation for Economic Co-operation and Development (OECD) and the BIS.

Most research on financial development and reforms has focused on the more developed or larger ASEAN economies and has generally neglected the five newer members.1 This study hopes to break new ground by focusing on the BCLMV countries and the status of their financial development and reform programs.

The relevance of the proposed global financial reform measures is particularly acute for these five developing economies, one of which, Brunei Darussalam, is also an oil-exporting country. Their financial sectors lag the rest of the region in terms of development, with banks functioning as the main financial intermediaries that generally offer only the traditional products and services of deposit-taking and lending. The looming global banking reforms, on the other hand, pertain to more advanced financial systems.

In addition to the relevance of global financial reform, another factor considered by this study is the impending economic integration of the ASEAN region by 2015.

The remainder of this chapter is structured as follows. Section 2 discusses issues related to BCLMV countries and the AEC. Section 3 analyzes issues related to the diversity of the BCLMV countries. Section 4 deals with various key development issues and indicators. Finally, section 5 summarizes and offers some recommendations.
2 BCLMV COUNTRIES AND THE ASEAN ECONOMIC COMMUNITY

An overarching concern is the possibility that the BCLMV countries’ financial development will continue to lag the rest of the region, which is currently gearing up for the accelerated establishment of the AEC by 2015. Upon its official launch, the ten-country integrated region will cover 4.46 million square kilometers, with a combined population of 600 million and a combined nominal GDP of more than US$2 trillion.

The official launch of the AEC has been moved forward from its original date. During the Thirteenth ASEAN Summit, on 20 November 2007 in Singapore, ASEAN leaders agreed to move from 2020 to 2015 the establishment of the AEC in the hope of accelerating the economic integration of the region. The ASEAN leaders adopted the ASEAN Economic Community Blueprint (hereafter AEC Blueprint) in 2008 (ASEAN 2008) to serve as the master plan for the formation of the AEC.

The community’s areas of cooperation include human resource development and capacity building, recognition of professional qualifications, closer consultation on macroeconomic and financial policies, trade financing measures, enhanced infrastructure and communication connectivity, development of electronic transactions through e-ASEAN, integrated industries across the region to promote regional sourcing, and enhanced private sector involvement in the establishment of the AEC.

The AEC will transform the ASEAN into a region ‘with free movement of goods, services, investment, skilled labor, and freer flow of capital’.

With regard to the ‘freer flow of capital’, the AEC Blueprint calls for strengthening ASEAN capital market development and integration, and allowing greater capital mobility in the region.

To achieve the goal of capital market integration, the planned policy actions include greater harmonization of standards for debt securities, disclosure requirements, and distribution rules; cross-recognition of market professionals; greater flexibility in language and the governing legal requirements for securities issuance; enhanced withholding tax structures to promote the broadening of the investor base in ASEAN debt issuance; and the establishment of exchange and debt market linkages.

To allow for greater capital mobility, the blueprint calls for removal or relaxation of restrictions on current account transactions to facilitate the flow of payments and transfers for current account transactions. With regard to capital flows, the blueprint supports FDI and initiatives to promote capital market development.

Not all ten of ASEAN’s members will be ready to implement these policy actions by 2015. The BCLMV countries, in particular, need to catch
up with other ASEAN members in terms of financial sector and capital market development, as well as the adoption of global reform measures. The ASEAN’s leaders recognize the different levels of development among its members, which ‘require some flexibility as ASEAN moves towards a more integrated and interdependent future’. With this in mind, the *AEC Blueprint* intends to ‘address the development divide and accelerate integration of Cambodia, Lao PDR, Myanmar, and Viet Nam (CLMV) through the Initiative for ASEAN Integration and other regional initiatives’ (ASEAN 2008, p. 5).

The Initiative for ASEAN Integration, launched in November 2000, will be enhanced to serve as the platform for identifying and implementing technical assistance and capacity-building programs for both the public and private sectors in ASEAN member countries, particularly in CLMV countries and among other sub-regional arrangements.

3 DIVERSITY OF THE BCLMV COUNTRIES

Any comparative discussion of the need for implementing economic reforms in the BCLMV countries must be cognizant of the extensive differences and diversity in terms of income, stage of development, political and economic structures, culture, and demographics, among other characteristics (see Table 14.1). These five countries’ political frameworks, for example, range from an absolute monarchy to communist states to a parliamentary system. Their per capita income levels range from as low as about US$120 to more than US$30000. A number of commonalities also exist, such as the underdevelopment of the financial sector and undercapitalization of banks, less developed to undeveloped capital markets, weak legal and regulatory enforcement, and wide gaps in human capital capacities.

The *AEC Blueprint* clearly recognizes these differences and makes the following concession: ‘Liberalization measures [in] the financial services sector should allow members to ensure orderly financial sector development and maintenance of financial and socio-economic stability’ (ASEAN 2008, p. 11). Specifically, it sets guidelines for member countries in pacing their liberalization measures, providing the ‘ASEAN minus X formula, where countries that are ready to liberalize can proceed first and be joined by others later’. It added that the ‘process of liberalization should take place with due respect for national policy objectives and the level of economic and financial sector development of the individual members’ (ASEAN 2008, p.12).

In the same vein, a joint ADB–ASEAN publication in 2013 proposed
Financial monitoring in the new ASEAN-5 countries

an alternative approach that would ‘allow financial integration in different member states to proceed at different speeds in order to build regional financial market infrastructure and harmonize institutions, market practices, and policies, and thus lay the foundation for regional financial integration’. The study sets two different frameworks for capital account liberalization and ASEAN-wide financial integration: one for the five original members (ASEAN-5) and another for the five newcomers (BCLMV).

3.1 Brunei Darussalam

The oil and gas sector dominates Brunei Darussalam’s economy, with crude oil and natural gas production accounting for over half of GDP and more than 90 percent of exports, while employing less than 3 percent of the country’s workforce. Revenues from this sector also comprise most of the country’s GDP per capita of about US$31,000 – one of the highest in Asia and the second-highest among ASEAN nations – and finances an extensive social welfare program under which the government provides for all medical services, offers free education through the university level, and subsidizes rice and housing for all of its citizens. The government is also the country’s largest employer. In early 2013, there were proposals at the Legislative Council to shorten the probationary period of service from five years to three years for civil servants being paid on a daily basis to become paid on a monthly basis. The government employs nearly 50,000 regular employees (excluding probationary workers), in comparison with private sector employment of about 121,000 in all industries. Another major recent proposal was the introduction of a minimum wage law.

Brunei Darussalam operates a currency board system with the Brunei Darussalam dollar (BND) pegged to the Singapore dollar (SGD) at the rate of 1:1. The country has a low tariff regime and no capital gains or personal income taxes. Under its Investment Incentives Order 2001, prospective investors enjoy a wide range of incentives, including up to 20 years’ exemption from corporate taxes; exemption from import duties on raw material, machinery, equipment, component parts, accessories and building structures; and adjustment of capital allowance and losses.

On the other hand, the rest of the domestic economy lags in terms of development and progress. Economic growth has also been a laggard, averaging around 0.2 percent over the past five years, which is well below the 1.8 percent average rate at which Brunei Darussalam’s population is growing. The country’s GDP growth took a hit during the GFC as the resulting drop in world crude oil prices and slump in oil demand pushed the economy into a long recession.

Excessive reliance on the oil and gas sector as well as the steady depletion
of these natural resource reserves has become a major concern for Brunei Darussalam’s leaders. The Brunei Darussalam Long-Term Development Plan: Wawasan Brunei 2035 (Government of Brunei Darussalam, Brunei Economic Development Board n.d.) articulated the key development issue facing the country:

Although oil and gas resources have contributed much to the nation’s prosperity, economic growth has, on the whole, not kept pace with population growth. The public sector that is the main employer of the majority of the citizens and residents can no longer adequately absorb the growing numbers of young people wishing to enter the work force each year. There is a widening gap between the expectations and capabilities of the nation’s youth and the employment opportunities currently being created.

3.2 Cambodia

Cambodia remains largely a dollarized economy, a system that came about as a result of historical circumstances rather than a conscious decision by the country’s leaders.5 The use of US dollars in Cambodia had its genesis during the Khmer Rouge era (1975–79) when all barter, private commercial activity, private ownership, means of exchange, and stores of value were prohibited and punishable by death. During this period, Cambodia was without a monetary system and without money. In 1980, the riel was reintroduced but it did not receive wide acceptance by the public, which preferred other stores of value and means of payment such as the US dollar, gold, and even rice.

Gross domestic product growth has averaged more than 6 percent per year from 2010 to 2012, driven largely by garment manufacturing, construction, agriculture, and tourism. The garment industry employs more than 335,000 people and accounts for more than 75 percent of Cambodia’s total exports. Oil deposits were discovered in 2005 but remain unexploited. Investors are also looking to exploit mining opportunities that include deposits of bauxite, gold, iron, and gems. Lastly, the tourism industry remains a growth sector, with foreign visitor arrivals surpassing 2 million per year.

Cambodia, however, remains one of the poorest countries in Asia, with GDP per capita below US$900 and with about 4 million people living on less than US$1.25 per day and 37 percent of Cambodian children under the age of five suffering from chronic malnutrition. More than 50 percent of the population is less than 25 years old. The population lacks education and productive skills, particularly in the impoverished countryside, which also lacks basic infrastructure.

More than half of the government budget comes from bilateral and
multilateral donors, which have tied foreign aid to government passage of economic reform measures. The country’s economy was hit by the GFC, with its critically important garment industry suffering a 23 percent drop in exports to the US and Europe. Gross domestic product growth slumped to 0.1 percent in 2009 before recovering to more than 7 percent growth in 2011. It suffered no direct impact from the crisis in its financial sector and markets, however. The main lessons from the GFC, as far as the Government of Cambodia is concerned, include the need for less intervention in the markets and the need to bestow more power with the securities regulator.

3.3 Lao PDR

Lao PDR is in a transition period where the government is in the process of modernizing the economy. This endeavor is being supported by the multilaterals, with experts reckoning the process might take 10–15 years.

Since the Communist Party started decentralizing control and encouraging private enterprise, the country’s GDP, while coming from a very low base, has grown an average of 6 percent from 1998 to 2008, and more than 7 percent from 2008 to 2012. Lao PDR joined the ASEAN in 1997 and the World Trade Organization (WTO) in 2013, and gained Normal Trade Relations status with the US in 2004.

Its economy continues to rely on subsistence agriculture, dominated by rice cultivation in lowland areas, which accounts for about 30 percent of GDP and 75 percent of total employment. Its landlocked economy also relies on investment from and trade with its neighbors – the PRC, Thailand, and Viet Nam. The country’s water resources and mountainous terrain enable it to produce and export large quantities of hydroelectric energy to Thailand and Viet Nam. Tourism is the fastest-growing industry in the country.

Experts note complications in Lao PDR’s political economy given that the country is governed under a one-party system. The politburo, comprising the leadership of the Peoples’ Revolutionary Party, sets policies, which the government bureaucracy then implements. The current hierarchical system also places the Ministry of Planning above the Ministry of Finance, which in turn supervises the Bank of Lao (BOL).

3.4 Myanmar

Myanmar remains a country in profound transition, in terms of its political economy and economic structure. The country embarked on a path of political and economic reforms in 2011, paving the way for developing its large potential. According to an ADB study in 2012, Myanmar could
follow Asia’s fast-growing economies and expand at 7–8 percent per year, become a middle income nation, and triple its per capita income by 2030 if it can surmount substantial development challenges by further implementing across-the-board reforms (ADB 2012).

In August 2012, the ADB stepped up its presence in Myanmar by assigning more staff to extended missions in the country. On 28 January 2013, the ADB resumed its loan operations in Myanmar. The US$512 million loan, the first from the ADB in almost 30 years, was made possible through bridge financing provided to the government by the Japan Bank for International Cooperation (JBIC). The loan will be used to finalize arrears clearance and sustain government efforts to revamp the national budget process and modernize tax administration. It will also support trade policy reforms and capacity development, and improve the investment climate and facilitate SME development.

Myanmar’s development and poverty reduction challenges remain substantial and require considerable external assistance. At the same time, Myanmar faces enormous development challenges following a long period without comprehensive assistance from the international community. Strong and timely financial commitments are crucial to creating a foundation for inclusive economic development and maintaining the reform momentum in Myanmar.

Much still needs to be done, however, as the domestic economy continues to suffer from pervasive government controls, inefficient economic policies, corruption, and rural poverty. About 32 percent of the population lives in poverty and Myanmar is the poorest country in Southeast Asia, with GDP per capita of just over US$120.

Meanwhile, political parties have begun gearing up for the next round of general elections in 2015, potentially ushering in renewed political uncertainties.

### 3.5 Viet Nam

Among the BCLMV countries, Viet Nam has the most developed financial sector, making it the model of transitional economic development among its less-developed neighbors. Since its doi moi (renovation) policy was launched in 1986, the country has been transitioning from a centrally planned economy to a socialist-oriented market economy.

Agriculture’s share of economic output shrank from about 25 percent in 2000 to less than 22 percent in 2012, while industry’s share increased from 36 percent to nearly 41 percent in the same period. State-owned enterprises account for roughly 40 percent of GDP.

The GFC hurt Viet Nam’s export-oriented economy, with GDP in
2009–12 growing less per year than the 7 percent per annum average achieved in the prior decade. Between 2008 and 2011, Viet Nam’s managed currency, the dong, was devalued by more than 20 percent.

Government economic policy in recent years has swung back and forth from a growth-oriented strategy to one that focuses on fostering macroeconomic stability. At the start of 2011, the government veered away from growth stimulation, which had stoked inflation to double-digit rates, and instead tightened monetary and fiscal control to stabilize the economy. The following year the government unveiled a broad ‘three pillar’ economic reform program involving the restructuring of public investment, SOEs, and the banking sector. Viet Nam’s economy continues to face challenges from an undercapitalized banking sector. Non-performing loans (NPLs) weigh heavily on banks and businesses. In September 2012, the official bad debt ratio climbed to 8.8 percent, although some financial analysts believe it could be as high as 15 percent.

4 THE KEY DEVELOPMENT ISSUES

4.1 Financial Regulatory and Supervisory System

The financial system consists of institutions, markets, laws, regulations, and practices through which securities are traded, interest rates determined, and financial services produced and delivered. Markets – consisting of a market for short-term funds (money market) and another for long-term funds (capital market) – channel loanable and investible funds to those who demand them and are willing to pay the cost. Institutions, on the other hand, consist of banks, insurers, finance and investment companies, and other financial intermediaries. Atop these markets and institutions are government regulators, whose main functions include preserving the safety of the public’s funds, promoting public confidence in the financial system, and supporting the stability of markets and the economy, among others. The standard structure for government regulation calls for three independent agencies to oversee the banking system, the capital markets, and the insurance sector. A few developed economies have merged two or more of these functions under one agency. In the underdeveloped financial systems of the BCLMV countries, however, one or two of these essential agencies are either non-existent or only at their nascent stages as new laws are being enacted and new rules and regulations are being promulgated to create them as quickly as possible.

Table 14.1 summarizes the financial regulatory and supervisory systems of the BCLMV countries.
### Table 14.1 Financial regulatory systems of BCLMV countries

<table>
<thead>
<tr>
<th>Regulator/supervisor</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>Established 1 January 2011 under AMBD Order, 2010. AMBD administers and enforces: Banking Order, 2006; Islamic Banking Order, 2008; International Banking Order, 2000; Finance Companies Act, Chapter 89; Hire Purchase Order, 2006; Pawnbrokers Order, 2002; and Money-Changing and Remittance Businesses Act, Chapter 174</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Established in 1954 Manages monetary and exchange policies, regulates banks and financial institutions, and manages the national currency, the riel</td>
</tr>
<tr>
<td>Laos PDR</td>
<td>Inaugurated in April 2009 under Issuance and Trading of Non-Government Securities (Preah Reach Kram No NS/RKM/1007/028) Regulator managing, supervising, and developing the securities sector in Cambodia Minister of Economy and Finance serves as the SECC Chairman</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Officially founded in 1988, the bank’s charter was adopted by the Law No. 05/NA, dated 14 October 1995, with the bank equivalent to a ministry in rank Supervises the Lao Securities Exchange (LSX) SECO and LSX remain BOL units</td>
</tr>
<tr>
<td></td>
<td>Created under the Central Bank of Myanmar Law (1990), which makes it responsible for financial stability and supervision of the financial sector in Myanmar Currently under the Ministry of Finance and Revenue New law to grant CBM independence under parliament debate</td>
</tr>
</tbody>
</table>
Financial monitoring in the new ASEAN-5 countries

Brunei Darussalam
The Authoriti Monetari Brunei Darussalam (AMBD) – established on 1 January 2011 with the introduction of AMBD Order, 2010 – is a corporate body acting as the central bank of Brunei Darussalam and undertaking core functions, including the formulation and implementation of monetary policy, the regulation and supervision of financial institutions, and currency management. The adoption of the currency board system, however, negated the monetary policy functions of the AMBD.

In its supervision and regulation of banks and finance companies, AMBD administers and enforces the following laws: Banking Order, 2006; Islamic Banking Order, 2008; International Banking Order, 2000; Finance Companies Act, Chapter 89; Hire Purchase Order, 2006; Pawnbrokers Order, 2002; and Money-Changing and Remittance Businesses Act, Chapter 174.

As part of its functions, in March 2013, the AMBD imposed floors and ceilings on banks’ deposit and lending rates. Banks cannot charge more than 4.5 percent on residential property loans, between 5.0 percent and 5.25 percent on consumer loans (excluding credit cards), 6.0 percent on corporate loans, 7.5 percent on salary and pension loans, and between 7.725 percent and 7.75 percent on new vehicle loans. The minimum rates on savings were set at 0.15 percent and between 0.20 percent and 0.75 percent for 1- and 12-month time deposits, respectively. The monetary authority reckoned that the market mechanism failed to reflect the costs of credit and funds because of the small number of players in the banking industry. Operating in the country are a total of nine banks, including the trust fund, six foreign banks (three regional and three international banks), two Islamic banks, and one private indigenous bank.
The banks’ gross NPL ratio had previously averaged about 9 percent of total loans, with a higher ratio of 12.3 percent for domestic banks. More recently, AMBD officials disclosed that the banking industry’s gross NPLs had exceeded 10 percent. After provisioning, net NPLs were placed below 2 percent, as the AMBD mandated banks to fully write off their ‘legacy loans’. Non-performing loans primarily consist of personal loans (including credit cards), which account for roughly 40 percent of total banking industry loans.

The current priorities of the central bank are to enhance the national payments system, set up a trade information bureau, and establish a deposit insurance scheme under the Ministry of Finance.

Cambodia
The National Bank of Cambodia (NBC), established in 1954, is the country’s central bank and, as such, manages monetary and exchange policies; regulates banks and financial institutions; and manages the national currency, the riel.

In 2009, the NBC responded to the GFC by raising reserve requirements to 16 percent from 8 percent before the crisis, but it has since reduced this to 12.5 percent. Liquidity is maintained at 50 percent of net worth. Local banks have no access to investments; instead, the central bank ‘invests prudentially for them’ using international reserves of US$3.4 billion.

To coordinate the functions of the fiscal and monetary authorities, the heads of the Ministry of Economy and Finance (MEF) and NBC sit as chair and vice-chair, respectively, of the Economic and Financial Policy Committee, which meets on an ad hoc basis. The Supreme National Economic Council, a think tank for the government under the office of the Prime Minister, aids the government in formulating public policies concerning macroeconomic and sectoral issues.

The NBC’s priority capacity-building efforts focus on the following: ASEAN integration, mainly with respect to the 2015 deadline for implementation of the AEC; development of capital account monitoring; development of effective monetary policy (open market operations and benchmark interest rates); banking supervision and regulation (onsite and offsite); strengthened payments system; and a modern information system.

The Securities and Exchange Commission of Cambodia (SECC) was inaugurated in April 2009 under the law on the Issuance and Trading of Non-Government Securities (Preah Reach Kram No NS/RKM/1007/028) as the regulator managing, supervising, and developing the securities sector in Cambodia. The MEF serves as the SECC Chairman.

The SECC, together with the MEF and NBC, comprise the crisis preparedness management team created in 2012. This team is now undertaking
research on crisis response activities. Further, a private sector–government forum meets every six months.

The development priorities of the SECC include attracting more companies to list and preparing for financial integration in the region. It also seeks to build regulatory capacity in the areas of initial public offering (IPO) evaluation, processing, and procedure; listing promotion; corporate governance; market surveillance; and market investigation.

**Lao PDR**

Under the supervision of the BOL are 31 banks, of which 16 are foreign and three are subsidiaries of foreign banks. The regulator conducts offsite supervision and monitoring on a daily basis and comprehensive onsite evaluations annually, coordinating these activities with one another. Founded in 1988, the bank’s charter was adopted by Law No. 05/NA, dated 14 October 1995, with the bank being given status equivalent to a ministry.

Banks in Lao PDR on average have NPLs of 2 percent, which is below the 3 percent threshold level monitored by the central bank given the country’s present stage of development. The BOL, furthermore, does not set limits on bank lending to specific sectors, but allows a single borrower limit of 25 percent. The BOL sets no loan-to-value (LTV) ratios and has no debt-to-income (DTI) rules.

There are some doubts over the official NPL figure of only 2 percent given that loan growth averages around 20 percent per annum. Furthermore, with regard to infrastructure lending, foreign and local contractors borrow from banks with an implicit sovereign guarantee.

Bank lending rates currently average 15 percent in US dollar terms, while rates on one-year time deposits average 8 percent.

Although the country’s latest medium-term development plan lacks a financial sector plan, government officials have noted that the banking sector is subsumed under the plan’s ‘monetary policy and financial stability’ section.

Priorities for the finance, banking, and capital market sectors under the *Seventh Five-Year National Socio-Economic Development Plan (2011–15)* (Government of Lao People’s Democratic Republic 2011) include financial integration with the region, development of the securities market, and development of the capital market. The plan’s goals include raising the number of publicly listed companies to at least ten by 2015, expanding the number of products traded in the stock market, and broadening the investor base (individuals and institutions).

The Lao Securities and Exchange Commission Office (SECO) and the Lao Securities Exchange (LSX) remain under BOL authority, even as government officials understand that the securities regulator should be
independent. The PRC, Thailand, and Viet Nam act as models for the SECO, which currently has over 40 people headed by an official of director general rank. It has partnered with the Thai and Vietnamese securities and exchange commissions, and forged an agreement with the SEC of Malaysia to train its staff on drafting a strategic plan for the development of the capital market.

In case of a financial crisis, the focal point would be the Ministry of Finance (MOF), which maintains a network of communications with the line ministries and the BOL. Every month, economic data is provided to the MOF, whose Fiscal Policy Department then analyzes the data. In addition, the deputy prime minister heads a high-level committee that includes the BOL Governor, the MOF, and the Prime Minister’s Office.

The MOF, furthermore, administers the country’s SOEs and has drafted a government decree on transferring ownership of these SOEs to the public. The MOF also provided a list of candidates during establishment of the SECO.

**Myanmar**

Following a series of political and economic reforms that led to a significant opening of the country and the lifting of international sanctions against it, Myanmar is now rushing to reform its financial system. It is currently rewriting its banking and financial laws under the auspices of the IMF and the World Bank.

A new law granting independence to the Central Bank of Myanmar (CBM), currently operated by the Ministry of Finance, will be debated in parliament. The CBM was created under the Central Bank of Myanmar Law (1990), which makes it responsible for financial stability and supervision of the country’s financial sector. Also in the pipeline are new laws on financial institutions, foreign exchange management, and a securities exchange.

The CBM currently oversees four SOE banks, 19 private banks, and 28 representative offices of foreign banks. It uses two main approaches for supervision and regulation, and monitoring: onsite examination and offsite monitoring. Onsite examination uses the CAMEL framework, while offsite monitoring operations are based on the weekly, monthly, quarterly, and annual reports submitted by the banks. Banks are also required to submit audited financial statements once a year. Central Bank of Myanmar officials, however, admit that accounting and disclosure requirements remain weak. Furthermore, there is a need to upgrade the system so that it provides standard prudential regulation.

The adverse side effects of the financial sector’s lack of development may be seen in the lack of convenience in banking transactions, high cost
Financial monitoring in the new ASEAN-5 countries

of intermediation, and basic payments system. Households use savings passbooks as ‘current deposits’ mainly for transactions, while corporations use demand deposits. Time deposits, recently introduced into the market, remain unfamiliar to depositors. On the other hand, the country already has deposit insurance through state-owned Myanmar Insurance.

On top of the new laws being drafted, officials note that the country’s economic culture needs to change as well, with institutional capacity building being the most important objective at this stage, especially since most of the people with institutional knowledge are retired or deceased.

**Viet Nam**
The SBV supervises about 45 domestic banks in an industry that is dominated by five state-owned banks. Agriculture Bank is the largest in terms of total resources, followed by BIDV Bank, Vietin Bank, and Vietcom Bank. State-owned banks must follow the same regulations and abide by the same corporate governance rules as private banks.

The SBV has its beginnings in 1951 when President Ho Chi Minh signed decree 15/SL to establish the National Bank of Viet Nam, later renamed State Bank and merged with the National Bank of Viet Nam upon the country’s reunification. The Law on the State Bank of Viet Nam (SBV) and the Law on Credit Institutions were passed in December 1997 by the 10th National Assembly of the Socialist Republic of Viet Nam.

There are 100 foreign banks operating in Viet Nam, including branches, subsidiaries, and representative offices. The latter are required to maintain charter capital of at least US$15 million. In terms of foreign ownership, there is a 20 percent limit for a single investor and a 30 percent limit for total foreign ownership. There are five listed banks. In terms of disclosure, listed banks follow stock exchange rules, which include the submission and publication of annual audited financial statements and semi-annual statements.

The SBV does not have an overarching LTV policy, rather each bank has its own LTV policy. The SBV is now considering LTV regulations even as LTV ratios average a low of 60 percent.

Banks’ NPLs have grown as a result of the recent macroeconomic imbalances that include high inflation and slower growth. As a result, ‘enterprises have faced difficulties,’ with NPLs reaching a high of 9 percent of total loans in 2012. In response, the government issued a master plan to restructure SOEs, the economy, and the banking system, including boosting economic growth and quickly resolving the real estate and NPL issue. The SBV also issued a directive for banks to set aside funds for socialized housing.

Prime Minister Nguyen Tan Dung approved the formation of an asset
management company, effective 9 July 2013, to deal with the banking sectors’ bad debts problem together with the existing Debt and Asset Trading Company (DATC). The Viet Nam Asset Management Company (VAMC), a wholly state-owned company managed by the SBV, will have initial capital of VND500 billion (US$24 million). According to the SBV Governor Nguyen Van Binhand, the VAMC will be tasked to resolve between VND40 trillion and VND70 trillion of NPLs this year out of total NPLs estimated at about VND100 trillion by the chairman of the National Financial Supervisory Commission. The ultimate aim is to accelerate the country’s banking restructuring process, restore the flow of credit to the business sector, and rejuvenate the country’s economic growth. Credit growth has slowed as a direct consequence of the high rate of bad debts as banks have become more conservative in response.

Also, as part of the master plan, the SBV is seeking to merge five of the most financially sound banks in the country. The SBV’s officials acknowledge that dealing with banks’ bad debts also depend on what is happening in the real sector. The real estate sector remains a problem as property prices continued to soften in the first quarter of 2013 and the market remains frozen. An estimated 10–12 percent of NPLs come from real estate lending.

With regard to crisis management protocols, the MOF, SBV, and State Securities Commission (SSC) have signed Memorandum of Understandings (MOUs) pledging cooperation with one another. Furthermore, the country has instituted safety nets, deposit insurance, and intensive supervision to counter any potential crisis.

The SSC, established in 1996, oversees and regulates securities trading on the country’s two official exchanges: the Ho Chi Minh Stock Exchange and the Hanoi Stock Exchange. The SSC officially remains part of the MOF.

For capacity building, the SBV has its own training department and research institute, which also trains banking executives.

4.2 Capital Adequacy and Liquidity Management

The GFC exposed a number of weaknesses in the global regulatory framework and in banks’ own internal risk management systems. To prevent a recurrence of the negative impacts on the global economy, the Basel Committee on Banking Supervision agreed in 2010–11 on the Third Basel Accord (Basel III), with the latest instalment of the so-called Basel Accords developed to address the deficiencies in financial regulation revealed by crisis.

The key principles addressed by Basel III concern capital requirements,
leverage ratios, and liquidity requirements. Specifically, Basel III requires banks to hold 4.5 percent of common equity (up from 2 percent under Basel II) and 6 percent of Tier 1 capital (up from 4 percent under Basel II) as a ratio of risk-weighted assets (RWAs). Tier 1 capital refers to a bank’s core capital, consisting primarily of common stock and retained earnings, whereas the risk weights contain credit, market, and operational risk measures.

In addition to the minimum capital requirements, Basel III introduced a mandatory capital conservation buffer of 2.5 percent and a discretionary countercyclical buffer of between zero and 2.5 percent of common equity.

Since excessive leverage was seen as a major cause of the crisis and its consequent severity, Basel III introduced a minimum leverage ratio to prevent the buildup of too much leverage. This leverage ratio is calculated by dividing Tier 1 capital by the bank’s (unweighted) average total consolidated assets, with banks required to maintain the leverage ratio at not less than 3 percent.

To address liquidity risk, which emanates from maturity mismatches as banks fund illiquid long-term assets with very short-term debt, Basel III introduced minimum liquidity requirements. These have two components: (1) the liquidity coverage ratio, in which banks need to hold sufficient high-quality liquid assets to cover total net cash outflows over 30 days; and (2) the net stable funding ratio, in which banks’ available amount of stable funding must exceed the required amount of stable funding over a one-year period of extended stress (see Table 14.2).

Basel III rules were originally scheduled to be introduced between 2013 and 2015. Changes in the rules made effective on 7 January 2013 included extending the implementation period until 2019.

The complexity of the new Basel III regulations – in addition to disputes regarding liquidity requirements, added cost burdens on banks, an expected toll on economic growth, and the lack of an Asian perspective – have put the reform measures under a cloud of controversy. The questions of Basel III’s relevance to Asian conditions, practices, and rising funding needs for its regional rebalancing efforts have become especially acute, leading to widening calls for an ‘Asian voice’ in global banking regulatory reforms.

Asia largely sees Basel III requirements as primarily designed to address the problems of the developed economies of the US and Europe, with Asian voices underrepresented in the decision-making forums leading to their adoption. The new rules aim to resolve the under-capitalization and over-leverage of the wholesale banking model prevalent in the advanced economies. This contrasts with the prevailing retail banking model in Asia, in which heavy reliance on equity capitalization allows Asian banks
to readily meet Basel III capital requirements. Their continued compliance is not so clear for the future, however, as Asia's continuous growth would put an increasing demand on the credit supplied by a bank-dominated financial system.

Furthermore, banking systems across Asia are at different stages of development and Asian countries have diverse national development objectives. As part of their national goals, for instance, Asian economies have responded to the post-crisis economic slowdown in their advanced trading partners by shifting toward domestic- and regional-driven growth, which requires funding. The region's developing capital markets also make it difficult and costly for Asian banks to meet the liquidity standards of Basel III, owing to an insufficient or non-existent supply of local government bonds.

Another issue concerns the risk weights used to compute minimum capital. Asian banks are disadvantaged against their Western counterparts since the risk weights rely on sovereign credit ratings and most Asian countries have lower ratings. In addition, Asian banks use a less-sophisticated standard model for risk weighting, while their Western counterparts rely on internal risk-based models. As a result, Asian banks will have to set aside more capital to support the same amount of risky assets, such as loans and bonds.

Table 14.2  Selected policy changes in Basel II and III

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Basel III</th>
<th>Basel II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Tier 1 capital requirement</td>
<td>6% of risk-weighted assets (RWA)</td>
<td>4% RWA</td>
</tr>
<tr>
<td>Minimum common equity requirement</td>
<td>4.5–7.0% RWA depending on countercyclical buffer</td>
<td>2% RWA</td>
</tr>
<tr>
<td>Countercyclical buffer</td>
<td>Zero to 2.5% RWA</td>
<td>None</td>
</tr>
<tr>
<td>Minimum capital adequacy ratio</td>
<td>10.5% (including the capital conservation buffer)</td>
<td>8% RWA</td>
</tr>
<tr>
<td>Leverage ratio</td>
<td>Minimum ratio of common equity to exposures of 3%. This ratio will be tested before a mandatory leverage ratio is introduced in January 2018</td>
<td>None</td>
</tr>
<tr>
<td>Liquidity ratio</td>
<td>There are two requirements – a liquidity coverage ratio (LCR, to be determined in 2015), and a net stable funding ratio (NSFR, to be determined in 2018)</td>
<td>None</td>
</tr>
</tbody>
</table>

Source:  Liu and Moshirian (forthcoming).
In summary, the calls for an Asian voice in global financial reforms have been rising amid the perception that Basel III, among other initiatives, has become a ‘one-size-fits-all’ solution that may not be suitable for many Asian economies, with their varied financial systems, stages of development, and banking industry practices. On the other hand, the strengths of Basel III include its notable attempt to standardize minimum capital and liquidity norms for global banking. Its main weakness is a heavy reliance on prescriptive measures that do not allow for flexibility and prudential discretion on the part of emerging economy banks and regulators in support of specific national development agendas.

Table 14.3 summarizes the status of banking reform implementation in the five BCLMV countries. While most BCLMV countries have adopted Basel I regulations, none have fully adopted Basel II rules and none have started implementation of Basel III reforms.

<table>
<thead>
<tr>
<th>Basel Accords</th>
<th>Basel I</th>
<th>Basel II</th>
<th>Basel III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>Adopted</td>
<td>Deferred</td>
<td>Not started</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Adopted</td>
<td>Modified solvency ratio</td>
<td>Not started</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>Implementing</td>
<td>Not started</td>
<td>Not started</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Not started</td>
<td>Not started</td>
<td>Not started</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Adopted</td>
<td>Under consideration</td>
<td>Not started</td>
</tr>
</tbody>
</table>

Source: Author’s compilation.

Brunei Darussalam
Basel I core principles have been adopted but Basel II implementation has been deferred. All banks are Basel III compliant as far as the Tier 1 capital requirement is concerned since the capital funds of the banks in Brunei Darussalam consist solely of common equity. The AMBD also closely observes the standards of the IOSCO in implementing its securities regulatory functions.

The capital adequacy of banks in September 2011 averaged 19.4 percent based on regulatory capital to RWA, and 20 percent based on Tier 1 capital to RWA.

Cambodia
The country’s banking system dominates the economy with 32 commercial banks (including ten foreign branches and 19 subsidiaries) empowered
with universal banking functions but mainly doing traditional banking such as deposits, loans, and payment systems. Prudential regulations on liquidity and minimum capital have been tightened, with capital requirements raised from US$13 million to over US$35 million.

The implementation of Basel II rules are in a state of transition, whereby the NBC is using a ‘modified’ 15 percent solvency ratio. It is also transitioning to a risk-based and forward-looking supervision model.

Banks are starting to comply with Basel II rules. The country has 32 commercial banks, including seven specialized banks that can only lend and do not have deposit-taking functions. Four or five of the largest banks account for about 70 percent of total loans and deposits. The government allows 100 percent foreign ownership of banks.

Banks have their own LTV policies and maintain a risk-management-based loan portfolio. Stress-testing is also conducted. Aside from mortgage lending, bank lending goes to the other leading sectors of the economy: tourism, agriculture (mainly rice), garments, and other manufacturing.

There is no insurance on deposits. The government regulates banks through loans, specifically by limiting access to financing and through collateral, which is based on the value of the asset being financed (the assets should be 50 percent of the value of the collateral). Real estate values, the main form of collateral, declined in 2008–10 before recovering in 2011.

Small and medium-sized enterprises have no direct access to bank borrowings and instead resort to microfinance where interest rates can reach as high as 30 percent per annum.

**Lao PDR**
The country’s banking system is still implementing Basel I reform measures and is in the process of adopting Basel II reforms. The lagging pace of implementation is ascribed to the state of the supervision system itself, which needs to be developed since commercial banks are also unprepared in terms of expertise of staff and technical systems.

**Myanmar**
The banking system has not yet started implementing Basel I reforms and the capital adequacy ratio (CAR) in use does not meet international standards. The loan classification system in use also does not meet international standards and the rating system for banks is very basic.

**Viet Nam**
The central bank has already adopted Basel I reform and is considering Basel II reforms. The SBV intends to ‘do it step by step, depending on banks’ and the market conditions’. It is considering Basel III principles,
Financial monitoring in the new ASEAN-5 countries

electing to ‘pick up some of these principles, such as liquidity ratio’. It has designed a roadmap for implementing Basel II reforms and is now in discussions with banks, which consider the proposed requirements to be costly. An informal group comprising 20 people is in charge of the roadmap, whose development was funded through technical assistance from the Japan International Cooperation Agency (JICA).

4.3 Macro-prudential Surveillance

One core function of central banks is to maintain the stability and soundness of the financial system. This macro-prudential responsibility stands in contrast to their role as bank supervisors, which is more micro-prudential in scope. It is understood that financial stability requires stable banks and a sound banking system. The experience of recent financial crises, however, has provided the lesson that the soundness of individual banks is not enough to maintain the financial stability of the entire system.

According to the BIS, the GFC

has prompted a careful review of a wide range of policy areas. In many cases, microprudential supervision failed to ensure that financial institutions had sufficient capital and liquidity to cope with the shock. The efficacy of monetary policy in responding to system-wide financial risk in an environment of stable inflation was, and still is, under debate. The issue of how to define and develop the macro-prudential element of financial stability policy has attracted particular attention. Policymakers broadly agree that the purpose of macroprudential policy is to reduce systemic risk, strengthening the financial system against shocks and helping it to continue functioning stably without emergency support on the scale that was extended in the crisis.10

The BIS further defines systemic risk as ‘a risk of disruption to financial services that is caused by an impairment of all or parts of the financial system and has the potential to have serious negative consequences for the real economy’ (Hoogduin 2010, p. 2).

Davis (1999, p. 1) defines macro prudential surveillance as the ‘monitoring [of] conjunctural and structural trends in financial markets so as to give warning of the approach of financial instability’. Meanwhile, the FSB, IMF, and BIS (2011, p. 2) define macro-prudential policy as ‘a policy that uses primarily prudential tools to limit systemic or system-wide financial risk, thereby limiting the incidence of disruptions in the provision of key financial services that can have serious consequences for the real economy’.

Practitioners utilize ‘the theory of financial instability and the experience of financial crises in the past . . . to enable meaningful use to be made of financial and macroeconomic data in macroprudential surveillance’, according to Davis (1999, p.29). The research data include econometric
forecasts and current information. Macro-prudential surveillance is not mechanistic, as

detailed knowledge of the sequence of events in past crises, both directly and as encapsulated in theory, is a sine qua non to interpreting the data. In addition, there is a need for development of broad information on what constitutes normal conditions in an economy, as well as the patterns that have often preceded financial crises in the past both domestically and internationally. (Davis 1999, p. 2)

Adding impetus to the progress in macro prudential surveillance, the IMF (Evans et al. 2000, p. 1) helped develop and distribute so-called macro-prudential indicators (MPIs), which are ‘indicators of the health and stability of financial systems’. These MPIs ‘will be critical in producing reliable assessments of the strengths and vulnerabilities of financial systems as part of IMF surveillance, and to enhancing disclosure of key financial information to markets’ (ibid.). The lack of consensus on a core set of MPIs has been a major difficulty in this endeavor. Furthermore, ‘[the] ability to monitor financial soundness presupposes the existence of indicators that can be used as a basis for analyzing the current health and stability of the financial system’ (ibid., p. 3).

These indicators comprise both aggregated micro-prudential indicators of the health of individual financial institutions and macroeconomic variables associated with financial system soundness. A set of indicators that the IMF has identified through its financial sector surveillance, technical assistance, and program work over the years is enumerated in Table 14.4.

In an alternative approach, Hahm et al. (2012) proposed using the growth in banks’ non-core liabilities as a predictor of crises. Banks, as the main financial intermediaries in developing economies, source their funding from retail deposits of households. However, retail deposits grow in line with the economy’s expansion, so when credit is growing faster than deposits, banks turn to other sources of funding. By classifying retail deposits as banks’ core liabilities and the remaining components of bank funding as non-core liabilities, the ratio of non-core to core liabilities reflects the pace of credit growth relative to trend. A rising ratio would indicate the economy’s rising risk premia. The authors further observed that foreign liabilities of banks in emerging economies comprise a major component of their non-core liabilities, as the underdeveloped domestic wholesale funding market cannot support the rapid growth in bank lending.

According to Hahm et al. (2012, p. 2), measures of the non-core bank liability ratio ‘have significant predictive power for currency crises and credit crises’, based on the information contained in the banking sector’s liabilities to the foreign sector. In addition, ‘the non-core bank liability
Table 14.4 Summary of macro-prudential indicators

<table>
<thead>
<tr>
<th>Aggregated micro-prudential indicators</th>
<th>Macroeconomic indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital adequacy</td>
<td>Economic growth</td>
</tr>
<tr>
<td>Aggregate capital ratios</td>
<td>Aggregate growth rates</td>
</tr>
<tr>
<td>Frequency distribution of capital ratios</td>
<td>Sectoral slumps</td>
</tr>
<tr>
<td>Asset quality</td>
<td>Balance of payments</td>
</tr>
<tr>
<td><em>Lending institution</em></td>
<td>Current account deficit</td>
</tr>
<tr>
<td>Sectoral credit concentration</td>
<td>Foreign exchange reserve</td>
</tr>
<tr>
<td>Foreign currency-denominated lending</td>
<td>adequacy</td>
</tr>
<tr>
<td>NPLs and provisions</td>
<td>External debt (including maturity structure)</td>
</tr>
<tr>
<td>Loans to loss-making public sector entities</td>
<td>Terms of trade</td>
</tr>
<tr>
<td>Risk profile of assets</td>
<td>Composition and maturity of capital flows</td>
</tr>
<tr>
<td>Connected lending</td>
<td>Inflation</td>
</tr>
<tr>
<td>Leverage ratios</td>
<td>Volatility in inflation</td>
</tr>
<tr>
<td><em>Borrowing entity</em></td>
<td>Interest and exchange rates</td>
</tr>
<tr>
<td>Debt-to-equity ratios</td>
<td>Volatility in interest and exchange rates</td>
</tr>
<tr>
<td>Corporate profitability</td>
<td>Level of domestic real interest rates</td>
</tr>
<tr>
<td>Other indicators of corporate conditions</td>
<td>Exchange rate sustainability</td>
</tr>
<tr>
<td>Household indebtedness</td>
<td>Exchange rate guarantees</td>
</tr>
<tr>
<td>Management soundness</td>
<td>Lending and asset price booms</td>
</tr>
<tr>
<td>Expense ratios</td>
<td>Lending booms</td>
</tr>
<tr>
<td>Earnings per employee</td>
<td>Asset price booms</td>
</tr>
<tr>
<td>Growth in the number of financial institutions</td>
<td>Contagion effects</td>
</tr>
<tr>
<td>Earnings and profitability</td>
<td>Trade spillovers</td>
</tr>
<tr>
<td>Return on assets</td>
<td>Financial market correlation</td>
</tr>
<tr>
<td>Return on equity</td>
<td>Other factors</td>
</tr>
<tr>
<td>Income and expense ratios</td>
<td>Directed lending and investment</td>
</tr>
<tr>
<td>Structural profitability indicators</td>
<td>Government recourse to the banking system</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Arrears in the economy</td>
</tr>
<tr>
<td>Central bank credit to financial institutions</td>
<td></td>
</tr>
<tr>
<td>Segmentation of interbank rates</td>
<td></td>
</tr>
<tr>
<td>Deposits in relation to monetary aggregates</td>
<td></td>
</tr>
<tr>
<td>Loans-to-deposits ratios</td>
<td></td>
</tr>
<tr>
<td>Maturity structure of assets and liabilities</td>
<td>(liquid asset ratios)</td>
</tr>
<tr>
<td>Measures of secondary market liquidity</td>
<td></td>
</tr>
<tr>
<td>Sensitivity to market risk</td>
<td></td>
</tr>
<tr>
<td>Foreign exchange risk</td>
<td></td>
</tr>
<tr>
<td>Interest rate risk</td>
<td></td>
</tr>
</tbody>
</table>
Global shock, risks, and Asian financial reform

**Table 14.4** (continued)

<table>
<thead>
<tr>
<th>Aggregated micro-prudential indicators</th>
<th>Macroeconomic indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity price risk</td>
<td></td>
</tr>
<tr>
<td>Commodity price risk</td>
<td></td>
</tr>
<tr>
<td>Market-based indicators</td>
<td></td>
</tr>
<tr>
<td>Market prices of financial instruments, including equity</td>
<td></td>
</tr>
<tr>
<td>Indicators of excess yields</td>
<td></td>
</tr>
<tr>
<td>Credit ratings</td>
<td></td>
</tr>
<tr>
<td>Sovereign yield spreads</td>
<td></td>
</tr>
</tbody>
</table>


ratio has independent predictive power over the much better-known and debated credit-to-GDP ratio’ (ibid., p. 47).

They contend, that their ‘findings suggest that, at least in emerging and developing economies, non-core bank liabilities may be usefully monitored as a complementary measure to the credit to GDP ratio in gauging the stage of financial cycles and the build-up of financial risk’.

Meanwhile, most developing economies, including the BCLMV countries, suffer from a dearth of available data that precludes effective macro-prudential surveillance as well as the proposed monitoring of non-core bank liabilities.

In response, ADB’s Office of Regional Economic Integration (OREI) has embarked on a project to build a database on banks’ non-core liabilities in the BCLMV countries, while a similar database is also being built for Indonesia, Malaysia, the Philippines, Thailand, and Singapore. In this database, core liabilities refer to liabilities of the financial intermediary sector to non-bank domestic creditors, while non-core liabilities include foreign exchange liabilities of the financial intermediary sector, and claims held by intermediaries on other intermediaries.

As studies have shown, an alarming accumulation of non-core liabilities could signal mounting vulnerability to both liquidity and currency crises, and therefore it is important to monitor the movements and size of the financial intermediary sector’s non-core liabilities.

These core and non-core liabilities should be further classified by type of holder to determine whether the holders of the liabilities are the ultimate domestic creditors. Examples of core and non-core liabilities, classified further in terms of degree of liquidity, are given in Table 14.5.

It is important that data are disaggregated by type of holder, such as households and non-financial corporates. For each of these holders,
Financial monitoring in the new ASEAN-5 countries

wherever appropriate, the relevant indicators include cash, demand deposits, time deposits, certificates of deposit, trust accounts, covered bonds, repurchase agreements, call loans, short-term foreign exchange bank debt, long-term bank debt securities, and asset-backed securities and mortgage-backed securities.

Asian Development Bank researchers surveyed the central bank websites of the BCLMV countries to collect publicly available data on non-core liabilities. As summarized in Table 14.6, most of the data being sought were not publicly available. Building and regularly updating a database of these indicators for the BCLMV countries would be a useful exercise as these countries gradually emerge as important players in global financial markets. Monitoring the non-core liabilities of their financial intermediary sectors can help detect emerging liquidity and currency risks before they turn into a full-blown financial crisis.

**Table 14.5 Core versus non-core liabilities (by degree of liquidity)**

<table>
<thead>
<tr>
<th>Highly liquid</th>
<th>Intermediate</th>
<th>Non-core liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Demand deposits (non-financial corporates)</td>
<td>Repos</td>
</tr>
<tr>
<td>Demand deposits (households)</td>
<td>Time deposit and Certificates of deposit (non-financial corporates)</td>
<td>Call loans</td>
</tr>
<tr>
<td>Time deposit and Certificates of deposit (households)</td>
<td>Time deposit and Certificates of deposit (banks and securities firms)</td>
<td>Short-term FX bank debt</td>
</tr>
<tr>
<td>Trust accounts (households)</td>
<td>Trust accounts (non-financial corporates)</td>
<td>Time deposit and Certificates of deposit (banks and securities firms)</td>
</tr>
<tr>
<td>Covered bonds (households)</td>
<td>Long-term bank debt securities (banks and securities firms)</td>
<td>ABSs and MBSs</td>
</tr>
</tbody>
</table>

*Note:* ABSs = asset-backed securities, MBSs = mortgage-backed securities.


Capital flows and non-core liabilities

Banks in emerging Asian economies, including those in BCLMV countries, intermediate not only internal funds available domestically but, just as importantly, they intermediate a large amount of cross-border capital flows. Owing to their procyclical nature, these capital flows have important implications for emerging Asian economies’ financial stability. Their high
Table 14.6  Availability of data on core and non-core liabilities of the financial intermediary sector in BCLMV countries

<table>
<thead>
<tr>
<th></th>
<th>Brunei Darussalam</th>
<th>Cambodia</th>
<th>Lao PDR</th>
<th>Myanmar</th>
<th>Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core liabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demand deposits (households)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Time deposits (households)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CDs (households)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Trust accounts (households)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Covered bonds (households)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Intermediate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand deposits (non-financial corporates)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Time deposit (non-financial corporates)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CDs (non-financial corporates)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Trust accounts (non-financial corporates)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Non-core liabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repos</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Call loans</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Short-term FX bank debt</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Time deposits (banks and securities firms)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CDs (banks and securities firms)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Long-term bank debt securities (banks and securities firms)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ABSs and MBSs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Note:  ABSs = asset-backed securities, CDs = certificates of deposit, FX = foreign exchange, MBSs = mortgage-backed securities.

volatility, furthermore, adds a dimension of challenge to regulatory, political, and economic policy-making.

The volatile feature of these flows was underscored in an ADB paper\textsuperscript{11} that compared trends in capital flows in ten Asian economies before and
after the GFC. The trend analysis indicated a sharp rise in inflows to over US$1.4 trillion in 2007 and a sharp plunge to less than US$200 billion during the worst of the GFC in both 2008 and 2009. As the US Federal Reserve launched its large-scale asset purchases, otherwise known as quantitative easing, the capital flows into Asia sharply rebounded to pre-crisis levels in 2010 and 2011, before easing again in late 2011 in the wake of the worsening European sovereign debt crisis. In terms of the composition of capital inflows, bank loans exceeded their pre-crisis levels and became the main source of capital inflows after the GFC.

On the other hand, most of the BCLMV countries were spared these volatile capital flows owing to their serendipitous low degree of financial integration with the region and the rest of the world, lack of capital account openness, and relatively undeveloped capital markets and financial sectors. Relative exceptions would be Cambodia, whose dollarized economy suffered credit outflows in 2009, and Viet Nam, which alone among the five BCLMV countries is included in the ‘frontier markets’ indices of major market data aggregators.

While these five countries under study have yet to gain the capacity and develop the institutions required to absorb and benefit from the inflow of capital from abroad, it would be instructional to thresh out the linkages between non-core liabilities and capital flow management.

The banking sector, in particular, traditionally intermediates the wholesale funding variety of capital flows, which are highly procyclical and tend to quickly reverse when adverse conditions emerge. These debt-type inflows can thus become significant transmitters of instability.

The impacts of bank-related capital flows are determined by a number of factors, including how domestic banks manage their balance sheets and source funds, and how multinational banks organize themselves. Bank lending is highly procyclical and this procyclicality is further amplified by the slack in banks’ balance sheets, which refers to their ability to take on additional risks. When the pool of available retail deposits becomes exhausted during a credit boom, banks will turn to alternative sources such as wholesale lending banks, whose support typically comes in the form of cross-border funding. Short-term wholesale funding from foreign creditor banks, which become the non-core liabilities of domestic banks, are more volatile than retail funding and would typically fall in the boxes of Tables 14.5 and 14.6 that encompasses repos, call loans, and short-term foreign exchange bank debt, as well as time deposits and certificates of deposit (upper right-most boxes in Table 14.5 and lowermost boxes in Table 14.6).

How large banks organize their international operations also has implications for capital flows and financial stability. In particular, international banks with a decision-making process that remains centered at the home
country headquarters, and with funding pooled from each country source and redistributed from the headquarters, can transmit shocks more directly and quickly through changes in affiliates’ funding. Foreign banks, operating either as affiliates or branches, can easily migrate to cross-border, non-core funding for their credit expansion needs. Another source of funding would be inter-office funding channeled by the parent bank through its subsidiaries.

Capital flows, in addition, can affect the balance sheet of custodian banks in a distinctive way. A custodian refers to a bank or financial institution that holds securities on behalf of investors. Custodian banks’ basic tasks include safekeeping securities, accepting or rejecting traded securities, asset servicing (processing of rights, collecting principal, interest, or dividend payments), and cash management and foreign exchange services. Global custodians whose customers invest in foreign securities contract with custodians in foreign countries, known as ‘sub-custodians,’ to provide local custody services. Providing custodian services can affect banks’ cash flows and liquidity. Gross inflows and outflows from customers’ payment traffic can be very large and volatile. The impact of custodian services on a bank’s balance sheet would be felt more on the core liabilities such as cash and demand deposits (upper leftmost box in Table 14.5 and uppermost boxes of Table 14.6).

**Brunei Darussalam**
A macro-prudential surveillance system is still being set up. A financial stability committee exists as an ad hoc group. The AMBD does not specify LTV ratios or DTI rules, nor does it mandate collateral values for mortgages, preferring to merely monitor these matters. Onsite and offsite monitoring is done on a regular basis; a complete onsite examination, lasting three to six months has just been completed. It uses the CAMEL framework to evaluate banks.

**Cambodia**
The NBC is just starting to implement macro-prudential surveillance. No specific department or task force has been designated for this purpose. For disclosure and transparency purposes, banks are required to report and publish in June of every year their audited financial statements on their websites and in newspapers of general circulation. The NBC is developing an offsite inspection manual that is scheduled to be implemented in the middle of 2013. National Bank of Cambodia branches conduct onsite inspections in all provinces on a sample basis, using the CAMEL methodology in its bank examinations.

As part of macro-prudential surveillance, the Supreme National
Economic Council and the MEF look at the monetary survey. Over 95 percent of deposits in the country, consisting of savings and demand and time deposits, are in US dollars, which creates a problem with intermediation and the resulting non-securitized intervention by economic managers.

With an open economy and a liberal exchange rate system, the US dollar has effectively become a second national currency existing alongside the national currency, the riel, which was introduced in 1955. The dollar’s dominant use over the riel, however, has presented a number of challenges to Cambodia’s monetary authorities. Capannelli and Menon (2010) pointed out that as a result of dollarization, Cambodia’s monetary authorities cannot directly influence the money supply and cannot conduct exchange rate policy effectively. Consequently, the burden for macroeconomic adjustments in Cambodia falls mainly on fiscal policy.

Signs of financial deepening, based on the ratio of the M2 money supply to GDP, are evident. In particular, the M2 money supply has been growing on the back of increasing foreign currency deposits and credit growth, and with the entry of new banks. However, banks have been limited to short-term lending. Rates on deposits are at 6 percent per annum, while lending rates range from 10 percent to 15 percent.

**Lao PDR**
A BOL unit has been set up to work on the planned macro-prudential surveillance system, which is expected to be set up by 2015. The BOL is learning from the experiences of the Bank of Thailand and Bank Indonesia in this endeavor.

**Myanmar**
The CBM’s priority plans for capacity building include macro-prudential and crisis prevention and resolution, risk management systems (since credit risk is no longer the sole risk in an evolving financial system), and risk-based supervision. In general, the plan is to follow the ASEAN framework plan for economic integration by 2015.

**Viet Nam**
The SBV already has an early warning system and uses macro-prudential indicators. A financial sector assessment program being conducted by the IMF is expected to be launched by the end of 2013, with a specific unit in the SBV in charge of this effort. (There is no specific SBV department in charge of macro-surveillance, however.) The SBV also has a credit bureau, the Credit Information Center, which was established in 2008.
4.4 Disclosure and Transparency

Disclosure and transparency form one of the six major principles of corporate governance of the OECD (see Box 14.1) and one of the BIS’s six principles for enhancing corporate governance.

‘The corporate governance framework should ensure that timely and accurate disclosure is made on all material matters regarding the corporation, including the financial situation, performance, ownership, and governance of the company,’ according to the OECD principles.15

‘A strong disclosure regime that promotes real transparency is a pivotal feature of market-based monitoring of companies and is central to shareholders’ ability to exercise their ownership rights on an informed basis,’ the OECD further states. ‘A strong disclosure regime can help to attract capital and maintain confidence in the capital markets. By contrast, weak disclosure and non-transparent practices can contribute to unethical behaviour and to a loss of market integrity at great cost, not just to the company and its shareholders but also to the economy as a whole’.16

For its part, the BIS notes ‘Transparency is one tool to help emphasise and implement the main principles for good corporate governance’.17 Principle 14 for enhancing corporate governance states:

The governance of the bank should be adequately transparent to its shareholders, depositors, other relevant stakeholders, and market participants . . . The objective of transparency in the area of corporate governance is therefore to provide these parties, consistent with national law and supervisory practice, with key information necessary to enable them to assess the effectiveness of the board and senior management in governing the bank . . . Such disclosure should be proportionate to the size, complexity, structure, economic significance, and risk profile of the bank.18

Empirical studies tend to support the importance of disclosure and transparency to investors and, consequently, to the flow of capital. The IMF (2001, pp.7–8) commented:

A lack of transparency was a feature of the build-up to the Mexican crisis of 1994–95 and of the emerging market crises of 1997–98. In these crises, markets were kept in the dark about important developments and became first uncertain and then unnerved as a host of interrelated problems became known. Inadequate economic data, hidden weaknesses in financial systems, and a lack of clarity about government policies and policy formulation contributed to a loss of confidence that ultimately threatened to undermine global stability . . . Transparency and candor are particularly important in today’s environment of substantially increased private capital movements and countries’ growing integration with international capital markets.
In a study, Gelos and Wei (2002, p. 19) investigated the effect of transparency in developing countries on the level of investment by international institutional investors. They enumerated several noteworthy findings:
First, we find relatively clear evidence that international funds prefer to hold more assets in more transparent markets. Second, on the other hand, herding among funds is more prevalent in less transparent countries. Third, there is some modest evidence that during a crisis, international investors tend to flee more opaque markets.

Here, ‘herding’ is defined as ‘funds taking investment decisions which they would not take if they did not observe other funds taking them’ (ibid., p. 2). Their findings suggest that improved transparency can reduce the sudden reversal of capital flows during a crisis and thus enhance the stability of domestic financial markets in a developing country.

Brunei Darussalam
Aware of the merits of public listing, the government is in the process of establishing a stock exchange under its capital markets development plan. Senior AMBD management is in charge of this plan. No timetable has been set. The AMBD has issued up to US$100 million of sukuk (Islamic bonds), with maturities of up to one year, mainly to set benchmarks and contribute to capital market development.

Cambodia
The development of the securities sector had been laid out in the Financial Sector Development Strategy 2006–15 and the Rectangular Strategy, Stage II. Under these plans, the government considers the securities sector as an essential dimension of the financial system, providing the mechanism for mobilizing all sorts of financial resources for investment projects and to diversify the sources of economic growth. Moreover, the existence of the securities market will promote accountability, transparency, good corporate governance, and efficiency in the operations of firms, especially those engaging in public offers.

These objectives have been carried over into the newer Financial Development Strategy 2011–20. Capital market development is seen as a catalyst in promoting good corporate governance in the public sector, as companies are required to have three years of audited financial statements prior to listing. Market development will be conducted in three overlapping stages, with the first stage (2011–14) focused on bond market development, the middle stage (2014–17) focused on equities, and the final stage (2017–20) focused on the introduction of derivatives.

The SECC, which supervises the securities sector in the country, has six operating departments: Securities Market Supervision; Securities Intermediaries Supervision; Legal Affairs; Securities Issuance Supervision; Research, Training, Securities, Market Development and International
Financial monitoring in the new ASEAN-5 countries

Relations; and Administration and Finance. It has the power to arrest without the prosecutor’s opinion, and to hold a suspect for 48 hours. It has recorded one case in 2010 for an illegal security offering. The SECC uses criminal laws to prosecute. The sanctions it imposes fall into two main categories: administrative and criminal.

The SECC further supervises 13 securities companies, consisting of seven underwriters (five of which are foreign), two dealers (one foreign), and four brokers (zero foreign).

It has a 30-investor rule as the threshold: companies with more than 30 investors are required to engage in a public offering of shares.

Under the law, listed public companies are differentiated from listed private companies in terms of corporate governance rules. Public companies cannot have more than seven directors, at least one of which must be independent, while private companies can have between seven and 15 directors, of whom 20 percent must be independent.

The SECC foresees the local market being integrated with the ASEAN Exchanges, an existing collaboration among four national exchanges (Malaysia, the Philippines, Singapore, and Thailand). The SECC’s top priorities are listing promotion; IPO evaluation, processing, and procedures; corporate governance; market surveillance systems; and market investigation. A team has been set up to spearhead these efforts.

**Lao PDR**

Disclosure requirements consist of the publication of annual audited financial statements within the first quarter each year, in addition to the submission of monthly statements.

A new securities bill passed in December 2012 waits to be signed into law. Under the law, the LSX, with status as a self-regulatory organization, will be in charge of monitoring and regulating corporate disclosure, with the SEC in charge of enforcing irregular disclosures. The LSX currently only trades the stocks of two companies: a bank (BCEL) and a power utility (EDL). A Securities and Exchange Commission (SEC) committee has drafted a long-term development plan for the domestic capital market to be released and implemented by end of 2013. Lao PDR’s accession to the WTO in 2012 is seen as a plus for the country’s capital market development.

The government permits 100 percent foreign-owned banks to operate in the country and sets a 20 percent foreign ownership limit for industrial non-bank companies. The 5 percent threshold rule is enforced.

The MOF is in charge of the government bond market. Auctions are conducted once a year, although the government desires eventually to conduct one auction every month. Investors hold these treasuries to
maturity as a secondary market for treasuries is still under study. The legal framework for this secondary market is lacking and policymakers are still looking for a model to follow and are open to receiving technical assistance on this matter. Clearing is done by the BOL.

The government issues Treasury securities: Treasury bills are issued to cover the fiscal deficit while bonds with maturities of up to five years have also been issued. There are no corporate bonds. Under discussion is whether the LSX will handle the secondary market for bonds. The MOF previously considered the issuance of cross-currency asset-backed securities to fund its hydro project. However, this funding alternative did not progress because of issues regarding the transfer of royalties as collateral for the securities.

Tax incentives are provided to develop the capital market, mainly consisting of a five-year exemption from the 24 percent capital gains rate. Additional fiscal incentives are not possible at present due to the government’s primary goal of reducing poverty, which entails financing social programs, subsidies for SOEs, and bank lending to certain strategic sectors.

**Myanmar**

The country has no functioning capital market, a situation that is to be addressed by the proposed Security Exchange Law, which is now awaiting passage in parliament. This law will also set up a Securities and Exchange Commission.

This process has been years in the making. A steering committee was created in 1996 to set up a stock exchange, with the CBM taking the lead. In June of that year, the Myanmar Securities Exchange Center Company Limited (MSEC) was established as a 50:50 joint venture between the state-owned Myanmar Economic Bank (MEB), the country’s largest bank, and Japan’s Daiwa Institute of Research Ltd. MSEC’s business activities include brokering, dealing, underwriting, and distributing securities, as well as research and consultancy services. It also sells Myanmar Treasury bonds as an agent for the CBM.

In May 2012, the CBM, Daiwa Research Institute, and Tokyo Stock Exchange signed a technical aid agreement to develop the country’s stock exchange by 2015. Daiwa will help train the stock exchange’s workforce and advise on the setup of the necessary information technology (IT) systems, while the TSE will help establish the stock exchange’s rules and operating standards.
**Viet Nam**

Public disclosure requirements compel companies to report to the SSC and Hanoi Stock Exchange (HSX), and also to provide their disclosure reports on their websites. As the SSC issues new guidelines on filing rules, it is implementing a system for the electronic transmission of disclosure reports. However, as some companies have limited access to the Internet, almost all listed companies still either send hard copies or scanned copies. Authentic verification remains an issue for electronic filing. The new system, the Information Disclosure System (IDS), was set up with the help of the Luxembourg Agency for Development Cooperation and the FPT Information System, a local IT solutions provider that is listed on the Ho Chi Minh Stock Exchange. The SSC in 2013 piloted the IDS on 1000 publicly listed companies, thus contributing to the initial computerization of the local stock market’s supervision and information disclosure functions. As the IDS is not compatible with the information technology used by HSX, the SSC intends to have companies to disclose information to only one agency once the IDS is fully operational.

The fine for late or inaccurate disclosure is VND20 million, an offense that occurs very often, with around 15 companies investigated every year. Circular 52 classifies disclosures into three main groupings: regular (about ten items, including audited financial statements, annual reports, corporate governance certifications, and board of directors resolutions); unusual; and as required by the regulator. These groupings adhere to international standards on disclosure.

Decree 58 covers foreign enterprises’ issuance of shares, mandating that foreign companies can list only those shares issued in Viet Nam. To date, no foreign enterprise has availed itself of this listing rule.

Foreign ownership is limited to 49 percent for listed non-banking companies and 30 percent for banks. A 5 percent ownership threshold is mandated for foreign and local investors, whereby the investor or group must file a disclosure report. Each 5 percent increment thereafter, up to 25 percent, requires a corresponding disclosure. Ownership above 25 percent requires approval from the SSC.

A two-tier market surveillance system is maintained; the primary tier covers surveillance at the stock exchange level and the second tier at the SSC level. The parameters for market surveillance have been developed by the stock exchange. For its part, the SSC administers compliance requirements over the stock exchange and monitors transactions conducted on the exchange. Illegal trades fall under criminal proceedings and carry penalties plus a prison sentence. Administrative cases currently carry a fine of up to VND2 billion.19

In its investigations, the SSC can access an investor’s ID from security
brokers and documents from the settlement bank, but it has no direct access to investor communications (for example, e-mails, phone records). The investigation department then refers the case to the inspection department, which forms an examination group, which if needed then refers the case either to prosecutors for a criminal case or the relevant SSC department for an administrative case. It takes a maximum of ten days for a case to be elevated from the stock exchange to the SSC, where the surveillance department may process the case over a few months, or even years for complex cases. For its part, the Ho Chi Minh Stock Exchange interviews, investigates, and asks listed companies for an explanation within 24 hours.

Circular 183, which covers the establishment of mutual funds, was instituted in 2012. In the early part of 2013, the local financial industry had 23 closed-end funds and two open-end funds.

4.5 Capital Flow Management

Capital flows can be a double-edged sword for developing economies. On the one hand, capital inflows into a developing economy can be a great boon to growth, financing developmental requirements, smoothing consumption patterns, diversifying risks, and expanding economic opportunities. On the other hand, capital flows can also create a host of problems. ‘Although few deny the benefits of capital inflows for recipient economies, they often create problems especially if they are substantial and volatile,’ stated Kawai and Lamberte (2010, p. ix). They continued:

Massive capital inflows can create too much bank lending, excessive investment, and speculative activities, which can lead to goods price inflation, asset market bubbles, and potential vulnerabilities in bank, household, and corporate balance sheets. Moreover, sudden stops or reversals in capital inflows could lead to a currency crisis, the bursting of asset price bubbles, investment collapse, banking sector stress, and economic difficulties. (Ibid.)

Since recovering from the 1997–98 Asian financial crisis, the region’s developing economies have seen the return of capital inflows and a string of current account surpluses over a number of years. The more recent GFC that started with the collapse of the US subprime mortgage housing market left most Asian economies relatively unscathed, although their foreign trade inflows suffered owing to the downturn in demand from developed economies.

These Asian economies have proved to be resilient, expanding in the post-crisis years while developed economies continue to either recover at a snail’s pace or remain in a slump.
Kawai and Lamberte (2010, p.x) stated:

There are signs that capital of a largely short-term nature is returning to Asia in a significant way, raising serious concern among policymakers in the region who are trying to prevent rapid appreciation of their currencies against the US dollar and to contain inflation and increases in asset prices to stabilize their economies and sustain the recovery.

They added:

These recent developments suggest that managing capital inflows remains an important policy issue for many emerging market economies that needs to be studied rigorously and debated openly. Policymakers in the region are faced with questions on best policy responses and regional cooperation initiatives to utilize capital inflows while maintaining macroeconomic stability. (Ibid.)

**Brunei Darussalam**

The combination of a healthy level of international reserves – a major necessity for a currency board system – as well as a perennially positive trade balance, a huge current account surplus that exceeds 40 percent of GDP, fiscal surpluses, no foreign debt, and the presence of flexible markets for goods and labor have rendered moot the management of capital flows in Brunei Darussalam.

**Cambodia**

As a dollarized economy, there are no restrictions on international capital flows, but local banks are not allowed to invest abroad. NBC admits this is not a good system of capital flow surveillance from the point of view of financial stability. This also makes monetary policy inutile and achieving price stability difficult. The government does not issue either Treasury bills or bonds, as it remains cheaper to borrow abroad at concessional rates. Debt management capacity thus has to be developed. The government also hopes to develop an early warning system under its 2020 financial sector development plan.

**Lao PDR**

Total international reserves have surged in recent years, surpassing US$700 million in 2010, more than double the amount five years earlier. This has been fueled by the financial account balance – mainly consisting of direct investments and other investments from abroad. Experts note that investors from Viet Nam have been shifting funds to Lao banks in anticipation of the depreciation of the Vietnamese dong. Capital flow management in Lao PDR remains rudimentary.
Myanmar
The country is still in the process of attracting foreign investment and does not yet have a capital flow management system. Its funding has come mainly from concessional loans. However, attracted by Myanmar’s ongoing reform and liberalization policies, as well as the lowest labor wages in the region, foreign firms have been rushing to search for investment opportunities.

Viet Nam
Although Viet Nam restricts capital inflows and outflows, the country enjoys robust inflows of capital, consisting mainly of FDI. The Ministry of Planning and Investment has the authority to grant foreign investment licenses for projects over US$1 million, while provincial authorities approve projects under US$1 million. Foreign individuals and organizations are allowed to purchase local securities, but any issuance or sale of securities by non-residents requires SBV approval. Furthermore, enterprises operating in the country are subject to annual overall ceilings on foreign borrowings.

From 1988 to 2011, registered FDI totaled almost US$230 billion. These capital flows once largely funded the country’s current account deficit but, since 2005, remittances and portfolio inflows have played an increasing role in financing the trade deficit. With overseas remittances estimated at US$9 billion in 2012, the country ranks ninth among the world’s largest remittance-receiving countries and territories. The current account surplus surged to over US$9 billion in 2012, in part due to low imports. With this, gross international reserves rose at the end of February 2013 to more than 2.5 months of prospective imports of goods and non-factor services. Based on official data, Viet Nam’s international reserves stood at US$13.5 billion at the end of 2011, up from a low of US$12.5 billion in 2010, but still down from the high of almost US$24 billion in 2008.

5 SUMMARY FINDINGS AND RECOMMENDATIONS

In sharp contrast to the 1997–98 Asian financial crisis, the contagion effects of the recent GFC did not spill over into the financial sectors of ASEAN countries and left their economies relatively unharmed as well. The pain inflicted by the earlier Asian crisis, in terms of lost economic momentum, currency collapse, social unrest, and bank insolvencies, provided the impetus for countries in the region to embark on a series of economic, banking, and capital market reform initiatives. The 1997–98 Asian financial crisis drove the region’s developing economies to see the
globalization handwriting on the wall, and they opted to benefit from this trend by instituting the necessary reforms and pushing for greater regional cooperation.

This sense of urgency is sadly lacking in the aftermath of the recent GFC, which engulfed the developed economies and left Asia’s developing economies in a relatively robust and resilient position. This larger crisis, however, affected the weakened advanced economies’ demand for Asian exports. Asian economies, led by the PRC, turned inward with development programs aimed at rebalancing their economies by bolstering domestic consumption. The search for alternative markets is also pushing the agenda for greater regional integration in the form of the AEC. This, however, may prove to be too weak of an incentive for the BCLMV countries to accelerate economic and financial reforms.

As has been stated, the BCLMV countries differ widely in terms of political systems, stages of economic development, and cultures, among other characteristics. The major implication of this heterogeneity is that there is no one-size-fits-all solution for each country’s response to the banking reform measures emanating from developed economies. Each of the BCLMV countries has its own national banking development agenda and time frame for achieving its goals. A broad description of the priorities for financial sector development in the BCLMV countries is provided in Box 14.2. Furthermore, a summary of the results of the financial monitoring of the BCLMV countries is provided in Table 14.7.

The main objective of the Basel reforms to fortify global financial stability clearly cannot take precedence over the BCLMV countries’ national economic development aspirations. Adoption of these reforms will entail costs in terms of constraining economic progress. With the exception of Brunei Darussalam, the CLMV countries are in their catch-up phase of economic development marked by rapid growth. As these countries continue to grow, their financing requirements for infrastructure development will be substantial and continuously increasing. Global financial reforms, especially the Basel reforms, may constrain the capacity of banking sectors in the BCLMV countries to provide their portion of the required funding.

Ultimately, however, the relevant dictum is that the financial sector must serve the needs of the real economy. But for it to do so effectively, financial sector development must go hand in hand with the economy’s overall development. Financial development, including the advancement of the banking system, is a powerful determinant of economic growth. Part of this development is the regulatory regime, and certain reforms are essential to enhancing its structure, such as establishing an independent regulatory and supervisory system, and ensuring compliance with international standards for bank supervision.
Global shock, risks, and Asian financial reform

Given the underlying dissimilarities among the five BCLMV countries, the sequencing of financial reform measures should likewise diverge among them. Being at different stages of financial development, each country will have to set its own pace for opening up and reforming its financial sector.

BOX 14.2  FINANCIAL SECTOR DEVELOPMENT PRIORITIES IN THE BCLMV COUNTRIES

**Brunei Darussalam**
Enhance national payments system.
Set up a trade information bureau.
Establish a deposit insurance scheme under the MOF.

**Cambodia**
Capacity building efforts focusing on the following:
- prepare for ASEAN integration (2015 deadline for the AEC)
- develop capital account monitoring system
- develop effective monetary policy (open market operation and benchmark interest rates)
- enhance banking supervision and regulation (onsite and offsite)
- strengthen payments system
- institute a modern information system.

**Lao PDR**
Priorities under the 2010–15 plan:
- develop the securities market
- institute a capital market strategy plan
- prepare for ASEAN financial integration in line with sustainable Basel II reforms.
Also, transfer ownership of SOEs to the public (based on a MOF-drafted government decree).

**Myanmar**
Reform financial system (rewrite banking and financial laws).
Grant independence to the CBM.
New laws on financial institutions, foreign exchange management, and securities exchange.
Reform accounting and disclosures.

**Viet Nam**
The government has issued two resolutions to boost economic growth and quickly resolve the real estate and NPL issue.
Set up the VAMC and merge ‘five strong banks’.

*Note:*  AEC = ASEAN Economic Community, ASEAN = Association of Southeast Asian Nations, MOF = Ministry of Finance, NPL = non-performing loan, SOEs = state-owned enterprises.

*Source:*  Author’s compilation.
Table 14.7  Summary: financial monitoring of BCLMV countries

<table>
<thead>
<tr>
<th>Financial regulatory &amp; supervisory system (independence/resiliency)</th>
<th>Brunei Darussalam</th>
<th>Kingdom of Cambodia</th>
<th>Lao People's Democratic Republic</th>
<th>Republic of the Union of Myanmar</th>
<th>Socialist Republic of Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>No securities regulator</td>
<td>SECC under MEF</td>
<td>SECO and LSX are BOL units</td>
<td>CBM under MFR; no securities regulator</td>
<td>SSC under MOF</td>
<td></td>
</tr>
<tr>
<td>No CG for banks; limited disclosure for registered firms</td>
<td>Banks required to have independent board member and special committees for audit and risk management</td>
<td>CG contained in the Commercial Bank Law (c. 2006/2007)</td>
<td>CG rules to be addressed by proposed Financial Institutions Law</td>
<td>CG contained in Law on Enterprises, Banking Law 2010, Circular 121, and Decision 12</td>
<td></td>
</tr>
<tr>
<td>Corporate governance &amp; risk management</td>
<td>Adopted Basel I</td>
<td>Implemented</td>
<td>included in CBM priorities</td>
<td>Already in operation</td>
<td></td>
</tr>
<tr>
<td>System being set up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macroprudential surveillance</td>
<td>System being set up</td>
<td>System being set up</td>
<td>System being set up</td>
<td>System being set up</td>
<td>System being set up</td>
</tr>
</tbody>
</table>
Table 14.7  (continued)

<table>
<thead>
<tr>
<th>Transparency &amp; disclosure</th>
<th>Brunei Darussalam</th>
<th>Kingdom of Cambodia</th>
<th>Lao People’s Democratic Republic</th>
<th>Republic of the Union of Myanmar</th>
<th>Socialist Republic of Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans to put up stock exchange</td>
<td>Plans laid out in Financial Sector Development Strategy 2006–15</td>
<td>Securities Law, passed in December 2012, waits to be signed</td>
<td>Security Exchange Law, now waiting for approval by parliament</td>
<td>Two-tier market surveillance system is maintained; rules under Circular 52 and Decree 58</td>
<td></td>
</tr>
<tr>
<td>Capital flows management</td>
<td>Oil sales receipts main source of funding</td>
<td>Dollarized economy, no restrictions on capital flows</td>
<td>Rudimentary system</td>
<td>No formal system</td>
<td>MPI and SBV regulate flows</td>
</tr>
</tbody>
</table>


Source:  Author’s compilation.
Brunei Darussalam, for example, presents a special case owing to its oil-fueled high per-capita income and lagging financial sector. While it has issued a small amount of *sukuk*, it has yet to establish a market for publicly traded securities, including stocks and bonds. In contrast, Cambodia, Lao PDR, and Viet Nam have made strides in launching their own national stock exchanges.

The sequencing of which laws and regulations should be revised or enacted, and which institutional capacities need to be strengthened, is best decided by each country’s set of policymakers. At the same time, this does not mean there is no need for the synchronization of implementation time frames. It is crucial for the other five member countries of ASEAN, as well as for multilateral funding agencies, to push the BCLMV countries to accelerate their financial sector development programs. It would be risky, for example, for the AEC to be in general compliance with global regulatory reforms while allowing peripheral zones of non-compliance. There is the real danger that the BCLMV countries’ continued rapid growth and development might outpace their regulatory capabilities, thus risking financial instability and planting the seeds of financial contagion in the region. Prolonged non-compliance would also unlock opportunities for regulatory arbitrage, which could become another source of instability within the region.

NOTES

1. ASEAN was formed on 8 August 1967 by Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Since then, membership has expanded to include Brunei Darussalam, Myanmar, Cambodia, Lao PDR, and Viet Nam.

2. AEC Blueprint (2008, p. 5).

3. Ibid., p. 2.


5. A detailed history of Cambodia’s currency may be found in Capannelli and Menon (2010).


7. Formerly known as Ministry of Finance and Revenue until July 2013.

8. This refers to the international bank-rating system where bank supervisory authorities rate institutions according to the following factors: capital adequacy, asset quality, management quality, earnings, and liquidity (CAMEL).

9. Private estimates put the banking sector’s NPLs at a much higher rate of 15 percent. In 2012, the SBV conducted comprehensive supervision of some weak banks, which revealed that the small banks had bad loan ratios of up to 60 percent. The SBV has since upgraded provisioning requirements for banks. Another source of complication is cross-shareholdings among banks. Also, small banks lend only to SOEs, making them *de facto* financial holding companies for these SOEs. Adding to the banking system’s woes is that the real estate market has been either frozen or suffering from price declines for the past two years. A private realty consultant, CBRE, recorded declining trends in office rentals for the past two years owing to oversupply and sees this trend continuing
in the near-term. A lot of these office projects are funded by SOEs. Furthermore, borrowers usually use real estate as collateral. As a result, an estimated 60–70 percent of NPLs are real-estate linked. Also under a cloud of doubt are the accounting standards being used. Viet Nam accounting standards (VAS), with the MOF acting as the national accounting body, still need to be aligned with international accounting standards (IAS). Further, the State Auditor is seen as problematic and weak.

10. BIS (2010b, p. 1).
12. The ten Asian economies are the PRC; Hong Kong, China; India; Indonesia; Japan; the Republic of Korea; the Philippines; Singapore; Taipei, China; and Thailand.
13. A fuller discussion of these issues may be seen in Committee on International Economic Policy and Reform (2012).
14. These issues are discussed in BIS (2008).
15. Ibid., p. 49.
16. Ibid., p. 29.
17. Decree No 108/2013/ND-CP, which took effect on 15 November 2013, raised maximum fines up to VND2 billion ($95238) for institutions and VND1 billion ($47619) for individuals – quadruple the prior rates.

REFERENCES

Association of Southeast Asian Nations (ASEAN) (2008), ASEAN Economic Community Blueprint, Jakarta: Association of Southeast Asian Nations.
Autoriti Monetari Brunei Darussalam (2013), ‘Regulation of lending rates and deposit rates’, news release, 8 March.
Evans, O., A.M. Leone, M. Gil and P. Hilbers (2000), ‘Macroprudential indicators
Financial monitoring in the new ASEAN-5 countries

of financial system soundness’, IMF Occasional Paper No. 192, International Monetary Fund, Washington, DC.
Financial Stability Board, International Monetary Fund, and Bank for
tools and frameworks’, update to G20 Finance Ministers and Central Bank
Governors, Basel.
Geles, R. and S.-J. Wei (2002), ‘Transparency and international investor behav-
ior’, NBER Working Paper No. 9260, National Bureau of Economic Research,
Cambridge, MA.
Government of Brunei Darussalam, Brunei Economic Development Board
wwawasan2035.html (accessed 3 June 2013).
Government of Lao People’s Democratic Republic (2011), Seventh Five-Year
National Socio-Economic Development Plan (2011–15), Vientiane: Ministry of
Planning and Investment, pp. 109–10.
vulnerability’, NBER Working Paper No. 18428, National Bureau of Economic
Research, Cambridge, MA.
Hoogduin, L. (ed.) (2010), ‘Macroprrudential instruments and frameworks: a
stocktaking of issues and experiences’, report submitted by the Committee
on the Global Financial System, CGFS Papers No. 38, Bank for International
Settlements, Basel.
for a Framework, Cheltenham, UK and Northampton, MA, USA: Asian
Development Bank Institute and Edward Elgar.
Organisation for Economic Co-operation and Development (OECD) (2004),
OECD Principles of Corporate Governance, Paris: Organisation for Economic
Co-operation and Development.
Working Paper No. 16836, National Bureau of Economic Research, Cambridge,
MA.
15. Financial inclusion and regulatory implications

Qifeng Zhang and Josephine B. Valle-Sison

1

1 INTRODUCTION

Financial inclusion is a relatively new notion, which evolved from microfinance and is still subject to debate on the elements of its definition. The Center for Financial Inclusion at ACCION International defines it as ‘a state in which everyone who can use them has access to a full suite of quality financial services, provided at affordable prices, in a convenient manner, with respect and dignity. Financial services are delivered by a range of providers, in a stable, competitive market to financially capable clients’.

For the Consultative Group to Assist the Poor, financial inclusion refers to ‘a state in which all working age adults, including those currently excluded by the financial system, have effective access to the following financial services provided by formal institutions: credit, savings (defined broadly to include current accounts), payments, and insurance’ (CGAP 2011, p.8). The CGAP further construes ‘effective access’ as involving ‘convenient and responsible service delivery, at a cost affordable to the customer and sustainable for the provider, with the result that financially excluded customers use formal financial services rather than existing informal options’.

According to Queen Máxima of the Netherlands, the United Nations (UN) Secretary General’s Special Advocate for Inclusive Finance for Development, ‘financial inclusion means universal access, at a reasonable cost, to a wide range of financial services for everyone needing them, provided by a diversity of sound and sustainable institutions’.

Although the wording differs, the above definitions point in unison to the following features of financial inclusion: (1) it pursues an end objective; (2) it covers a broad range of products, including savings, credit, insurance, payments, and remittances; (3) it comprises the quality aspect of these services, in particular, affordability, convenience, respect, and
Financial inclusion and regulatory implications

It advocates for financial services by formal, sound, and sustainable institutions.

In the case of developing countries, extending financial services to unserved or underserved market segments, in particular poor individuals, low-income households, and SMEs, is a primary policy objective for financial inclusion. To put it another way, the traditional preoccupation of microfinance, which is to embrace those who are excluded from the financial system, remains a key characteristic of financial inclusion. This can be seen in the above definition from CGAP.

Following the presentation of the different definitions of financial inclusion, this chapter highlights, in section 2, the objectives and principles of the regulation of financial inclusion. Section 3 discusses regulatory implications of financial inclusion in nine major areas and section 4 concludes with summary policy recommendations.

2 OBJECTIVES AND PRINCIPLES FOR THE REGULATION OF FINANCIAL INCLUSION

Financial regulation traditionally centers on maintaining market confidence and sustaining financial stability. In recent years, preventing financial crime, particularly money laundering, has drawn increasing attention from financial regulators. As rule makers and guardians of market order, financial regulators’ typical stance has been to stay neutral and refrain from unnecessary interventions into market operations and development.

However, this situation has changed with the advent of financial inclusion. Since the ultimate objective of financial inclusion is to promote access to, usage of, and benefits from financial services between the excluded and underserved populations, it would be unthinkable for policymakers to achieve the desired state of financial inclusion without taking a proactive role and providing the necessary incentives. In other words, whenever a government sets out to play a transformational role and create an enabling policy and regulatory environment for financial inclusion, it is already a departure from the laissez faire of orthodox free market economics. Thus, new principles and methodologies become necessary to transform the financial regulatory system from a neutral stabilizer to a proactive enabler.

The G20 Toronto Summit in May 2010 endorsed nine Principles for Innovative Financial Inclusion, which aim to provide guidance for new regulatory approaches that will foster the safe adoption of delivery models and the extension of affordable financial services that respond to customer needs in both quality and range. These principles encourage government commitment to financial inclusion to help alleviate poverty, promote
technological and institutional innovation as a means to expand access to finance, call for development of financial literacy and a comprehensive approach to consumer protection, and demand a regulatory framework that is proportionate with the risks and benefits involved. Many of these principles were reflected in follow-up principles endorsed by the G20 (OECD 2011, 2012) and in regulatory guidance issued by the concerned international standard-setting bodies (FATF et al. 2013).

Other important sources of guiding principles for financial inclusion have come from pertinent global standard-setting bodies in the fields of banking, payment, and insurance:

- For depository microfinance, the Basel Committee on Banking Supervision issued a report in August 2010 that analyzed the applicability of the Core Principles for Effective Banking Supervision, and indicated that most principles ‘require some degree of tailoring’ in their implementation to microfinance and supervisors need to ‘identify and measure risks that are specific to microfinance, particularly to microcredit’ (BCBS 2010a).

- For international remittances, the Committee on Payment and Settlement Systems (CPSS) and the World Bank formulated in 2007 five general principles to improve the market for remittance transfers, a key component of financial inclusion: (1) transparency and consumer protection, (2) payment system infrastructure, (3) legal and regulatory environment, (4) market structure and competition, and (5) governance and risk management (CPSS and the World Bank 2007).

- For the insurance sector, the International Association of Insurance Supervisors has issued Insurance Core Principles (last revised in October 2012), which are deemed generally relevant to the financial inclusion agenda. The IAIS approach for financial inclusion in the insurance sector is mainly to promote the extension of conventional insurance to reach excluded customers, while bringing informal providers of insurance products into compliance with the ICPs.

High-level principles are necessary but not sufficient for achieving the policy objectives of financial inclusion. Financial regulators still need to identify those principles that best suit their country context, transpose international guidelines into domestic regulations, and determine a proper sequence of interlinked and mutually reinforcing actions. To a great extent, the key success factors lie with the details of implementation. The following section focuses on the implications that financial inclusion has for financial regulation and supervision.
3 MAJOR REGULATORY IMPLICATIONS

3.1 Basel III Requirements

The Basel III capital and liquidity requirements, which were endorsed by the G20 at the 2010 Summit in Seoul, will have a significant bearing on commercial banks. Apart from higher capital requirements, Basel III also introduced a new global liquidity standard, consisting of: (1) the liquidity coverage ratio, which deals with short-term resilience to potential liquidity disruptions by requiring that banks carry high-quality liquid resources to survive an acute stress scenario lasting for one month; and (2) the net stable funding ratio, which addresses a longer time horizon by requiring a minimum amount of stable sources of funding at a bank relative to the liquidity profiles of assets over a one-year period.

These new standards will contribute to a more resilient banking sector, but may also drive commercial banks to optimize the use of capital to make up for the low yield of an increased amount of liquid assets or the higher costs of longer-term funding by focusing their operations on the most profitable segments of the market instead of embarking on financial inclusion and reaching out to the poor and other excluded populations.

The BCBS indicated that ‘both the LCR and the NSFR will be subject to an observation period and will include a review clause to address any unintended consequences’ (BCBS 2010b). For financial regulators, it is important to make sure that, based on the principle of proportionality, the implementation of Basel III requirements will not adversely affect the expansion of lending and other financial services to underserved areas or excluded populations. When appropriate, regulators may consider taking rebalancing action. For instance, in 2012, the China Banking Regulatory Commission issued a circular on commercial bank capital management under the framework of Basel III, which provides that the risk weight for normal corporate lending be kept at 100 percent, while loans to qualified micro and small enterprises will have a reduced risk weight of 75 percent. This is an example of regulatory incentive for commercial banks to downscale their corporate lending operations in favor of micro and small enterprises.

3.2 Expansion of Financial Services

Promoting outreach of financial services to underserved areas and excluded populations is a key policy objective of financial regulators in support of financial inclusion. The major approaches to achieving this end can be categorized into one of three groupings discussed below.
The first group comes under the traditional regulatory and supervisory mandate of financial regulators. It encompasses: (1) reducing barriers to market entry in terms of minimum capital requirements and restrictions on private or foreign ownership; (2) easing the fit-and-proper criteria for management and key positions in concerned financial institutions, in particular those at the grass roots level, such as credit unions and rural credit cooperatives; and (3) calibrating regulation and supervision in proportion to the possible risks involved, including not subjecting non-deposit taking service providers to prudential regulation.

This approach entails no fiscal support to the industry by financial regulators, whose enabling role could be fulfilled by increasing the supply of financial services and reducing regulatory costs on services providers. The crowd-in effect would help not only attenuate the shortage in market supply, but also encourage competition among service providers which may drive down the price of financial products while improving the quality of services.

While this approach has been the most popular being advocated to financial regulators, a word of caution is merited on the following hindrances to or likely consequences of its implementation: (1) certain areas or client segments in the market are not able to generate minimum financial self-sufficiency, which may cause investors and service providers to voluntarily shy away from them even in the absence of unwarranted regulatory barriers to entry; (2) the total number of small-scale financial institutions in a country may overwhelm the supervisory capacities of financial regulators, and the resultant lack of effective oversight may lead to possible disorder in the market and financial instability; and (3) in certain developing countries, the issuance of a business license per se by financial regulators could be perceived as involving the approver’s accountability, and may give rise to expectations that the government would step in to support a service provider in financial distress or provide other arrangements to minimize losses accruing to customers. In the event that the government failed to do so, the collapse of a financial institution, especially one that takes deposits from the public, could become a source of turmoil and social instability.

The second group relates to developmental activities of financial regulators, including direct credit; public sector ownership of development institutions and participation in their management; priority lending; interest rate subsidies; operating cost subsidies; and credit guarantees. Regulators’ roles and activities in this regard, particularly government-directed credit programs in the 1970s and 1980s, have been questioned, owing to problems with the targeting of clientele, corruption and embezzlement, and massive defaults in repayment. Furthermore, it has been broadly accepted that
Financial inclusion and regulatory implications

market distortion and financial repression can result in the inefficient allocation of resources and reduced quality of investments.

Limiting such interventions and moving toward a level playing field has been at the core of various initiatives for financial sector policy reforms in developing countries. The rationale for these reforms can be explained as follows: (1) the market is the most effective and efficient way to allocate resources, and to reduce transaction costs for the benefit of clients (or end users of financial services); (2) subsidies are costly to administer and are vulnerable to misappropriation and inefficiency; and (3) governments’ direct intervention in providing financial products and services is inherently inconsistent with its role as a regulator and supervisor.

The reality, however, is often more complex. First, providing market-based products and services is not financially viable for formal financial institutions in certain segments of the market. With no incentive or other compensatory measures, there is no market at all to start with. Although some financial institutions are registered with a mission statement to provide services to underserved areas and people, they may gradually shift their operational focus to avoid losses and less profitable areas or clients. Second, nurturing the development of financial inclusion, which accounts for a trivial share of the financial market, is completely different from government intervention in other mature and competitive markets. Third, there are cases where a possible conflict of interest between the government in its role as regulator and shareholder of service providers is properly resolved, in particular in developed countries. Fourth, social work and other financial support based on social consideration, such as conditional cash transfers (CCTs), are getting more popular and achieving positive results. Therefore, questions could be raised about why, if CCT can reasonably solve the various problems associated with targeting and leakage, financial inclusion operations cannot meet these same challenges.

The third group is about promotional functions of financial regulators for the expansion of financial services. Typical examples include data collection and dissemination, research, financial education, and training. This is subject to less controversy and has been drawing increased attention as a promising area for international cooperation.

In addition to the above considerations, most of which arise from debates on financial regulators’ role in microfinance, the era of financial inclusion has brought about new challenges and opportunities for the role of financial regulators in support of the expansion of financial services.

First, financial regulators overseeing banking, insurance, and securities need to closely cooperate to promote the expansion of financial services to underserved areas and excluded populations. Financial inclusion touches upon credit, deposit, insurance, remittances and payments, and
(eventually) capital market development for SME finance. In many developing countries, these areas may come under the oversight of different financial regulators. This cooperation is crucial not only for creating an enabling environment for the expansion of financial services through traditional regulation and supervision, but also for regulators’ developmental and promotional activities.

Second, as market-based rationales and incentives tend to drive financial services to geographic and client segments that promise profitability and involve less risk, financial inclusion shall, by definition, be associated with developmental and promotional activities. Furthermore, recent findings from the British Department for International Development’s (DFID) systematic reviews of impact evaluation studies reveal that microfinance had little or no positive impact on poverty reduction or the empowerment of women (Duvendack et al. 2011; Pande et al. 2012; Stewart et al. 2012). This suggests that microfinance was not able to achieve its core objective of poverty reduction under the prevailing commercial model during the past decade and points to the need to enhance the development dimension of financial inclusion.

The issue is how to design and implement less costly and more effective mechanisms to encourage the expansion of financial services to underserved areas and excluded populations. New modalities are emerging, such as regulatory incentives under which the issuance of a branch license in developed areas is tied to a promise to set up new outlets in less developed areas. New tools and monitoring mechanisms that could not be imagined two decades ago, such as advanced information communications technology (ICT) and social media, are now readily available. This provides unprecedented opportunities for financial regulators to sort out, revamp, and improve the monitoring of developmental activities. In this regard, pragmatism based on the evolving situation in developing countries and newly available data and evidence should prevail over dogmatism and entrenched thinking in shaping financial inclusion policies.

Finally, financial regulators should closely monitor the emerging concept and practice of social business. On the one hand, social business complements development activities conducted by financial regulators and other government agencies. On the other hand, it also raises the issue of proper regulation and supervision, and private sector synergy with regulatory initiatives.

3.3 The Pricing of Financial Products and Services

Whether financial regulators should control or liberalize pricing of financial products and services has been a long-standing debate. This issue is
particularly embodied in the polarized views on placing restrictions on interest rates. The practice of whether to set or remove interest rate caps varies across different countries. India, for example, introduced restrictions in May 2011 on the maximum interest rate on microfinance loans and on the interest margin between microfinance institutions’ (MFIs) borrowing costs and their lending interest rates. This double cap was relaxed in August 2012 to a single cap on the interest rate margin. In July 2013, the PRC liberalized restrictions on the lending rates of all financial institutions, including the maximum lending rate offered by rural credit cooperatives (RCCs), which had been capped at two to three times the benchmark rate.

In developed countries, restrictions on interest rates can be quite common. An EU report in 2011 noted that out of 27 EU members ‘14 Member States had either some form of an absolute ceiling (Greece, Ireland, Malta) or a relative ceiling based on a reference rate (Belgium, Estonia, France, Germany, Italy, Netherlands, Poland, Portugal, Slovakia, Spain, Slovenia)’ (EU 2011, p. 2). Outside the EU, most developed countries in the G7 maintain interest rate caps in one form or another. These include some Australian states, Canada, Japan, and the US (OFT 2010).

Although restrictions on interest rates have not yet been phased out in many developed countries where the market economy is generally well established, the predominant school of thought advises developing countries not to introduce or maintain restrictions on interest rates for microcredit, which constitute a form of financial repression. The most popular argument is that the operational costs of microcredit are much higher than for corporate lending and that any restriction on interest rates would impede the market and institutional development of MFIs, ultimately driving poor clients into more expensive, informal markets. It is argued that restrictions on interest rates often hurt rather than protect vulnerable, low-income populations that are most in need of financial services. Therefore, the best way for governments to lower interest rates is to promote competition and innovation (Duval 2004).

The problem with this line of thinking is that there is not sufficient evidence to prove the correlation between an interest rate cap and damage (or opportunity cost) to low-income potential borrowers. Cases of a meaningful reduction of microcredit interest rates through market competition in developing countries are also very rare. On the contrary, in the wake of the 2008–09 global financial crisis, an IMF research paper based on empirical analysis of data from 37 countries in sub-Saharan Africa pointed out that interest rate and lending liberalization alone could be detrimental to the poor if not accompanied by institutional reforms (Singh and Huang 2011). If the market is not yet fully competitive, where one or only a few
businesses have sufficient market power to charge high prices or unduly pass on costs to clients, and if the reasonable level of operational costs can be determined in terms of an interest rate margin, then financial regulators may consider, with good reason, the option of setting interest rate caps as a tool to prevent unfair pricing for poor customers until better alternatives become available.

In sum, there seems to be no point in overreacting to interest rate caps, or at least to restrictions on interest rate margins. Common sense should prevail over the power of ideology. Depending on the country context, the introduction of this restriction could be a necessary and wise move pending the establishment of a properly functioning consumer protection mechanism. However, when such a restriction is resorted to, precautions should be taken to design controls based on empirical research on the actual costs of lending, and they should be structured to accommodate reasonable costs and reflect different risks associated with different sizes, terms, and securities for loans (Davel 2013). In this regard, market evolution and current practice in developed countries deserve special attention and further analysis. At the same time, it is also advisable for financial regulators in developing countries to keep abreast of market developments in their own country in order to make timely adjustments as India and the PRC have recently done.

3.4 Financial Consumer Protection

In the microfinance industry, one of the most prominent initiatives on consumer protection was the formulation in 2008 by industry leaders worldwide of a set of Client Protection Principles that have been championed by the Smart Campaign, which is a program under ACCION International. Another major milestone was the launch in 2008 of MicroFinance Transparency, which aims to address the lack of comparability on the true price of microcredit products.

In the wake of the GFC, financial consumer protection, which is a concept broader than microfinance client protection, has drawn greater attention. The High-level Principles on Financial Consumer Protection were endorsed by the G20 Finance Ministers and Central Bank Governors in October 2011. The G20 leaders further supported the creation of a fourth subgroup for financial consumer protection and financial literacy under the Global Partnership for Financial Inclusion (GPFI). Nowadays, financial consumer protection is broadly recognized as forming part of the responsible finance and social performance of financial service providers.

In effect, consumer protection in the context of inclusive finance is particularly needed by new customers having different characteristics
from the average consumer, including microcredit borrowers, savers, and individuals who are being introduced to the world of finance for the first time. These new clients have different levels of financial literacy and access to information. Not being regular consumers of financial services, caution should also be taken when assuming rational behavior from this segment. Meanwhile, on the supply side, new delivery mechanisms, new channels, and new products need to be considered when setting up a regulatory framework for financial consumer protection. Also, regulation should be balanced between the fair treatment of clients and the rights and interests of service providers, so that service providers and investors will not be scared off.

To multiply the complexity, these challenges differ across a range of country contexts, financial products, and stages of the consumer–provider relationship.

3.4.1 Start with the basics
In the process of setting up a regulatory framework for financial consumer protection, it is tempting to regulate every single action that appears to be against the interest of the consumer. However, aside from discouraging the further growth of providers and thereby countering the goal of financial inclusion, doing so also puts a strain on limited regulatory and supervisory resources. Moreover, the regulatory scheme cannot be too stringent as this could lead to a high rate of non-compliance. If consumer protection is overly strong, borrowers might misidentify this as a signal that they can be lax with loan repayments. Instead of providing stability, this scenario could inadvertently do much damage to the system. In instances where regulators are too lax, providers could push the limits of ethical practices. Hence, there is a need for balanced regulation that not only looks after the interests of both the consumer and the provider, but also encourages the appropriate actions from both.

Given the complexity of the issues at hand, and the limited regulatory resources available to many developing countries, setting up a national response to financial consumer protection should start with the basic protections that matter most to the individual consumer, and to build on them later as necessary. Generally, the three main protection needs of consumers are: disclosure and transparency in pricing, protection from abusive practices, and a grievance or redress mechanism.

Even within these three priority areas, regulators will have to set out suitable rules and find appropriate methods of implementation in order to achieve the desired results acceptable for both service providers and consumers. It is important for regulators to set certain mandatory provisions in the regulations to protect consumers while allowing service providers
some measure of freedom in adhering to other provisions and taking into account their type of institutions, firm size, and labor characteristics, among other factors.

### 3.4.2 Information asymmetry and lender practices

In any normal transaction, especially in the field of financial inclusion, abuses or failures come from asymmetry of information. Problems such as over-indebtedness among microcredit borrowers occur sometimes because these borrowers might not have understood the charges their loans carried and whether or not they could afford them. The very basics of financial consumer protection, therefore, include ensuring transparency and the disclosure of information in the hope that consumers are able to make informed choices.

But, there is a caveat: financial regulators, supervisors, and financial service providers should recognize that the segment they are dealing with is a new one and communicating information to them involves additional effort. These new consumers might speak different languages or come from a different ethnic group than ordinarily is targeted with information outreach. Some might even be functionally illiterate or their understanding of common financial terminology might be severely limited. As a result, these clients will be more prone to suffering misunderstandings and possibly abuse. Financial regulators, as such, have to be attuned to the needs of this consumer group in order to adjust regulations for their protection.

Benchmarking the financial capacities of consumers is also a starting point for regulators in identifying their financial education needs. Financial literacy, after all, is interlinked with consumer protection and will be discussed later.

One way by which regulators bridge the information asymmetry gap is to require service providers to follow a standardized format for information sharing that should detail all fees and interest charges in an easily understandable manner. Standardized information on financial terminologies might also be included. This not only provides consumers with information on the products or services, but also allows them to compare products across different providers, thereby spurring competition among providers.

A variety of practices that increase transparency and build trust between clients and providers should be considered. These practices include having written codes on what clients can expect from staff or agents displayed in offices to posting interest rates and product pricing information on office walls. Whether these are to be made mandatory or optional depends on how regulators appraise their specific circumstances.

Meanwhile, as consumers are bombarded with information, regulators
also need to consider how consumers use this information. There have been studies showing that information, in particular written information, may not always be useful in a consumer’s decision-making process. The ‘fine print’ in documents is rarely read or understood. Verbal communications, therefore, between the consumer and the provider’s staff or agents need to be strengthened. If possible, financial providers’ staff or agents should have discussions with the customer, at different stages of their relationship, simulating different scenarios that can arise when purchasing specific financial products and services. These might include discussions on interest computations and payment schemes, scenarios for late or early payments, and variable payments. However, regulatory steps should also be taken to ensure that these interactions are not mere marketing strategies designed to mislead consumers.

3.4.3 Safeguards against irrational behavior and abusive practices

Behavioral economics reveals that different consumers sometimes depart from rational behavior. Caution should be taken with respect to assuming how consumers will behave. Further research into how or why, and to what extent, particular consumer groups targeted for financial inclusion deviate from rational consumer behavior is an interesting area of study that might prove useful for providers and regulators. In the meantime, regulation should address these irregularities.

A microcredit borrower, for instance, might still feel the need to borrow even when faced with high interest rates that are obviously beyond his or her capacity to repay and thus he or she could fall prey to agents who practice predatory lending. Certain measures should be in place to safeguard consumers against predators and also against themselves. This is not to say that a consumer’s right to make his or her own choices is secondary, but there should be mechanisms for correcting possible vulnerabilities among consumers. For example, due diligence in identifying the ability of the microcredit borrower to repay his or her loan needs to be a coordinated effort between both the borrower and the provider of funds (or its agents). In these cases, providers should have internal risk management systems and train staff to engage with customers.

It is also important to look into the internal incentive mechanisms of financial service providers. Do they encourage ethical practices or are they prone to predation and abuse of consumers? Caps on loanable amounts with respect to income may also be considered as this might play a part in safeguarding the interests of consumers. Consumer protection bodies might be mobilized to act as an additional watchdog against abusive practices and to rein in consumers who may be confused by the novelty of the financial products and services available.
3.4.4 Redress mechanism
Despite keeping consumers informed and setting up safeguards, there are still bound to be some problems of (hopefully) isolated instances and of limited intensity. The important thing is that an effective mechanism for grievance or redress is in place. How this operates may vary. Where the redress mechanism is housed is an issue that regulators might have to look into. Will it be a separate body or an entity housed within existing consumer protection associations? Will it be a function of the regulator or the providers to set up their own customer complaint focal point? Either way, the grievance mechanism should be simple, accessible, and affordable.

It is interesting to note that there are many instances of customer grievance that do not get reported. The reasons why these problems are not coursed through proper channels should be identified. One of the usual origins of conflict lies in the relationship between customers and agents. And the pressing question for regulators is whether providers should be accountable for their agents’ actions. Indeed, financial service providers should be responsible for their agents. While it may sound very taxing for providers to bear the cost of responsibility for so many agents, especially in the face of scrupulous agent practices, regulators should emphasize mitigating these losses by having proper training and screening for agents and staff alike. Simple practices can be carried out by service providers, such as informal surveys of delinquent customers, to ensure they are not maltreated by collection agents.

3.4.5 New products and new consumer protection challenges
The thrust toward financial inclusion not only brings new consumers into the financial arena, but also new technology and channels for the delivery of products, if not new products themselves. This again implies new challenges for regulators as consumers are potentially exposed to new risks. However, it seems rational to ‘not put the cart before the horse’. Stepping in prematurely to regulate might possibly stifle the pace of useful technological innovations. As long as these new technologies or new products do not impose any major risks to consumers, it is best to prioritize regulatory focus on mainstream financial products.

As with mainstream financial products, the concept of proportionality should also be considered when taking into account regulation for new products. Relatively new financial products with quite small consumer penetration impose little systemic risk and thus do not need to be heavily regulated. As long as there is regulation that addresses the basic consumer concerns in relation to these products, this should be sufficient, at least in these products’ initial stages. This is also an area where it is best to be
flexible, to test and learn. When the time comes to introduce newer regulations, however, it is important to keep regulations technology neutral, given the ever-changing technology available to consumers and providers. Innovations in branchless banking and their regulatory implications are discussed in a separate section.

3.5 Financial Literacy

3.5.1 Needs and tools assessment and design

Financial literacy is a new focus area for financial inclusion. It is different from, but at the same time mutually reinforces, financial consumer protection. A broad consensus is being reached on their importance, in that they both form one of the critical pillars for financial inclusion, together with access and usage. In other words, with no adequate financial consumer protection and financial literacy, financial inclusion will not be able to achieve its policy objective of promoting inclusive economic growth and contributing to poverty reduction.

Group of 20 leaders at the Los Cabos Summit in June 2012 endorsed the OECD/International Network on Financial Education (INFE) High Level Principles on National Strategies for Financial Education. Further, tools are being developed by the World Bank and the OECD in cooperation with the GPFI to promote financial education.

As a new initiative, financial literacy faces a number of challenges:

- Needs assessments for building consumer financial capacity can be more complicated than they appear to be, particularly when the concept is taken in its broader sense to include consumer attitudes and behavior.

- The approaches and communication tools for building consumer financial capacity call for careful consideration to ensure that the campaign and education program will effectively reach the targeted audience, be well understood, and provide the intended help when needed. (Financial services may be used not at the time of, or immediately after, financial education.)

- Funding financial education is another challenge. Financial service providers may not be expected to invest significant resources in stand-alone financial education programs except as a side product of publicity or in connection with the delivery of a specific product (for example, warning against scams for automated teller machine (ATM) cash withdrawal or Internet banking). Ways to appropriately engage the private sector need to be explored. Donations, non-governmental organization (NGO) support, and/or government
resources are also needed to foster financial education, which could (arguably) be considered a public good.

- The impacts of financial education are hard to evaluate. Limited empirical evidence from recent reviews concluded that financial education may have little impact on financial capacities. Without proper feedback and evaluation, there is no basis for the refinement and continued implementation of an education program.

In addition, financial regulators need to coordinate with other related governmental agencies, particularly with the ministry responsible for financial education at schools. Financial regulators need to develop a mechanism to analyze the evolving status of financial literacy and to evaluate the results of its promotion and monitoring efforts. A measurement tool, in particular, is needed for financial capacity-building as it should aim at delivering long-term effects, instead of providing a one-off event.

There is much to think over with respect to financial literacy. For example, is there a need to have a national program for financial education? To answer this question, it is necessary to assess the context of the country and the results being eyed. Is financial education being pursued to spur usage and access? Or is there a need for education because there is growing access and usage? Financial literacy, be it spread through a national program or otherwise, should address both. It is difficult to educate if there is no interest. And there can only be little interest if there is limited access. It is therefore important to consider, when is the appropriate time to educate and when is that teachable moment?

Regardless of which route is taken to providing financial education, it is important that the financial knowledge needs assessment of the targeted audience follows a decentralized process. Apart from needs assessment, it might also be useful to gauge the attitudes of the target audience about financial literacy. This cannot be done simply with a national consumer survey or census. Sources such as consumer surveys and market research provide an overview of the general needs of consumers. However, a more granular assessment has to be carried out to measure attitudes. Consultative processes or similar engaged research should be conducted for this purpose.

After mapping the current state of financial literacy and its gaps, pilot areas could be identified for full-scale financial education to be undertaken with a particular focus on specific segments of the population.

The approach and tools for building financial literacy will have to be carefully laid out. Consideration of the channels for delivering the training programs is needed, and the methods for delivering them will have to be designed. There is not a one-size-fits-all tool to financial literacy; the
approach has to be tailored to the situation. The approach also has to be simple and introduced gradually, and be realistic, taking into account the capability of not only the population as a whole, but also the most vulnerable groups. It should identify who will conduct financial education as a credible and unbiased educator. The actual responsibility of teaching financial education should not be assumed by the government. The role of the regulator in this case is simply to encourage the channels for financial education.

3.5.2 Educating through schools
Incorporating financial education into the current educational system is one credible option. This approach, however, poses some concerns. Fostering financial education through the current education system is a long-term process. The audience of this financial education might not be participants in the financial system for years, so there might be limited immediate impact on financial consumer confidence. Thus, the question of a ‘teachable moment’ again has to be revisited.

Another problem with the educational system channel is outreach. Educating through schools targets only the school-age group, and even within this group financial education reaches only those already in the education system. This approach automatically excludes the most vulnerable groups of the population: those who are not able to attend formal schooling or those who are unable to send their children to school. Countries where there is a poor education system will need to address this basic concern when adding financial education to their curriculum. Despite these concerns, there is value, nonetheless, in educating students about finance to instill the habit of saving and the value of financial prudence at an early age.

3.5.3 Role for the private sector
Meanwhile, financial service providers themselves might also be encouraged to engage in financial education. Financial regulators could encourage both informal learning and more organized financial training from their service providers. Providers, through their staff or agents, should engage customers at every stage of their relationship in conversations about the details of their availed services and other financial products. Apart from this, since service providers are perhaps the most knowledgeable about finance, they could organize formal training sessions for current or potential clients. As this obviously will incur costs for the service providers, partnerships or some incentive system might be arranged to encourage their involvement. It is important, however, to differentiate this undertaking from the marketing pitch of these providers. Minimal regulation might
be considered to check that training remains unbiased and is not merely a marketing vehicle.

Private sector groups, NGOs, and consumer protection associations are among those in the best position to contribute to financial literacy through various information drives and organized trainings. Multiple avenues should be pursued in seeking to raise financial literacy not only to extend the reach of education efforts, but also to balance the inadequacies of different approaches.

Regulators will have to devise indicators to measure the results of such training efforts. It does not matter if the indicators are simple as long as they are measurable with relative ease. Measuring from different points of view should also be considered to produce a balanced assessment of the results. Caution should be taken, however, not to automatically equate increased financial literacy with increased financial capacity, especially among the groups or segments targeted for financial inclusion. Service providers should also learn this. Financial literacy is just one of many pillars of inclusion and consumer protection. In the end, regulators, consumers, and providers should all keep in mind that financial literacy is not a panacea for financial problems.

3.6 Branchless Banking

Branchless banking is a promising gateway to financial inclusion in that it provides opportunities to expand outreach and reduce transaction costs. But branchless banking is an area that cuts across a broad spectrum of regulatory domains including prudential regulation, payments, anti-money laundering, foreign exchange, consumer protection, and mobile network operator (MNO) regulation. Therefore, financial regulators are not alone in the driver’s seat of the branchless banking vehicle as regulatory domains can easily overlap. A particular challenge for financial regulators is to coordinate with the pertinent telecommunications regulatory body so that measures taken by both are consistent and mutually reinforcing.

There are two main models of branchless banking: the bank-based model and the non-bank or MNO-based model. In a bank-based model, banks offer access and use of individual accounts through the Internet, with the support of branches or non-bank agents for cash-in and cash-out transactions. Major concerns with this model relate to IT security, adoption by the poor (who may not be able to afford a web-enabled computer or mobile phone device), and the inconvenience of opening a bank account for financially excluded people in remote areas. An MNO-based model, meanwhile, involves MNOs directly contracting with the clients and issuing electronic values to accounts on their mobile devices. Examples are
Financial inclusion and regulatory implications

Kenya’s M-Pesa through Safaricom and the Philippines’ GCash provided by Globe Telecom.

In a bank-based model, financial regulators can rely on the existing framework and mechanism for banking sector regulation and supervision, with minor adjustments as needed. The MNO merely serves as a channel for the financial transaction, therefore roughly the same prudential regulations apply to this model.

The MNO-based model is a new challenge for financial regulators, but it may serve a purpose especially for the lower-end of the market. Usually, MNO-based models of branchless banking focus on payments and remittances. Hence, in the infancy of MNO-based models, financial regulation should focus on measures to safeguard the integrity of the payments system, ensure fund isolation to protect the e-money float, and provide a framework for consumer protection.

As operations under MNO-based models develop further, financial regulators might also have to consider whether non-bank based e-money should bear interest and whether these ‘deposit-like’ offerings should be subject to deposit insurance.

With the complexity of the architecture of branchless banking, especially MNO-based models, the value chain is in different hands so that there has to be an unbundling of the value chain. The approach is for financial regulators to conduct service-based regulation; that is, to regulate based on the activities and risk profiles of the parties involved. Doing so also makes it more feasible for regulators to practice proportionality. In this regard, regulators should learn not to get ahead of innovations, especially where the product or service is still in its early stages and outreach and volume remain relatively small.

The same principle of proportionality should apply for the AML risks associated with branchless banking resulting from convenient access and possible abuse where a face-to-face transaction is not required. Hence, regulators need to consider how to balance access, subscriber privacy, and customer due diligence for any suspicious transactions.

More challenges and implications are waiting to sprout as branchless banking continues to evolve. Interoperability, for example, is a concern that would have to be carefully considered in the future. What are its benefits? What new risks will it bring? And how should regulators harness the benefits and manage the risks involved?

3.7 Anti-money Laundering

The international standards on AML have been developed by the Financial Action Task Force (FATF), an intergovernmental body established in 1989
under the auspices of the G7. These standards were first issued in 1990, supplemented in 2001 with special recommendations for combating the financing of terrorism (CFT), and last revised in 2012 (FATF 2012a) in a combined version of FATF’s 40 Recommendations.

Since its inception, FATF has been focused on promoting financial integrity and protecting the international financial system from misuse by a number of predicate offences (or ‘designated categories of offences’), including illicit trafficking in narcotics, terrorism, corruption and bribery, smuggling, and tax crimes. The FATF’s recommendations go beyond the usual jurisdiction of financial regulators and cover a broader range of areas, including criminalization of money laundering and terrorist financing, powers and responsibilities for investigative and law enforcement authorities, mutual legal assistance, and other forms of international cooperation.

While the FATF’s 40 Recommendations did not mean to affect financial inclusion, their implications for the financial inclusion agenda are reflected in: (1) requiring customer due diligence, which is also commonly called ‘know your customer’ and includes identifying the customer and verifying his or her identity; (2) keeping records; (3) reporting suspicious transactions; (4) assessing the respondent institution’s AML and CFT controls, and refraining from entering into or continuing a correspondent banking relationship with shell banks; (5) preventing the misuse of new products, business practices, or new technologies for money laundering or terrorist financing; and (6) monitoring wire transfers.

In fact, most of these are essential requirements for risk management of financial institutions. For instance, it would be unthinkable and highly risky for financial institutions to provide a loan to a client without knowing the identity of the borrower. Therefore, we have every reason to believe that the mandates of FATF and the financial inclusion agenda are mutually reinforcing.

However, here again, the reality is more complex. Increasingly, concerns have been raised on whether the implementation, if not proportionately carried out, of the AML–CFT standards could impede the expansion of financial inclusion. Although the FATF’s 40 Recommendations is not a legally binding international convention, its enforceability is ensured through a strong global network of FATF and FATF-style regional bodies, which comprise over 180 jurisdictions around the world and conduct periodic mutual evaluations of their members. Jurisdictions identified as having a significant number of key deficiencies are referred to FATF's International Co-operation Review Group (ICRG) for reviews. Based upon the results of this process, the names of countries that do not comply with the FATF standards will be published in the lists of high-risk and
Financial inclusion and regulatory implications

non-cooperative jurisdictions. This ‘name-and-shame’ approach discourages foreign investment in these countries and compels them to take remedial actions. The issue is whether a developing country can promote the access and use of financial services without suffering the unintended consequence of being included in the public list of jurisdictions with strategic deficiencies in AML–CFT.

New efforts to achieve the AML–CFT goals without compromising financial inclusion could be seen in a number of recent adjustments and policy statements including the: (1) G20 Principles for Innovative Financial Inclusion, which call for an appropriate, flexible, risk-based AML–CFT regime and require the policy and regulatory framework to be proportionate with the risks and benefits involved; (2) FATF 2013 Guidelines for AML–CFT, which acknowledge the approach of taking into consideration the risks of financial exclusion in the implementation of AML–CFT measures and note that ‘applying an overly cautious approach to AML–CFT safeguards can have the unintended consequence of excluding legitimate businesses and consumers from the formal financial system’ (FATF, APG, and the World Bank 2013); and (3) focus of the mutual evaluations that will move from technical compliance with FATF recommendations to the effectiveness of the system.

Given these developments, it is high time for financial regulators to review the AML–CFT regime in their own countries and explore appropriate ways to make AML–CFT more risk-based, effective, and congruous with financial inclusion. This includes taking a more practical and realistic approach to customer due diligence to facilitate expansion of financial services to underserved areas and excluded populations. In addition, for small amounts of remittances and savings, offering a reward to whistleblowers or securing intelligence from the sender’s country to fight against money laundering or terrorist financing could be more effective than overly restrictive measures. At the same time, raising awareness of the need for and benefits of AML–CFT among financial service providers should be encouraged by financial regulators to bring about better risk management and more sound development of the financial sector in general. AML–CFT standards would be better implemented if they were taken by financial practitioners as safeguards for risk mitigation instead of a burden or unwarranted constraint on financial operations.

3.8 Informal Finance

While it is the aim of financial inclusion to extend the outreach of formal financial services, the reality is that informal finance will always persist. It
existed before the establishment of modern financial systems and still has a role to play.

To completely eradicate informal finance may not necessarily be in the best interest of the financially excluded. Informal finance could be a backup option for individuals reached by formal financial institutions. For the financially excluded, it may be the only option available, at least given their current situation. Thus, in a way, informal finance fills the gaps left by formal financial systems, especially in terms of outreach.

Informal finance, however, being outside the ambit of regulation and supervision, carries greater risks such as fraud, abusive practices, money laundering, and possible financial or social instability. These risks and complexity depend on informal finance’s relative size in terms of the client base and transaction amounts. Hence, regulators need to gradually harness – to the extent possible – informal finance and steer it toward formalization. Harnessing informal finance does not necessarily mean its suppression, but rather managing its scope, size, and impact such that it does not impair economic policy or become a source of systemic risk for the financial system.

A two-pronged approach that is mutually reinforcing could be pursued to harness informal finance: targeted intervention and indirect intervention.

Financial regulators may attempt targeted intervention that deals directly with informal finance in an effort to slowly rein it into the formal sphere. In the case of the PRC, pilot reforms carried out in Wenzhou in Zhejiang Province include lowering barriers to entry for private capital in the financial sector, encouraging informal finance providers through an incentive system to transform into formal institutions, providing professional services to participants in informal finance, promoting transparent transactions, conducting surveillance of informal markets, and protecting the rights of participants in informal finance to fair litigation.

Another approach that regulators and supervisors could pursue is indirect intervention. In this approach, measures are directed toward formal finance to improve its competitiveness and position in the market in the hope that the marketability of informal finance is diminished. Also, with the improvement and growing attractiveness of formal finance, regulators hope that informal financiers will respond by engaging in more acceptable practices.

In the PRC, this approach is carried out through enhanced market orientation and leveling the playing field for financial institutions; promotion of outreach of formal financial services to rural areas, unserved or underserved populations, and micro and small enterprises; improved affordability, convenience, and quality of formal financial services; rein-
forced financial consumer protection; introduction of new products and channels; and strengthened function and efficiency of the judiciary as a safeguard of contract enforcement.

For either approach, it is important that there is a thorough assessment of the current state of informal finance before any framework for regulation and supervision is launched. Also, given that informal finance may operate differently at the local level, at least some degree of delegation should be considered when it comes to regulatory and supervisory powers. Nevertheless, there is still a need for a national overseer to provide overall policy direction. Finally, the role of financial literacy is again underscored to boost the capacity of consumers to make sensible choices among service providers.

3.9 Structures for the Regulation of Financial Inclusion

The regulatory architecture for access to finance has been the subject of numerous studies over the past two decades. Issues analyzed include the benefits and costs of regulation, focus of regulation (licensing and prudential requirements for deposit taking institutions), supervising capacity of regulators, concerns over regulatory arbitrage, and relevance of traditional regulatory and supervision tools. The key preoccupation has been how to set up and effectively run a regulatory and supervisory mechanism that can achieve the twin objectives of promoting access to finance and maintaining the stability and integrity of the financial sector.

Practices vary across developing countries and might include one or more elements in the following regulatory approaches: (1) single regulation, under which one regulator (usually the central bank) comprehensively regulates all institutions and activities related to access to finance; (2) multiple and tiered regulation, where different types of financial service providers could be subject to different regulators at the central or local governments, depending on their legal status (for example, commercial banks, credit cooperatives, NGOs, other non-banking financial institutions) and/or the scope of their business (for example, prudential rules for taking deposits from the public); and (3) delegated regulation, where the supervisory functions for grassroots financial service providers are bestowed upon practitioners associations, apex lending institutions, women’s unions, or other non-government entities.

New challenges that financial inclusion brings to the regulatory architecture mainly pertain to: (1) broader and more complex areas of financial services (that is, not only lending and deposit taking, but also remittances and insurance); (2) new products and delivery channels that were unknown in the past (for example, mobile and branchless banking); and (3) new
themes that emerge as a top priority for the industry (for example, financial consumer protection). To deal with these new challenges, it is important to take note of several factors.

First, regulatory architecture for financial inclusion cannot be discussed vaguely without a specific reference to the current legal framework and regulatory structure for the whole financial sector in a given country. For instance, if a country has adopted a system of separated operations, where banks, security firms, and insurance companies need to abide by firewalls established within the financial sector in order to separate their respective risks, it would be convoluted to set up a specialized regulatory authority for mixed operations under the name of financial inclusion, due to the overlapping functions and possibly conflicting regulatory principles among existing regulators.

Second, the diversity of financial institutions and other associations engaged in financial inclusion, and the plethora of programs and products offered, could easily overwhelm the capacity of any single regulator in developing countries. For certain types of financial service providers and programs, such as credit cooperatives or mutual micro-insurance schemes in the rural areas of a large country, it would be unrealistic to expect any agency at the central government level to exert effective supervision. Delegation to local governments or NGOs may appear to be the only practical solution.

Third, the capacity of regulators not only hinges upon the staffing, training, and other resources allocated by the government. It also depends on sound internal governance being practiced by the regulators. Governance of the regulatory and supervisory bodies, in particular establishment of checks and balances, and prevention of conflict of interests in instances where the government has direct involvement in ownership and operations of financial services, is of paramount importance to safeguard the level playing field and ensure regulatory efficiency and effectiveness.

Fourth, many new themes or new products related to financial inclusion involve the responsibility of various government agencies other than financial regulators. This is the case for consumer protection, financial education at schools, and MNO-based branchless banking.

Although each country may have its own specific context and there is no single ‘correct’ regulatory and supervisory framework, a possible path to an efficient and effective regulatory architecture for financial inclusion could be the inclusion of an additional layer of inter-agency and central–local government coordination to cope with the variety of institutions, products, and business models. A superstructure to this end is in line with a holistic and comprehensive approach to promoting financial inclusion.
Prior to the eventual revamp of the regulatory architecture in any country, this seems to be the most practical and immediate response to financial inclusion’s implications for regulatory structure.

4 CONCLUSION

As with microfinance, financial inclusion poses significant challenges for financial regulation and supervision owing to the fact that regulators need to achieve an enabling and promoting objective apart from their traditional role of maintaining financial stability. Furthermore, traditional regulatory and supervisory approaches may not apply to the new institutions, products, and delivery channels associated with financial inclusion.

Financial inclusion offers new opportunities for financial regulators to capitalize on experiences and lessons learned from regulation and supervision of the microfinance industry during the past two decades. In particular, financial inclusion must provide better solutions than microfinance did to criticisms that it had little positive impact on poverty reduction and an inability to protect vulnerable consumers. If these issues are not properly addressed, the political support for financial inclusion may wane and shift to other new themes and initiatives that never cease to emerge under the development agenda.

The policy and regulatory environment constitutes one of the most critical determinants for the launch, growth, and expansion of financial inclusion. This chapter depicts financial inclusion’s implications for a regulatory framework in nine areas: (1) Basel III, (2) expansion of financial services, (3) pricing of financial products and services, (4) financial consumer protection, (5) financial literacy, (6) branchless banking, (7) anti-money laundering, (8) informal finance, and (9) structures for the regulation of financial inclusion. It also reflects the authors’ thoughts and efforts to explore new and balanced ways to deal with major challenges and opportunities brought about by financial inclusion.

In contrast with the pure commercial paradigm preached for microfinance in the past two decades, financial inclusion embraces the latest trends of the industry by endorsing two important concepts: ‘one size does not fit all’ and proportionality. These concepts allow for innovations and tailor-made mechanisms for the regulation and supervision of financial inclusion based on country needs and context. In light of these new trends, financial regulators may find it useful to adopt the following approaches in the nine areas discussed above:
Global shock, risks, and Asian financial reform

- Start with accurately assessing the country’s needs and context.
- Take a holistic approach in designing necessary reforms and formulating a new strategy.
- Be practical and innovative in enhancing the developmental and promotional roles of regulators.
- Pay more attention to good governance among regulatory bodies, which is a precondition for the success of regulators’ developmental activities.
- Take the approach of piloting, rolling out, and adjusting as appropriate new initiatives for the regulation and supervision of different institutions, products, and delivery channels for financial inclusion.
- Enhance regulators’ capacity and ensure close coordination among concerned government agencies.

NOTES

1. The views expressed in this paper are those of the authors and do not necessarily represent the views or policies of the Asian Development Bank.
5. The BCBS principles cover the following: independence, powers, transparency and cooperation of banking supervision system; licensing and structure; prudential regulation and requirements; methods of ongoing banking supervision; accounting and disclosure; corrective and remedial powers of supervisors; and consolidated and cross-border banking supervision.
7. This includes: (1) jurisdictions that have strategic AML–CFT deficiencies and to which counter measures apply, (2) jurisdictions with strategic AML–CFT deficiencies that have not made sufficient progress in addressing the deficiencies or have not committed to an action plan developed with the FATF to address the deficiencies, and (3) jurisdictions with strategic AML–CFT deficiencies that have provided high-level political commitment to address the deficiencies through implementation of an action plan developed with the FATF.

BIBLIOGRAPHY

Alliance for Financial Inclusion (AFI) (2011), Global Standard Setting Bodies and Financial Inclusion – Insights and Lessons From Five Countries: Brazil, Kenya, Mexico, the Philippines, and South Africa, Bangkok: AFI.


Asian Development Bank (2000), The Role of Central Banks in Microfinance in Asia and the Pacific, 2 vols, Manila: ADB.


Brix, L. and K. McKee (2010), ‘Consumer protection regulation in low-access environments: opportunities to promote responsible finance’. Focus Note 60, CGAP, Washington, DC.


Consultative Group to Assist the Poor (CGAP) (2012b), Financial Inclusion and the Linkages to Stability, Integrity and Protection: Insights from the South African Experience, Washington, DC: CGAP.


Financial Action Task Force (FATF) (2012b), *High-level Principles and Objectives for FATF and FATF-Style Regional Bodies (FSRBs)*, Paris: FATF.


Helms B. and D. Porteous (2005), ‘Protecting microfinance borrowers’, Focus Note 27, CGAP, Washington, DC.


16. Innovative financing models for SMEs and the regulatory implications
Shigehiro Shinozaki

1 INTRODUCTION

Economic expansion in Asia is positioning the region as a global growth driver and has created a foundation of growth-oriented small and medium-sized enterprises (SMEs). The 2008–09 global financial crisis (GFC) depressed demand from the developed countries, a problem rooted in global imbalances to which Asia contributes. To address this situation, Asian countries are required to rebalance their economies by promoting intra-regional trade and mobilizing domestic demand, areas in which SMEs can play a pivotal role. SMEs can be a driving force behind a resilient national economy because they stimulate domestic demand through job creation, innovation, and competition. Moreover, SMEs involved in global supply chains have the potential to encourage international trade. Thus prioritizing SME development is crucial for promoting inclusive economic growth in most economies in Asia and the Pacific.

While adequate access to finance is critical for SMEs to survive and eventually grow beyond SME status, they have faced poor access to finance in Asia, which is one of the core factors impeding their development. As the global financial system has become increasingly advanced, the root causes of financial crises become more complex as well. Amid continuing global financial uncertainty, stable access to appropriate funding sources has become even more difficult for SMEs to attain. These conditions are restricting the region’s development of resilient national economies. Among Asia and Pacific countries, developing supporting industries (such as parts and components suppliers) and promoting the internationalization of SMEs are key to stimulating inclusive economic growth and escaping the middle income trap.

There is no ‘one-size-fits-all’ financing solution, given the diversified nature of SMEs. Continuing supply–demand gaps in SME finance
suggest the limitations of bank lending in safely and sustainably raising funds for businesses. The global regulatory response to the recent global financial crisis, the Basel Capital Accord (Basel III), may further constrain bank lending to SMEs as it requires banks to have tighter risk management as well as greater capital and liquidity. The resulting asset preferences and deleveraging of banks, particularly European banks with a significant presence in Asia, could further limit the availability of funding for SMEs in the region. Lessons from the GFC have motivated many countries to consider SME access to finance beyond conventional bank credit and to diversify their domestic financial systems. The sophisticated bank lending regime and the diversified non-bank financing models can help increase SME financial access, given the largely bank-centered financial systems in Asia and the Pacific. Accordingly, national policymakers and financial regulators need to develop a comprehensive policy and regulatory framework that supports innovative instruments and services to promote SME access to finance, serving well their various financing needs.

Illustrating the correlation between global imbalances and SMEs, this chapter addresses the bank lending sophistication and diversified non-bank financing models as policy priorities in SME access to finance, and explores areas that regulations could support in reducing barriers for SME access to formal financial markets and innovative products. This chapter also discusses the potential for capital market financing as a long-term financing opportunity for SMEs.

2 GLOBAL IMBALANCES AND SMES

As commonly recognized, the global economy is being driven by strong growth in Asia, while at the same time such growth has made global imbalances more pronounced. As indicated in Figure 16.1 (upper chart), starting with the 1997–98 Asian financial crisis, the gap between current account deficit and surplus countries has been widening. Although this trend diminishes after the GFC, the large current account gap between OECD countries and emerging East Asian and Pacific economies remains, especially between the US and the PRC. Figure 16.1 (lower chart) shows the similar gap between high-income and middle-income countries. While global imbalances have been increasingly distinct, gross savings have also been increasing since 2002 in Asia. This implies that high domestic savings with low private investment and consumption in Asia contribute to global imbalances, to which high corporate savings, particularly the savings of SMEs, may also contribute.
Source: Author’s compilation from World Bank data (http://data.worldbank.org).

Figure 16.1 Global imbalances
To what extent will increased financial access for enterprises affect domestic savings rates, a primary factor in creating global imbalances? Figure 16.2 indicates the correlation between gross domestic savings and financial deepening in high- and middle-income Asian countries. The two upper charts show that enhanced access to bank credit tends to reduce the domestic savings rate in high income countries, which implies that companies backed by sufficient funds actively invest in further growth. This trend is reversed in middle-income countries, which suggests that companies backed by formal funding keep profits as precautionary savings against unexpected events such as a financial crisis. Is this brought about by SMEs’ savings? The two lower charts indicate the positive correlation between SMEs’ external funding and fixed asset investment, which means that increased credit will accelerate SME’s investments. These charts have three implications. First, SMEs having access to formal finance contribute to higher domestic investment. Second, individual savings, rather than corporate savings, contribute to higher domestic savings in middle-income countries, which include those held by informal and self-employed micro, small, and medium-sized enterprises (MSMEs). Third, SMEs having no access to formal finance keep profits as precautionary savings. If this interpretation is correct, promoting the transformation of SMEs from informal to formal entities and improving financial access for such formal SMEs will contribute to mobilizing excess savings for investment in emerging Asian countries, which will ultimately contribute to global rebalancing.

3 SUPPLY–DEMAND GAP IN SME FINANCE

There are many demand and supply factors that can slow the pace of SME growth, among which restricted access to finance is one of the most critical factors inhibiting their growth. How large is SMEs’ unmet financing demand or the supply–demand gap? Stein et al. (2010) estimated the value of the gap in formal SME credit in 2010 at US$700 billion–US$850 billion, which is equivalent to 21–26 percent of the total formal SME credit outstanding in the developing world (Table 16.1). The financing gap varies by region. For instance, the gap in East Asia accounted for US$250 billion–US$310 billion of the total, while in South Asia it accounted for US$30 billion–US$40 billion. If informal SMEs and microenterprises are included, the total gap in developing countries in terms of unmet financing demand exceeds US$2 trillion.

Based on the disequilibrium models of the credit market developed by academics such as Fair and Jaffee (1972), Rimbara and Santomero
Notes:
1. Based on World Bank analytical classifications.
2. High income countries include Brunei Darussalam; Hong Kong, China; Japan; the Republic of Korea; and Singapore.
3. Middle income countries include the PRC, Indonesia, Malaysia, Mongolia, the Philippines, Thailand, and Viet Nam.

Source: Author's calculations based on ADB (2011b).
Notes:
1. Credit refers to value of loans or lines of credit approved by a financial institution.
2. Investment refers to value of fixed assets purchased by firms in a fiscal year (machinery, vehicles, equipment, land, and building).
3. SME refers to small and medium-sized enterprise with between 5 and 99 employees.

Source: Author’s calculations based on the World Bank’s Enterprise Survey 2009.

Figure 16.2 Savings, investment, and bank credit
Table 16.1  SME access to finance

<table>
<thead>
<tr>
<th></th>
<th>Value of credit gap ($ billion)</th>
<th>Number of firms (million)</th>
<th>With deposit accounts</th>
<th>With loans or overdraft</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>East Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSMEs</td>
<td>900–1100</td>
<td>170–205</td>
<td>115–140</td>
<td>17–19</td>
</tr>
<tr>
<td>Formal SMEs</td>
<td>250–310 [11%–14%]</td>
<td>11.2–13.6</td>
<td>7.6–9.1</td>
<td>2.0–2.5</td>
</tr>
<tr>
<td><strong>South Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSMEs</td>
<td>310–370</td>
<td>75–91</td>
<td>47–57</td>
<td>15–17</td>
</tr>
<tr>
<td>Formal SMEs</td>
<td>30–40 [29%–35%]</td>
<td>2.0–2.8</td>
<td>1.0–1.2</td>
<td>0.5–0.7</td>
</tr>
<tr>
<td><strong>Central Asia &amp; Eastern Europe</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSMEs</td>
<td>215–260</td>
<td>18–22</td>
<td>13–17</td>
<td>8–10</td>
</tr>
<tr>
<td>Formal SMEs</td>
<td>105–130 [16%–20%]</td>
<td>2.7–3.3</td>
<td>2.5–3.0</td>
<td>1.5–1.9</td>
</tr>
<tr>
<td><strong>High-income OECD</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSMEs</td>
<td>1000–1300</td>
<td>56–68</td>
<td>51–63</td>
<td>24–30</td>
</tr>
<tr>
<td>Formal SMEs</td>
<td>600–700 [5%–6%]</td>
<td>11–14</td>
<td>11–14</td>
<td>5–6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSMEs</td>
<td>2100–2500</td>
<td>365–445</td>
<td>240–290</td>
<td>75–90</td>
</tr>
<tr>
<td>excluding high-income OECD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal SMEs</td>
<td>700–850 [21%–26%]</td>
<td>25–30</td>
<td>18–22</td>
<td>8–10</td>
</tr>
</tbody>
</table>

Notes: [ ] = gap as percentage of current outstanding SME credit; MSMEs = micro, small, and medium-sized enterprises; OECD = Organisation for Economic Co-operation and Development; SMEs = small and medium-sized enterprises. Based on World Bank analytical classifications.

Source: Stein et al. (2010).
Global shock, risks, and Asian financial reform

(1976), Laffont and Garcia (1977), Pazarbasioğlu (1997), Ghosh and Ghosh (1999), and Agung et al. (2001), this section investigates the financing gap in Indonesia between lenders and SME borrowers by establishing regression models that measure both supply-side and demand-side factors to determine the provision of bank credit. The data used were extracted from various issues of Bank Indonesia’s Banking Statistics and Financial Statistics and reports from the Central Bureau of Statistics (BPS), covering the period between January 2007 and December 2011.

A credit supply curve is formulated with the assumption that banks’ loan supply is determined by their lending capacity (defined as total liabilities minus equity capital and required reserves), lending rate, production outputs, and NPL values. The equation is described by

\[ L_s^t = a + b_1 \text{cap}_t + b_2 \text{rt}_t + b_3 \text{yt}_t + b_3 \text{npl}_t + u_t \]  

(16.1)

where \( L_s \) is a credit supply function; \( a \) and \( b \) are coefficients to be estimated; cap is lending capacity in local currency values calculated based on commercial bank balance sheets; \( r \) is the average lending rate for working capital; \( y \) is the value of real GDP; \( NPL \) is the value of non-performing SME loans; \( t \) is an observed point in time; and \( u \) is a residual.

A credit demand curve is formulated with the assumption that the demand for bank loans is determined by bank lending rates and production outputs. GDP is considered an indicator to represent the potential demands on firms’ business operations, although some arguments exist for selecting independent variables in the demand function (Ghosh and Ghosh 1999). The equation is described by

\[ L_d^t = a + b_1 \text{rt}_t + b_2 \text{yt}_t + u_t \]  

(16.2)

where \( L_d \) is a credit demand function; \( a \) and \( b \) are coefficients to be estimated; \( r \) is the average lending rate for working capital; \( y \) is the value of real GDP as a determinant of credit demand; \( t \) is an observed point in time; and \( u \) is a residual.

The outstanding values of SME bank loans are used as dependent variables in the credit supply and demand curves. To measure the change of the credit supply and demand in pre- and post-GFC periods, a dummy for the GFC is included in both curves, where 0 denotes the period from January 2007 to December 2008 while 1 represents the period from January 2009 to December 2011. Owing to the truncated data, maximum likelihood (ML) estimation is adopted as analysis of the limited dependent variable in both models.
Provided that the price of credit (lending rate) is not sufficiently adjusted and credit rationing arises, the disequilibrium of the credit market is denoted by

\[ L_t = \min(L^s_t, L^d_t) \]  

(16.3)

where \( L_t \) is the actual lending value observed at period \( t \). \( L \) corresponds to the credit supply curve (\( L^s \)) if the credit demand exceeds the credit supply (\( L^d \)), while it follows the credit demand curve (\( L^d \)) if the credit supply exceeds the credit demand (\( L^s \)).

The result of the estimates (Table 16.2) indicates that the credit supply for SMEs increases if banks’ lending capacity and production outputs increase. It also increases if lending rates decline. However, SME credit supply increases even if NPLs rise in the pre-crisis period, though such a trend is reversed in the post-crisis period. Meanwhile, SME credit demand increases if production outputs rise. It remains high even if lending rates go up prior to a crisis, but this trend is reversed in the post-crisis period. These estimates imply that the banking sector actively provides SME credit with concessional lending rates in line with government policies to improve SME access to finance, but banks’ credit risk sensitivity in the post-crisis period tends to exceed that prior to a crisis. As for credit demand, SMEs maintain their appetite for finance during the pre-crisis period regardless of lending rates, but their credit price sensitivity tends to go up in the post-crisis period.

The supply–demand gap in SME finance is simply measured by credit demand minus credit supply as defined by

\[ S-D \text{ gap}_t = L^d_t - L^s_t \]  

(16.4)

where \( S-D \text{ gap}_t \) is the lending quantity denoting the difference between credit demand and supply at period \( t \). If a positive gap is identified, there might have been a credit contraction by banks during the time observed. Figure 16.3 shows the estimated supply–demand gap in total and SME bank lending in Indonesia. The result of these estimates identified large SME financing gaps at some points in time. In particular, the gap is large in late 2008. External factors such as the GFC, rather than internal factors such as seasonal and country-specific events, may largely affect bank lending attitudes toward SMEs. Triggered by the Lehman shock in late 2008, the GFC led to credit contractions all over the world including Indonesia relatively soon after the crisis began, with SMEs being the most impacted among Indonesian firms. The estimated large financing gap indicated in Figure 16.3 is somewhat synchronized with the GFC. Owing
Table 16.2  Supply–demand gap in SME finance – Indonesia (ML estimation)

<table>
<thead>
<tr>
<th></th>
<th>Total Before GFC</th>
<th></th>
<th></th>
<th>After GFC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Credit supply</td>
<td>Credit demand</td>
<td>Credit supply</td>
<td>Credit demand</td>
</tr>
<tr>
<td>l_cap</td>
<td>0.4273 [16.91]***</td>
<td>0.4928 [14.51]***</td>
<td>0.2652 [3.95]**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.014 [−5.39]***</td>
<td>0.0141 [2.87]***</td>
<td>−0.0203 [−3.33]***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.4389 [29.31]***</td>
<td>3.6983 [70.24]***</td>
<td>2.6804 [24.94]***</td>
<td></td>
</tr>
<tr>
<td>y</td>
<td>0.0150 [0.60]</td>
<td>0.1206 [2.02]**</td>
<td>0.0391 [−1.28]</td>
<td></td>
</tr>
<tr>
<td>sme_npl</td>
<td>−24.8248 [−33.40]***</td>
<td>−35.6477 [−48.36]***</td>
<td>−32.2203 [−24.16]***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0111 [0.011]</td>
<td>0.0271 [0.027]</td>
<td>0.0305 [0.030]</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>60</td>
<td>60</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

Notes: * p<0.1, ** p<0.05, *** p<0.01.
l_cap = banks’ lending capacity, wcr = working capital lending rate, y = real gross domestic product, sme_npl = non-performing SME loans, SME = small and medium-sized enterprise, GFC = global financial crisis.
1. Dependent variables are total outstanding value of SME lending.
2. The upper section is the estimate, while the lower section is the z-value.

Source: Author’s calculations based on various issues of Bank Indonesia’s Banking Statistics and Financial Statistics and BPS statistics.
Note: The supply–demand gap is calculated by estimates on the credit demand curve (D) minus those on the credit supply curve (S).

Source: Author’s calculations based on various issues of Bank Indonesia’s Banking Statistics and Financial Statistics and BPS statistics.

Figure 16.3 Supply–demand gap in SME finance – Indonesia
to several policy prescriptions for SME lending in Indonesia, the insufficiency of financing SMEs was relatively quickly diminished. However, large gaps in terms of unmet financing demand for SMEs still appeared from time to time even after expanding policy support measures for SME bank lending.

The result of supply–demand gap analysis suggests the limitations of bank lending for enterprises in raising sustainable and safe funds for business, especially for SMEs. Once unexpected events such as a financial crisis occur, the banking sector will naturally respond to such events and take actions to mitigate associated risks, which will cause a credit crunch in the banking sector and seriously affect SME access to finance. Moreover, Basel III might have a risk accelerating this trend in banks by further restricted financing for SMEs. The root causes of financial crises change as global financial systems become more advanced. Well-established SME finance policies will alleviate credit contraction, but cannot remove it entirely. To supplement the limitations of bank lending for SMEs amid the complex global financial environment, the diversification of financing models, with flexibility and innovation, is indispensable.

4 SME LENDING AND REGULATIONS

The issue of how to enhance bankability for SMEs is a core policy subject toward financial inclusion, given the bank-centered financial systems established in Asia. The major obstacles to SME lending are attributed to banks' funding conditions, insufficient capital, and more importantly, weak risk perception among clients. Against this backdrop, information asymmetry between lenders and borrowers underlies bank lending attitudes, which deepens the supply–demand gap in SME finance. Owing to high costs for transactions and information collection, as well as immeasurable risks, financial institutions generally hesitate to finance SMEs. To mitigate such risks and reduce the cost burden, financial institutions tend to apply high interest rates and require SMEs to fulfill steep collateral and guarantee requirements. Not surprisingly, SMEs tend to regard these measures as serious supply-side barriers.

Small and medium-sized enterprise credit markets often suffer weak institutional arrangements and legal infrastructure with poor governance. The major roles of regulation in SME finance are to: (1) reduce entry barriers in formal financial markets, (2) facilitate access to a broad range of financial products and services, (3) smooth the cash flow cycle, (4) create a sound and competitive business environment that maintains financial
stability and a safety net, and (5) protect borrower and lender rights in credit transactions.

**Financial Infrastructure for SMEs**

There is a perceived negative correlation between credit constraints and sound legislation as indicated in Figure 16.4. Referring to the study conducted by Kuntchev et al. (2012), the credit-constrained firms are extracted from the World Bank’s *Enterprise Surveys* (including 11 countries from Asia) as a percentage of total surveyed firms in the observed countries. The extent of legislative deepening is measured by the strength of a country’s legal rights index in the World Bank’s *Doing Business 2013* (World Bank and IFC 2013), on a scale of 0 to 10, which illustrates the level of protection for borrower and lender rights through collateral laws and secured creditor rights through bankruptcy laws; higher scores indicate better designed collateral and bankruptcy laws for expanding access to finance. The credit-constrained firms are those that had no external finance and were rejected for loan applications or hesitated to apply for a loan due to strict bank policies (for example, interest rates, collateral requirements, and loan size) and complex procedures. The estimates explain that strengthened legal rights for collateralized assets and bankruptcy reduce the level of firms’ credit constraints. Taking into account that SMEs are more constrained than large firms in bank lending (lower chart of Figure 16.4), the findings imply that well-designed collateral and bankruptcy laws are beneficial, especially for SMEs in accessing finance, and suggest the importance of laws and regulations that support financial infrastructure development such as collateral registries. The legal framework for creating and operating collateral registries is expected to encourage secured lending and asset-based financing for SMEs.

A credit bureau is another example of core infrastructure that mitigates asymmetric information conditions. According to the International Finance Corporation (IFC 2010), credit bureau coverage in developing economies is much lower than the OECD country average. Credit bureaus are expected to reduce obstacles to small firms’ access to finance and increase their use of external financing. An enabling regulatory environment that smooths credit information-sharing among financial institutions is needed at the national level.

Multi-country data-sharing on SME access to finance is also necessary to promote evidence-based policymaking and regulations. There are several regional and global efforts on creating a consolidated SME data platform under the context of financial inclusion. For instance, the Association of Southeast Asian Nations (ASEAN 2010) plans to create
Global shock, risks, and Asian financial reform

**Notes:**
1. Credit-constrained firms as a percentage of total surveyed firms.
2. Strength of legal rights is measured on a scale of 0 to 10, where higher scores mean better designed collateral and bankruptcy laws for protecting borrowers, lenders, and secured creditors.
3. Valid samples: Bangladesh 409, Bhutan 52, Cambodia 55, India 40, Indonesia 603, Lao PDR 94, Malaysia 205, Nepal 36, the Philippines 166, Sri Lanka 176, and Viet Nam 178.

Source: Author’s calculations based on the World Bank’s *Enterprise Surveys* and *Doing Business 2013*.

**Figure 16.4 Credit constrained firms and legal rights**
Innovative financing models for SMEs

a regional development fund for SME-friendly infrastructure that will include a regional SME web portal by 2015. The G20 endorsed a basic set of financial inclusion indicators at the Los Cabos Summit in 2012. The World Bank’s Global Financial Inclusion Database (Global Findex) and the International Monetary Fund’s (IMF’s) Financial Access Survey (FAS) provide comprehensive supply- and demand-side data on financial inclusion. The FAS has expanded data on SME access to finance since 2012.\(^2\) The OECD also issues annual country profiles on SME finance called an SME Scoreboard. The Asian Development Bank (ADB) survey conducted in 2012 and 2013 to assess the value added of the regional SME information-sharing platform indicated the tangible demand facing policymakers and regulators for multi-country SME data-sharing.\(^3\) The survey respondents understood the potential benefits of data-sharing across countries, addressing that the enhanced evidence-based SME policymaking and regulations are promoted (score 4.41 out of 5.0).

Innovative Product Design

As financial technology advances, various innovative products and services to improve SME access to finance are being developed and delivered by diverse players, which creates a competitive environment for SME credit markets. Accordingly, financial regulations are required to be updated on a timely basis and regulators need to appropriately regulate financing activities, not focus on financial institutions, to secure a level playing field and minimize the risk of regulatory arbitrage. Regulations should facilitate new approaches and innovation, not stifle them, and stimulate competitive SME credit markets. This can bring about a change of regulatory policies in the banking sector. The following instruments are of particular importance to banking regulators:

- Asset-based finance is often discussed as a tool to mitigate overdependence on real estate security for bank lending. Asset-based finance is a generic term for financing instruments that make use of a firm’s valued assets such as movable assets (for example, inventory, machinery, and equipment) and accounts receivable as collateral, or through sale or lease, while not depending on real estate securities and third party guarantees. There are roughly four types of instruments: (1) asset-based lending, (2) factoring, (3) financial lease, and (4) asset-backed securities. Asset-based lending is a lending scheme collateralized by movable assets and accounts receivable. Factoring is a short-term financing for suppliers, selling accounts receivable. Financial lease is a mid-term financial instrument, giving the right to
use an owner’s assets for specific periods. Asset-backed securities is a securitized product in which the underlying assets are SME loans in this context. Collecting reliable information on SMEs for financing is costly due to their small size, which results in their limited access to financial markets. Securitization will mitigate uncertainty for investing in SMEs and vitalize both SME credit and capital markets. Asset-based finance is a promising alternative to mortgage-based lending and is expected to expand banks’ client base, especially among SME borrowers.

- Credit-score-based lending is a promising instrument for banks to reduce transaction costs by making use of technology and credit risk database. One thing to be concerned with, however, is that credit-score-based lending can be inflexible due to the rote assessment of borrowers, in which banks may fail to consider special conditions of SME borrowers.

- SME cluster financing is another innovative approach to enhance the efficiency of SME finance. Clustering is beneficial for SMEs, especially smaller manufacturers, because it facilitates connections with the external economy, including suppliers, workers, trade parties, and financial institutions. Banks may be unwilling to finance small borrowers on an individual basis owing to high transaction costs, but they may be willing to provide loans for a cluster that assembles small borrowers at a reduced cost.

- Crowdfunding is a new approach where individuals lend to each other or small businesses through specialized lending websites. This technique has been growing in popularity in the US, the UK, Germany, and the PRC. It has a simple and low-cost structure as compared with traditional bank lending, provides relatively higher returns to investors, and is released from regulatory burdens (Wehinger 2013). In 2012, US$2.7 billion was raised through crowdfunding, driven by an annual growth rate of 81 percent (Kleverlaan 2013). Although this is not a banking service, the banking authority will need to pay attention to a new technology from a regulatory point of view. The OECD has pointed out some concerns with crowdfunding, addressing a no ‘money back guarantee’, which means that investors are attracted by higher rates with no risk perception efforts. A proper policy and regulatory framework for crowdfunding is needed, especially for consumer protection. The US JOBS Act provides legal support for crowdfunding so that start-ups can raise a maximum of US$1 million per annum through online and social media. In Asia, the Philippines has been discussing a proposed Crowdsourcing Act since 2012.
Innovative financing models for SMEs

- Exit financing, or debtor-in-possession financing, may be of interest when it is necessary to rescue innovative SMEs from bankruptcy.

Credit Guarantee Systems

Credit guarantees are a popular tool to improve SME access to finance in line with national SME development policies and poverty reduction strategies. In Asia, credit guarantees are provided by specialized institutions – either partially sponsored or fully owned by the government – and target MSMEs as main clients, including female entrepreneurs and agro-businesses.

Various guarantee products have been developed in Asia in response to specific country needs, with risk-sharing arrangements between guarantee institutions and financial institutions being relatively well established. Credit guarantee systems have been centralized in most Asian economies, while some countries such as Indonesia are seeking to develop regional guarantee systems through newly established local guarantee institutions, given that guaranteed benefits are effectively reaching rural SMEs. At present, re-guarantee (credit insurance) systems have yet to be established in emerging Asia.

Credit guarantees are expected to: (1) fill the supply–demand gap in SME finance, (2) lower funding costs for SMEs, (3) alleviate financing constraints for SMEs by partially or fully releasing them from collateral requirements, and (4) respond in a timely fashion to external shocks such as a financial crisis. In addition, credit guarantees can reduce social opportunity costs – by increasing outreach to the underserved – and contribute to: (1) mobilizing SME savings for investment, (2) increasing the survival rate of SMEs, (3) providing growth opportunities, and (4) promoting a resilient national economic foundation.

However, there are potential negative effects of credit guarantee systems: (1) Basel Capital Accord’s risk weighting system may drive banks to increase guaranteed SME lending but reduce unsecured SME lending to strengthen their capital adequacy ratios; (2) the increased risk of adverse selection and moral hazard since credit guarantees may tempt malicious SME borrowers and discourage financial institutions from closely monitoring borrowers, resulting in the use of funds inconsistent with loan objectives; (3) the life of poorly performing SMEs might be prolonged; (4) less incentive to improve SME management if guarantees do not include any collateral requirements because owner assets are not at risk in the case of default; and (5) the increased risk of bloated national budgets and the crowding out of private businesses since credit guarantee institutions are mostly public entities in Asia.
To diminish the negative aspects of credit guarantee schemes, four key issues should be addressed: (1) business sustainability, shifting from a public-dependent to private-led business model to effectively deliver guarantee benefits to SMEs; (2) risk-conscious arrangements, developing re-guarantees, partial guarantees, and second credit screenings to hedge against risks associated with the guarantee business; (3) decentralization, promoting regional guarantee schemes with a proper regulatory and supervisory framework to expand guarantee availability for SMEs; and (4) credit infrastructure (credit risk database).

Although there is no universal prescription for increasing SME access to finance, credit guarantees are playing an important role in filling the SME financing gap in Asia. At the same time, credit guarantees open the door for a debate on potentially negative effects. Owing to their strong public nature, business sustainability is a critical concern in credit guarantees. Balancing government intervention with a private-led guarantee industry is needed. Innovation and technology are key to developing demand-driven and risk-based credit guarantee products. Small and medium-sized enterprise data infrastructure is also crucial to establish a sustainable credit guarantee system at the national level. Such data infrastructure will support credit guarantee institutions in proper pricing and risk-based management. Promoting credit guarantee literacy for all stakeholders is a necessary component of the development of a national credit guarantee industry. A comprehensive policy and regulatory framework on credit guarantees should be well designed to avoid market distortions and to facilitate innovative products, given the industry’s public nature in Asia.

Roles of Public Financial Institutions

Besides credit guarantees, there are other modalities of public intervention such as direct lending and interest subsidies. The expected role of public finance is twofold. One is to increase outreach to growth-potential SMEs underserved by commercial banks, which will result in reducing opportunity costs in economic growth. The other is to respond in a timely fashion to external shocks such as a financial crisis and a natural disaster, in which the banking sector may be damaged as well. This means that the roles of public financial institutions will not disappear even if a private-sector led economy is established. The challenge is how to attain and maintain balance between the fiscal costs and macroeconomic benefits to sustain public financial institutions. In this context, *ex post facto* evaluations of public intervention should be done by the government periodically to assess their efficiency.
Innovative financing models for SMEs

Basel III

The Basel Capital Accords (Basel I, II, and III) have been developed as a framework for reducing global systemic risks that may be triggered by the collapse of the banking system. As capital markets are yet to become a popular source of funding for enterprises in Asia, the banking sector plays a pivotal role in supporting firms’ growth through external funding. In the era of global financial uncertainty, risk-based regulations and supervision aligning with global standards such as the Basel Core Principles are critically important to establish a healthy banking system and a resilient national economy against financial crises.

Basel III requires tighter risk management of banks, which has generated debate on the potential negative impacts on SME lending. As a risk-mitigation technique, Basel Accords’ risk weighting system may encourage banks to concentrate their portfolios on lower-weighted assets, such as government bonds and mortgage loans. Guaranteed SME loans may increase because the risk weight can either be reduced or zero, but banks may be still willing to finance large firms with AAA ratings rather than unrated SMEs to reduce their total high-risk weighted assets. The experience of the GFC led to the introduction of new rules for liquidity management in Basel III, such as the liquidity coverage ratio, which encourages banks to hold ‘easy-to-sell assets’ or higher liquid assets, meaning that the increase of payment services and/or relatively low-risk, short-term finance, such as trade finance, may be promoted rather than SME loans.

From a long-term perspective, the procyclical effects of the regulations should be taken into account, which means that micro- and macro-prudential regulations and supervision need to be sophisticated enough to account for SME lending. For micro-prudential measures, minimum capital and loan size requirements for defining risk weighting are critical for SME lending. Coeure (2013) pointed out that small loans enjoy preferential treatment for SMEs but larger loans are not applicable in Europe, which will create an environment in which high-growth SMEs encounter difficulty in raising needed growth capital from the banking sector. Macro-prudential measures are tools with a long-term perspective to address systemic risks and secure countercyclical capital buffers. While poor access to finance has become a new normal for SMEs, another concern has arisen in the aftermath of the financial crisis: excessive credit growth. Facilitated by deregulation at the national level as a response to the GFC, the sharp growth of credit has occurred in several countries. This raises questions on the roles and scopes of financial regulations in SME lending, including the question of tighter regulation versus credit facilitation since ample credit availability may smooth an SME’s cash flow cycle but also create difficul-
ties in holding sufficient capital buffers against possible financial crises in the future. A balanced regulatory approach is needed to support SME access to finance while maintaining financial stability and a safety net.

**Microfinance Institutions**

Stability-oriented firms – mostly family-owned or self-employed microenterprises with small-scale routine operations within a limited area – are the flip side of growth-oriented SMEs. Their start-up money comes mostly from their own capital and/or informal finance from family members, relatives, friends, local communities, and money lenders. Their access to formal financial institutions such as banks is quite limited on the whole. A large number of microenterprises inhabit Asian countries and their competitive nature is generally fierce, behind which they are hampered by a severely constrained funding environment. Even if the poor launch a new business, the chronic shortage of funds makes business continuity very difficult, leading to lost opportunities for earnings and limited chances to escape poverty. Thus, many countries consider the establishment of a pro-poor funding environment, especially one that targets microenterprises, a primary goal of social policy because of its potential impact on poverty alleviation and social welfare enhancement. To this end, most Asian countries have focused on promoting microfinance, which has led to world-renowned success stories.

There is common recognition that microfinance is an effective tool for poverty reduction. It is generally explained as being a set of financial services for the poor and microenterprises that are typically underserved by formal financial institutions, covering a variety of products such as microcredit, microsavings, microinsurance, leasing, and remittance services. For the poor who have encountered difficulty in accessing formal finance, microfinance enables them not only to escape poverty by raising small funds for business, but also to make their business grow further. There are many success stories of microfinance reaching the poor all over the world that demonstrate its effectiveness, including Grameen Bank in Bangladesh, Banco Solidario in Bolivia, and CVECA (Savings and Loan Village Bank) in Mali.

Microfinance institutions (MFIs) should be sustainable entities that provide continuous financial services for the poor. To this end, it is crucial to foster MFIs with a proper regulatory framework so that they can reach out to the poor. The recent discussions pointed out that microfinance is a different market from SME finance and thus different regulatory requirements are needed (RMIT University et al. 2011). However, proportionality is a common keyword for both microfinance and SME finance regulations. It is a regulatory approach proportionate with risks, benefits, and costs.
associated with innovative financial instruments and services that MSMEs can tap. International standard-setting bodies, especially five institutions – the Basel Committee on Banking Supervision, the Committee on Payment and Settlement Systems, the Financial Action Task Force, the International Association of Deposit Insurers, and the International Association of Insurance Supervisors – provide normative standards on financial regulations and supervision, and develop proportionate regulatory frameworks for microfinance that promote financial inclusion. Recent discussions have stressed the importance of adopting flexible regulatory and supervisory standards to fit different country contexts.

Table 16.3 highlights the regulatory structure for lending MSMEs and Table 16.4 explains the main components of MFI regulations in selected Asian countries. For MFIs, the regulatory approach is roughly twofold: (1) tiered regulation with multiple regulators and (2) single regulation with a single regulator. On the whole, the central bank takes a key role of regulating MFIs in every country. However, there is a country with a special regulatory body for MFIs under the central bank’s initiative. In Bangladesh, two entities broadly regulate and supervise microfinance activities (except for Grameen Bank owing to its independent status): (1) central bank (banks’ microfinance business) and (2) the Microcredit Regulatory Authority (NGO-MFIs and credit cooperatives). Meanwhile, Nepal has adopted a single regulatory framework for all financial institutions including MFIs. The central bank is responsible for regulating any type of credit institutions (banks, non-bank financial institutions, and NGOs) by using a single regulation (Banks and Financial Institutions Act).

Licensing is a common feature of MFI regulation in the observed countries. Regulators tend to see MFIs as financial institutions dealing with quasi-banking services and apply relatively strict risk-based regulations and supervision, mostly targeting deposit-taking ones. Microfinance institutions are required to comply with structured prudential regulations equivalent to general banking regulations, albeit with concessional requirements. Depositor protection, financial reporting, and disclosure requirements are basically applied to MFIs. On-site and off-site inspections, surveillance for fraud transactions, and penal codes are stipulated in MFI regulations as a basic set. In Bangladesh and Viet Nam, rescue measures for bankrupted MFIs are also included in the regulations. As a complementary measure, Pakistan provides guidelines on facilitating informal MFIs to become regulated microfinance banks. The implementation of proportionate regulation at the national level is still a challenge.
<table>
<thead>
<tr>
<th>Regulators</th>
<th>Legal basis</th>
<th>Financial institutions/activities to be regulated</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microcredit Regulatory Authority</td>
<td>Micro Credit Regulatory Authority Act No.32/2006</td>
<td>Credit &amp; savings cooperatives and NGO-MFIs</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Banking Law No.10/1998, Sharia Banking Law No.21/2008</td>
<td>Commercial banks, rural banks (BPR), and village banks (BKD), Islamic banks</td>
<td>Banking regulation &amp; supervision will move to OJK by Dec 2013</td>
</tr>
<tr>
<td>Financial Services Authority (OJK)</td>
<td>Presidential Regulation on Financing Institutions No.9/2008</td>
<td>NBFIs</td>
<td>Established in 2012 (OJK Law No.21/2011), taking over the functions of NBFI &amp; capital market regulations from Bapepam-LK and banking regulations from Bank Indonesia</td>
</tr>
<tr>
<td>Country</td>
<td>Authority</td>
<td>Legislation</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------</td>
<td>--------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nepal</td>
<td>Ministry of Cooperatives and SMEs</td>
<td>Cooperatives Law No.25/1992</td>
<td>Credit &amp; savings cooperatives and credit unions</td>
</tr>
<tr>
<td></td>
<td>Ministry of Home Affairs</td>
<td>Regulation No.39/2010 on BUMDes (village enterprises)</td>
<td>Village-owned MFIs</td>
</tr>
<tr>
<td>Nepal</td>
<td>Nepal Rastra Bank (central bank)</td>
<td>Banks and Financial Institutions Act 2006</td>
<td>[Class A] commercial banks; [Class B] development banks, [Class C] NBFIs, [Class D] rural development banks (RDBs), microfinance development banks (MFDBs), credit &amp; savings cooperatives, and NGO-MFIs</td>
</tr>
<tr>
<td>Pakistan</td>
<td>State Bank of Pakistan (central bank)</td>
<td>Banking Companies Ordinance 1962 Microfinance Institutions Ordinance 2001 Transformation Guidelines 2005</td>
<td>Commercial banks; Microfinance banks (MFBs); NGO-MFIs, Rural Support Programs (RSPs), and cooperatives Promoting NGO/RSPs/cooperatives to convert to MFBs.</td>
</tr>
<tr>
<td>Regulators</td>
<td>Legal basis</td>
<td>Financial institutions/activities to be regulated</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Philippines</td>
<td>Banko Sentral ng Pilipinas (central bank)</td>
<td>General Banking Law 2000</td>
<td>Commercial banks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural Banks Act</td>
<td>Rural banks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thrift Banks Act</td>
<td>Thrift banks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cooperatives Code (Chapter VIII)</td>
<td>Cooperative banks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pawnshops Regulation Act</td>
<td>Pawnshops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cooperatives Code (Chapter XIV)</td>
<td>Credit unions</td>
</tr>
<tr>
<td></td>
<td>Microfinance Council of the Philippines APPEND Network</td>
<td>n/a</td>
<td>NGO-MFIs</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>State Bank of Viet Nam (central bank)</td>
<td>Credit Institutions Law No. 02/1997/QH10</td>
<td>Commercial banks, NBFI, and credit cooperatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decree No.165/2007/ND-CP on the Organization and Operation of MFIs</td>
<td>MFIs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decree No.48/2001/ND-CP on the Organization and Operation of People’s Credit Funds</td>
<td>People’s Credit Funds</td>
</tr>
</tbody>
</table>

Source: Author’s compilation from various laws and regulations, and Boston University Center for Finance Law & Policy and the Consultative Group to Assist the Poor ‘Financial inclusion guide’ (http://www.bu.edu/bucflp/initiatives/financial-inclusion-guide/).
Table 16.4  **Main components of MFI regulations in selected Asian countries**

<table>
<thead>
<tr>
<th>Regulator Type</th>
<th>Bangladesh</th>
<th>Indonesia</th>
<th>Nepal</th>
<th>Pakistan</th>
<th>Philippines</th>
<th>Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Prural Central bank Special agency</td>
<td>Prural Central bank Financial authority SME/coorps agency Line ministry</td>
<td>Single Central bank</td>
<td>Single Central bank</td>
<td>Prural Central bank SME/coorps agency</td>
<td>Single Central bank</td>
</tr>
<tr>
<td>Legal Basis</td>
<td>Existing laws &amp; regulations Special laws &amp; regulations</td>
<td>Existing laws &amp; regulations Existing laws &amp; regulations</td>
<td>Existing laws &amp; regulations Special laws &amp; regulations</td>
<td>Existing laws &amp; regulations</td>
<td>Existing laws &amp; regulations Special laws &amp; regulations</td>
<td>Existing laws &amp; regulations Special laws &amp; regulations</td>
</tr>
<tr>
<td>Prudential regulation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Depositor protection</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Licensing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Financial reporting</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bankruptcy rule</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>Inspection</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Penal Code</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Source:  Author's compilation from various laws and regulations.*
5 DIVERSIFIED FINANCING MODELS AND REGULATIONS

As discussed, there are the limits imposed on SME bank lending in complex global financial systems. Besides improving bankability, the issue of how to respond to SME growth capital needs, arising from a continuously changing business environment, is another core policy subject for scaling up the SME sector. To this end, diversified funding alternatives beyond conventional bank credit are needed for growth-oriented SMEs, which can be promoted by financial institutions that have yet to focus on SME financing. Accordingly, new regulatory approaches should be examined and designed for newly emerging financial institutions in the field of SME finance. In this section, the role of non-bank financial institutions (NBFIs), the potential of short-term risk capital financing (supply chain finance), and long-term financing models (SME capital markets) are reviewed with the discussion on possible regulatory initiatives.

Non-bank Financial Institutions

Non-bank financial institutions are expected to play an important role by supplementing available bank lending for SMEs. Diverse institutions such as specialized financiers (for example, credit cooperative, credit union, pawnshop, finance company, leasing company, and factor), capital market organizers (for example, stock exchange, and securities dealer and broker), and risk-taking institutions (for example, venture capital, private equity fund, pension fund, and mutual fund) are collectively categorized into NBFIs. To encourage the NBFI industry, the establishment of a sound competitive environment between banks and NBFIs is a critical challenge, in which a holistic approach is needed in developing a regulatory framework for NBFIs that provide finance to SMEs.

Supply Chain Finance

Trade finance and supply chain finance for SMEs is of importance as their internationalization is helping to promote inclusive economic growth in Asia. As a supporting industry, SMEs contribute to intra-regional trade through subcontracts with large firms. In the globalized economy, large firms seek the division of labor to enhance business efficiency to win out over their competitors, which accelerates their dependency on overseas markets for efficient production. This trend can lead subcontracted SMEs into foreign markets to establish or maintain business relations with large firms, where trade finance and supply chain finance can help SMEs survive.
Supply chain finance is a relatively new concept. Although there is not yet a standardized definition, it can be expressed as a combination of trade finance and a technological platform that connects trading partners and financial institutions, and provides various services related to supply chain events, as defined by the International Factors Group (IFG 2012). Various combinations of financing instruments and services can be arranged under supply chain finance.

Data extracted from the survey conducted by Beck et al. (2013) indicated that 42 percent of banks surveyed recognized supply chain finance as a tool for filling trade finance gaps and that 50 percent of banks felt existing supply chain finance modalities insufficient. Although valid samples were quite limited (24 banks), this implies that supply chain finance has yet to penetrate banks deeply. Before designing the regulatory framework, supply chain finance products should be properly targeted to respond to small suppliers’ financing needs, and product literacy should be promoted for potential users including SMEs.

**Factoring**

Factoring is generally interpreted as a short-term supplier financing scheme where companies sell their accounts receivable to the factor, with or without recourse, and in return receive cash-in-advance at a discount from the factor. It is referred to as domestic factoring when the seller and the buyer domicile in the same country and as international factoring when the seller (exporter) and the buyer (importer) are located in different countries.

The factoring industry has grown rapidly around the world. Annual global turnover increased 22.3 percent in 2011 and reached €2 trillion according to the Factors Chain International (FCI 2012). The factoring business is quite active in Europe (60.4 percent of global volume in 2011) and relatively less active in Asia (25.2 percent). The leading factoring companies are mostly bank subsidiaries or bank divisions that dominate the global factoring market.

In general, factoring enables companies to improve their business efficiency and risk management by: (1) improving cash flow or providing needed working capital in a flexible and timely way; (2) not counting as a liability on the balance sheet, but rather as an off-balance-sheet transaction; and (3) transferring risk to the factor, resulting in a hedge against settlement risks. Basically, factoring companies do not see SMEs as an underwriting risk owing to factoring’s nature of individual-transaction-based financing. Therefore, factoring is beneficial for start-ups, rapidly growing SMEs with weak credit history and no collateral, and SMEs in
emerging economies with less developed commercial laws and regulations. Particularly, reverse factoring enables factoring companies to reduce information costs and finance even risky SMEs.\textsuperscript{4}

International factoring complements trade finance for SMEs by guaranteeing: (1) cross-border payment and settlement (credit protection), (2) individual transactions (SMEs have no disadvantage), and (3) non-letter-of-credit-based trade. This scheme enables SME exporters to increase business opportunities, rationalizing the process of supplier financing in terms of time and cost. International factoring also facilitates SME and new entrant participation in trade in goods and services, and as a result promotes intra-regional trade in Asia.

Nevertheless, the factoring industry has encountered challenges:

1. Limitations of the business model. Factoring is not a universal funding solution for enterprises. Owing to its nature of short-term working capital financing for enterprises that have constant sales to reliable buyers, factoring does not fit firms’ long-term funding and capital investment needs. Moreover, there are many non-factorable businesses with unpredictable processes such as construction.

2. Lack of understanding and capable professionals. The awareness level of factoring is still low, especially in emerging economies. The shortage of factoring professionals also hampers the development of the factoring industry. It is crucial to enhance factoring literacy on both the supply and demand sides.

3. Data availability and financial infrastructure. The FCI and the IFG have published annual country statistics on the factoring industry, which are based on surveys of their respective members. In the absence of publicly available data, the current statistics give only a partial picture of the factoring industry. The development of financial infrastructure, such as a credit risk database, is critically important for reducing the information cost for the factoring industry, not to mention the banking sector.

4. Funding for businesses. Active factoring companies are mostly bank-orientated and their funding is largely dependent on banks. Meanwhile, there are independent factoring companies that encounter funding difficulties.

5. Regulatory framework. Because of the small number of factoring companies in Asia, the establishment of a regulatory framework for factoring companies, including licensing, will encourage new entrants into the factoring industry and support its overall growth. A well-organized regulatory environment will also supplement the lack of factoring data (for example, statistics compiled by the regulator
through monitoring reports). However, there are several questions on regulating factoring companies:

(a) Legal status of factoring businesses. If commercial law regards factoring as a buying-and-selling activity, the factor will not be a creditor and factored receivables will be a part of the factor’s property (bankruptcy is remote for the seller). If factoring is regarded as a financial service, the factor will be a creditor and the legal framework will be necessary, especially in the case of default by the seller.

(b) Self-regulation. The legal framework for factoring has generally not been well established in emerging economies such as India and Russia. Self-regulation and rules set by factoring groups and networks have been used to supervise the factoring industry in several countries.

6. International factoring. Only 13.6 percent of global factoring volume is international factoring, according to the FCI (2012). To make it more functional, the role of factoring networks such as the FCI and the IFG has been increasing under the two-factor system, where the expanded networks of factoring companies help match more export factors with import factors. At present, there is the general rule of international factoring (GRIF), which was developed by the FCI and the IFG, and covers key rules such as the assignment of receivables and wire transfer of the payment under the two-factor system. However, there are some external conditions that differ by country such as financial and currency systems, taxation, the legal environment, and social and political conditions. Thus, standard-setting for international factoring may need to be tailored to regional and country contexts and needs.

Factoring is a growing business in the world. Asia is following the same path, although factoring is still small in scale in the region. Ideally, factoring takes on a catalytic role in connecting SMEs to the growth-and-graduation cycle of enterprises. To this end, the factoring industry may target growing SMEs to develop its niche market. In this regard, the factoring industry in Asia has dual potential. At the national level, domestic factoring as part of diversified financing mechanisms will support growth-oriented SMEs in expanding given additional funding flexibility. At the global level, international factoring as a complement to trade finance will support SME exporters and promote intra-regional trade that serves global rebalancing.

Increased trade in Asia is creating more business opportunities for the factoring industry. The majority of enterprises are SMEs in any country and their contribution to total exports is not insignificant. The more SMEs are internationalized, the more intra-regional trade is encouraged.
The factoring industry is in part expected to promote SMEs’ internationalization in support of intra-regional trade. The more SMEs’ savings are mobilized through intra-regional trade, the more that global rebalancing is promoted. At the same time, the factoring industry can support financial inclusion in Asia.

**Capital Market Financing for SMEs**

Capital market financing is one of the big issues in long-term financing for high-growth SMEs, which requires more sophisticated and innovative institutional arrangements in order to respond effectively to the real needs of SMEs. Long-term financing for investment, including SMEs, is key for sustainable growth and job creation in all countries as stated at the G20 Finance Ministers and Central Bank Governor Meeting in Moscow in July 2013. At the Saint Petersburg Summit in September 2013, the G20 leaders also addressed the importance of promoting long-term financing for SMEs in the context of investment.

Small and medium-sized enterprises have long-term funding needs but banks’ hesitation to provide long-term financing owing to uncertain economic circumstances is seriously affecting them. Bank-centered financial systems in Asia require robust capital markets as an alternative channel for providing growth capital. The development of long-term financing instruments for SMEs and proper regulatory frameworks for new instruments will be a key growth agenda among policymakers and regulators, which should be incorporated into a comprehensive menu of policy options on SME finance. There is the potential of developing social capital market and impact investment in Asia, given the increased concerns of socially-oriented business and green finance. This issue is explored in this section, along with the regulatory implications.

Capital markets are typically susceptible to changing external economic conditions, especially during a financial crisis. In OECD countries, most economies were severely impacted by the GFC, with the level of equity investments in 2011 still below pre-crisis levels in several countries (Figure 16.5). This suggests that SME capital markets need more innovative institutional arrangements with sophisticated risk management mechanisms so as to effectively attract investors as risk capital providers for SMEs.

Small and medium-sized enterprise capital markets are still in the early stages of development in Asia. Some countries have pursued a trial-and-error approach for creating a well-functioning equity financing venue for growth-oriented SMEs. This can be roughly classified into two types: (1) an exchange market and (2) an organized over-the-counter (OTC)
Countries where growth capital investment increases

Countries where growth capital investment declines

Note: 2008 (base year) = 1 for Russia, Spain, and the UK; 2007 = 1 for other countries.

Source: OECD (2013, p. 34).

Figure 16.5  Growth capital investment in OECD areas
market. For the exchange market, besides a typical SME Board under the stock exchange, a sponsor-driven alternative investment market (AIM) modeled on the UK-AIM has been established in some emerging Asian countries such as Malaysia, Singapore, and Thailand. As for the organized OTC market, self-regulatory organizations (SROs), such as the Korea Financial Investment Association (KOFIA) and the Japan Securities Dealers Association (JSDA), have operated a trading venue for unlisted SME stocks that is separate from the exchange market.

There is a new movement for creating an SME bond market in countries such as the PRC and the Republic of Korea. In the latter, a qualified institutional buyer (QIB) system was established for SME bond trading in May 2012. However, SME bond transactions under the QIB system are quite limited and not attractive to individual and institutional investors owing to the existence of low investment grade bonds (BB or below). The PRC has developed three types of SME bond instruments: (1) SME Collective Note, (2) SME Joint Bond, and (3) SME Private Placement Bond. The SME Collective Note market is an inter-bank market regulated by the People's Bank of China (PBOC) and the National Association of Financial Market Institutional Investors (NAFMII). It is growing rapidly, with annual issuance of CNY10.6 billion in 2012. An SME Collective Note is issued on behalf of between two and ten SMEs and generally guaranteed by a government guarantee institution. Small and medium-sized enterprise Joint Bonds are traded in the interbank and exchange markets, which are regulated by the National Development and Reform Commission (NDRC), but the issuance volume is quite limited at CNY0.98 billion in 2012. Small and medium-sized enterprise Private Placement Bonds are regulated by the China Securities Regulatory Commission (CSRC). The plural regulators are involved in the SME bond markets in the PRC.

In emerging Asia, equity financing venues for SMEs have been mostly created under stock exchange operations. In the PRC, the Shenzhen Stock Exchange (SZSE) has developed a three-tier market venue comprising the Main Board, SME Board and ChiNext (high-technology venture board), in line with national economic development strategies. Hong Kong, China's Growth Enterprise Market (GEM) is an alternative stock market for high-growth enterprises, operated by the Stock Exchange of Hong Kong Ltd. India has recently developed dedicated stock exchanges for SMEs, following the recommendation of the Prime Minister's Task Force in June 2010. The Bombay Stock Exchange (BSE) launched the SME Exchange in March 2012 and had 41 listed SMEs as of 19 November 2013. The National Stock Exchange (NSE) has also launched an SME platform, named Emerge, with three listed SMEs. Korean Securities Dealers Automated Quotations (KOSDAQ) is the largest organized market for SMEs and venture businesses.
in the Republic of Korea and a new market named KONEX was launched under the Korea Exchange (KRX) in July 2013. Malaysian Exchange of Securities Dealing and Automated Quotation (MESDAQ) under Bursa Malaysia was re-launched as the ACE (Access, Certainty, Efficiency) market in August 2009, a sponsor-driven alternative market. Catalist in Singapore, launched in December 2007, is a Singapore Exchange-regulated but sponsor-supervised market for rapidly growing enterprises, modeled on the UK-AIM. The Stock Exchange of Thailand (SET) has operated the market for alternative investment (mai) since June 1999, targeting SMEs as potential issuers.

Equity markets for SMEs in emerging Asia are typically small in scale, with market capitalization equal to less than 10 percent of GDP and market performances that significantly vary by country (Figure 16.6). In the PRC, both SME Board and ChiNext have been sharply expanding in terms of size and the number of listed companies, with more than 1000 listed companies in both markets combined, although their growth rates have slowed recently. The Korean Securities Dealers Automated Quotations and Hong Kong, China’s GEM enjoyed V-shape recoveries from the GFC, but the growth of these markets tends to be slowing with few new listings. Catalist Singapore, ACE Malaysia, and mai Thailand have not performed well on the whole and their listed companies are not increasing at a sufficient pace. This suggests that equity markets in Asia, except for those in the PRC and the Republic of Korea, have not yet become a financing venue for SMEs. Extensive national policies and strategies for improved SME access to capital markets are needed.

Table 16.5 highlights the regulatory structure for capital markets that SMEs can tap in selected Asian countries. Although the observed markets do not always target only SMEs, this section uses the term ‘SME markets’ for convenience sake because they are part of the target issuers in such concessional markets. On the whole, the baseline laws and regulations show no differences between the general and SME markets in the observed countries. Under the control of uniform capital market laws and regulations, the responsible regulator (for example, the Securities Commission), stock exchange, or the operating SRO generally provides special rules, guidelines, and regulations on SME markets. The listing criteria and the disclosure requirements for SME markets are widely lightened as compared with the main board of the stock exchange.

However, there are some limitations to reducing the requirements for listing and maintaining stocks in such concessional markets. Small and medium-sized enterprise markets have mainly been created under a stock exchange or regulated SRO. Given the no standalone and specialized legislation that is separate from the general set of capital market laws,
Global shock, risks, and Asian financial reform

Note: Emerging Asia comprises the PRC; Hong Kong, China; the Republic of Korea; Malaysia, Singapore, and Thailand.

Sources: Various statistics from respective stock exchange websites.

Figure 16.6 SME capital markets in emerging Asia
## Table 16.5 Regulatory structure for SME capital markets

<table>
<thead>
<tr>
<th>Regulators</th>
<th>Laws &amp; regulations</th>
<th>SME markets</th>
<th>Market type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People's Bank of China (PBOC)</td>
<td>–</td>
<td>SME Collective Note market</td>
<td>Bond/inter-bank market</td>
</tr>
<tr>
<td>National Association of Financial Market Institutional Investors (NAFMII)</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Development and Reform Commission (NDRC)</td>
<td>–</td>
<td>SME Joint Bond market</td>
<td>Bond/inter-bank &amp; exchange market</td>
</tr>
<tr>
<td><strong>Hong Kong, China</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Securities and Futures Commission (SFC)</td>
<td>Securities and Futures Ordinance Companies Ordinance</td>
<td>Growth Enterprise Market (GEM)/The Stock Exchange of Hong Kong Ltd (SEHK)</td>
<td>Equity/exchange market</td>
</tr>
<tr>
<td><strong>India</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulators</td>
<td>Laws &amp; regulations</td>
<td>SME markets</td>
<td>Market type</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Financial Investment services and Capital Markets Act (2011)</td>
<td>KOSDAQ/Korea Exchange (KRX)</td>
<td>Equity/exchange market</td>
</tr>
<tr>
<td></td>
<td>Act on External Audit of Stock Companies (2010)</td>
<td>KONEX/KRX</td>
<td>Equity/exchange market</td>
</tr>
<tr>
<td></td>
<td>Certified Public Accountant Act (2011)</td>
<td>FreeBoard/Korea Financial Investment Association (KOFIA)</td>
<td>Equity/OTC market</td>
</tr>
<tr>
<td></td>
<td>Secured Bond Trust Act (2011)</td>
<td>Freebond/KOFIA</td>
<td>Bond/OTC market (qualified institutional buyer [QIB] system)</td>
</tr>
<tr>
<td></td>
<td>Registration of Bonds and Debentures Act (2011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asset-Backed Securitization Act (2011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>Securities Commission Malaysia (SCM)</td>
<td>ACE Market/Bursa Malaysia</td>
<td>Equity/exchange market</td>
</tr>
<tr>
<td>Singapore</td>
<td>Securities Industry Act (1973)</td>
<td>Catalyst/Singapore Exchange (SGX)</td>
<td>Equity/exchange market</td>
</tr>
<tr>
<td></td>
<td>Securities Exchange of Thailand Act &amp; Regulations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s compilation from various laws and regulations, and stock exchange websites.
direct growth capital financing venues may be inflexible to SME funding needs, particularly in matters of size. For instance, the minimum number of shareholders in a stock offering and the maintenance of stocks stipulated under the baseline laws may not fit the funding needs of those who want to raise small funds from limited investors. The regulatory framework for SME capital markets should be flexibly examined upon necessity.

Considering the present regulatory conditions of capital markets in Asia, two types of specialized market infrastructure are worth exploring in greater detail:

- exercise equity market for SMEs; and
- social capital market.

The creation of an ‘exercise’ equity market for SMEs, separate from the exchange market, can be beneficial in developing Asia. The concept is to create a preparatory market for ‘smaller but growing’ firms that will eventually tap the regular market of stock exchange. This market will provide a chance for SMEs to learn more market rules and obligations such as disclosure before tapping the organized market, and to improve corporate culture through learning the importance of increased corporate value for growth. The exercise market should have a comprehensive mechanism for supporting SMEs in equity finance from various angles, which is combined with: (1) fostering the venture capital industry as an initial risk capital provider for SMEs; (2) developing the base of professionals supporting the SME disclosure process, such as certified public accountants (CPAs); and (3) designing government policy support measures such as tax incentives for SME issuers and investors.

Developing SME capital markets presents a twofold challenge: (1) demand creation and (2) market sustainability. To this end, a well-organized investor base and supporting professionals with government preferential measures are prerequisite to stimulating demand for an SME market. Meanwhile, with low-cost operations, liquidity enhancement mechanisms – such as market making and obligatory shareholder allotment – are indispensable to market sustainability.

Figure 16.7 shows the conceptual combination of SME funding sources and risk capital providers in the growth cycle of enterprises. The financing needs of firms are dependent on their stage of growth. For instance, growing SMEs tend to seek access to long-term funding instruments for further growth of their business, which creates increased demands on SMEs for capital market financing. However, most SMEs have little ability to tap the regular stock exchange market because of relatively strict
listing requirements and, more importantly, a lack of basic knowledge of capital market financing. Therefore, the creation of a venue for learning market rules, obligations, and benefits through the experience of issuing and trading stocks within the established system, yet separate from the regular market, is potentially useful for growth-oriented SMEs. The creation of investor and professional bases that support SMEs in equity financing is needed to implement this concept. In this regard, extensive national policies and strategies for SME access to capital markets, with appropriate regulatory backing, are key to realizing the preparatory market concept.

As a concern, unless standalone regulations are established through separate legislation from the general capital market laws, the exercise market may conflict with such general laws. For instance, if the number of shareholders for a stock offering and maintaining stocks in the non-exchange market exceeds the statutory minimum number stipulated in the general capital market laws, SMEs listed in such a market will be regarded as public companies under the general laws, which means that they cannot enjoy preferential treatment even if they are listed in the special market. In other words, their funding will be limited to small-scale fund raising from a limited investor base.

The social capital market is also a promising venue for SMEs as a place where social enterprises can link up with impact investors. Social enterprises are defined as business-oriented not-for-profits, or mission-
oriented for-profits, having a social and/or environmental mission at the
core of their work while seeking to operate in a financially sustainable
manner (ADB 2011a). This includes MFIs and innovative SMEs in the
education, energy, health, and agro-business sectors. Impact investors are
defined as investors seeking to make investments that create a positive
social and environmental impact beyond financial return (JP Morgan
2010), including social venture capital funds, microfinance investment
vehicles, pension funds, mutual fund managers, institutional fund man-
agers, sovereign wealth funds, endowments, and family foundations. JP
Morgan estimated that the impact investment market has the potential to
absorb between US$400 billion and US$1 trillion over the next decade,
particularly in the areas of housing, rural water delivery, maternal health,
primary education, and financial services. An ADB survey (ADB 2011a)
indicated that 74 percent of investors in the sample who were not cur-
cently impact investing would consider transacting on a social stock
exchange.

There are two social stock exchanges operating in the world: (1) Impact
Exchange and (2) the UK Social Stock Exchange. Both platforms were
established in June 2013. The Impact Exchange, located in Mauritius,
is operated by the Stock Exchange of Mauritius and supervised by the
Singapore-based Impact Investment Exchange Asia (IIX), targeting Asian
and African social enterprises. The IIX also established an online platform
named Impact Partners in March 2011 that provides a dedicated matching
service for social enterprises and impact investors. The UK Social Stock
Exchange, with initially 11 listed social enterprises, was launched by the
London Stock Exchange Group as part of the national strategies for fos-
tering social impact businesses in the UK. The recent survey conducted by
showed that impact investors planned to commit US$9 billion in 2013, up
from US$8 billion in 2012.

A social stock exchange has similar functions as the regular market of
stock exchange, where social enterprises can raise capital through offer-
ings of shares, bonds, or other financial instruments. It seems that trial-
and-error efforts were made to decide the trading platform in the present
social stock exchanges. The IIX initially planned to launch a standalone
trading platform for Asian social enterprises as Asia’s first private-led
social exchange, but ultimately decided to use the existing exchange market
for operations probably due to potential barriers to sustainable operations
in a new platform. The use of an existing platform brings several benefits
to a new market: (1) cost efficiency, (2) transparency and credibility, and
(3) standardized operations and management. These are challenges to
be overcome in creating an independent market, with a possible solution
being the creation of exchange market or partial collaboration with the existing stock exchange. At the same time, however, such arrangements could prove inflexible for the particular funding needs of different issuers given that market operations would be explicitly controlled by general capital market laws and regulations.

6 REGULATORY IMPLICATIONS

The discussion in the previous sections has implications for designing a regulatory framework for financing SMEs at the national level. A holistic and balanced regulatory approach is needed to support financial inclusion, promote the use of innovative financing instruments, and maintain financial stability and a safety net.

Roles of Regulation

Regulations for SME finance are mainly expected to reduce entry barriers in formal financial markets; facilitate access to diversified financing alternatives; deliver necessary growth capital to SMEs; encourage a sound and competitive business environment with healthy financial sector development; and protect SME clients from any fraudulent events. However, there is no standardized approach to cover all regulatory aspects of SME financing. The roles and scopes of regulations should be flexibly adjusted in accordance with the country context and the real needs of SMEs.

Regulatory Targets

Regulatory targets can be reviewed systematically based on five benchmark categories: (1) type of supply side, (2) type of demand side, (3) products and services, (4) financial infrastructure, and (5) global standards and principles.

- Type of supply side. Banking regulations have been relatively well established in Asia, where the central bank and/or financial authority basically set up the special rules, guidelines, and regulations designed for SME financing in line with the national strategies on SME sector development and financial inclusion. Commercial banks and public financial institutions (specialized SME lending bodies and credit guarantee institutions) will operate SME lending activities typically under the banking law and the establishment law on special public entities. Meanwhile, there will be the regulatory
underserved segments of financial institutions in the SME financing space, including non-licensed NBFIs and informal MFIs. They can be a regulatory target in converting their legal status from informal to formally regulated entities (formalization). Moreover, if the government plans to launch an SME capital market, more sophisticated risk-based regulatory arrangements will be necessary in the capital market financing space.

- Type of demand side. Small and medium-sized enterprises are not a uniform entity. Business characteristics and the associated risks differ by sector (for example, primary industry, service sector, and manufacturing); business range (domestic or international); business relation (independent or subcontracting); and a firm’s life cycle (seed, start-up, early, expansion, and steadily growing stages). Accordingly, necessary funding instruments and regulatory requirements differ as well. The regulations can be arranged upon their expected beneficiaries so as to maximize the financial outreach to the policy targets such as SMEs and microenterprises (for example, a legal basis for facilitating seed and early stage finance).

- Products and services. The limitations of traditional bank lending for SMEs require broadening the range of financing options with innovation, where the regulatory approach focuses on financing activities rather than the type of financial institutions. Asset-based finance is the typical example in which responsible regulators spread across the banking sector (asset-based lending), non-bank sector (factoring and financial lease), and capital markets (asset-backed securities). A financing model-focused regulatory arrangement may be useful to coordinate multiple regulators. Supply chain finance also necessitates such an arrangement due to its nature of combined financial products and services related to supply chain events. Newly emerged instruments, such as crowdfunding, and policy-focused models, such as long-term financing for SMEs (public and private equity, bond issuance, mezzanine finance, and venture capital and angel investment), will need special regulatory guidelines and requirements upon necessity.

- Financial infrastructure. As discussed, there is a correlation between firms’ credit easiness and the strength of legal rights for collateralized assets and bankruptcy remote in SME lending. The legal basis for establishing and operating collateral registries and credit bureaus will help enhance lending efficiency in the banking sector, with increased loan approval and reduced default rates as indicated in the IFC (2006) study. Multi-country data sharing on SME access to finance is expected to facilitate evidence-based policymaking and
regulations in SME finance. Supportive legislation for building the financial infrastructure necessary to expand SMEs access to finance is needed.

- Global standards and principles. Five standard-setting bodies – the BCBS, the CPSS, the FATF, the IADI, and the IAIS – have developed the proportionate regulatory and supervisory frameworks for microfinance in support of financial inclusion. Proportionate regulation is worth consideration not only for microfinance but also for SME finance, considering the risks, benefits, and costs associated with new financial instruments developed with innovation and technology. Proportionality with global standards and principles, particularly the Basel Capital Accord, in regulating and supervising MSME finance should be sought while taking account of the country context.

Assessment

Given the complex financing models and diverse risk capital providers, the assessment of regulatory impacts on SMEs, financial institutions, and the financial sector development is indispensable to making a course correction in the regulatory approach for SME financing. To this end, analyzing different sets of regulatory approaches is worth pursuing: (1) single versus tiered regulation, (2) existing versus special regulation, and (3) SME finance versus microfinance. The debate is whether or not the different regulatory requirements and arrangements are needed between them.

Coordination

A diverse range of players will have the potential to finance and invest in SMEs as existing and innovative financing tools are developed. Accordingly, responsible policymakers and regulators should seek diversity in their approaches as well. The failure to practice intra-governmental coordination would seriously affect the implementation of national policy and regulatory actions, and may increase financial vulnerabilities. To avoid such a situation, three types of coordination should be pursued in the process of implementing enabling government measures: (1) coordination among regulators, (2) coordination between the public and private sectors, and (3) coordination of policies and regulations.

Coordination among regulators can be arranged among central regulators, between central and local regulators, and among local regulators. A policy and regulatory coordination venue connecting the government with
the private sector is beneficial in identifying the real financing needs of SMEs. Coordination between policies and regulations is the most important action to avoid regulatory arbitrage risks and encourage the healthy financial sector development. The regulatory design for financing SMEs is closely interconnected with key policy measures – such as creating an SME credit risk database; financial literacy and socialization; capacity-building and training for stakeholders (for example, SMEs, financial institutions, and regulators); responsible finance; consumer protection; securing the source of SME finance for financial institutions; prudential regulatory policies; fostering the base of supporting professionals (for example, CPAs) to enhance financial accessibility for SMEs; and preferential treatments (for example, tax incentives).

7 CONCLUSION

The sophisticated bank lending regime is needed in Asia’s largely bank-centered financial systems, and is a core policy pillar to improve SME access to finance. Challenges include: (1) financial infrastructure development for SMEs (for example, the promotion of SME data infrastructure and the legal reform for secured transactions); (2) innovative financial product design (for example, asset-based finance, credit-score-based lending, and SME cluster financing); (3) sustainable credit guarantee systems; and (4) clarifying the roles of public financial institutions. Meanwhile, the diversification of financing models is another core policy pillar to expand financial accessibility for SMEs, given the limitations of bank lending amid global financial uncertainty. Challenges include: (1) increasing the role of NBFIs in SME finance, (2) promoting supply chain finance for SMEs, and (3) developing capital market financing for SMEs. A review of these financing models is needed to design a new regime of SME finance in emerging Asia.

To move forward, SME policymakers and financial regulators should develop a comprehensive menu of policy options that supports innovative instruments and services to promote SME access to finance as well as the maintenance of a financial safety net. To this end, well-organized coordination between regulations and policies is key for successful implementation of the framework. The policy directions needed to promote innovative financing models for SMEs can be expressed from a viewpoint of ‘what’, ‘why’, and ‘how’.

**What:** Provide timely financing opportunities for growing SMEs while responding to their needs with flexibility and innovation. Policymakers
responsible for SME development and financial regulators need to share the same vision of providing growth capital funding opportunities for SMEs, responding to their real needs with flexibility and innovation. It should be carefully examined whether the development of new financing tools is: (1) well matched to the demands on SMEs and the supply side (financial institutions and investors), (2) mobilizing SME savings toward investment, and (3) stimulating the national economy and strengthening its resilience.

**Why: Limitations to relying on quasi-capital for SMEs to sustain their business.** Policymakers responsible for SME development and financial regulators need to have a good background story for developing a new financing model. For instance, the limitations to relying on quasi-capital for SMEs to sustain their business (balance sheet issues) may be one of the most persuasive reasons to develop long-term financing instruments. Typical SMEs raise quasi-capital through continuous short-term or mid-term working capital financing from banks. However, once an unexpected event such as a financial crisis occurs, then the sources of quasi-capital (especially from banks) may be abruptly cut off. Thus, innovative financing models for the traditionally underserved, including SMEs, should be developed beyond traditional bank credit. Capital market financing is one such innovative financing alternative for SMEs.

**How: Facilitating new approaches rather than strictly regulating.** Policymakers responsible for SME development and financial regulators should facilitate financial institutions to develop and pursue new approaches and innovative instruments, such as an SME capital market, rather than strictly regulating them. A holistic and balanced approach is required to design the extensive regulatory and policy measures needed to improve financial accessibility for SMEs and safeguard financial stability.

**NOTES**

1. Private bureaus cover only 14.4 percent of adults in East Asia and the Pacific, while covering 59.6 percent in OECD countries. Public registries cover 7.2 percent of adults in East Asia and the Pacific, while covering 8.8 percent in OECD countries.
2. Small and medium-sized enterprise indicators in the FAS include: (1) outstanding SME deposits (percentage of GDP) with the number of SME depositors and deposit accounts, and (2) outstanding SME loans (percentage of GDP) with the number of SME borrowers and loan accounts.
3. The survey was conducted on the occasion of the Thirtieth ASEAN SME Working Group Meeting held on 5 June 2012 in Kuala Lumpur*. In addition to this, the same survey was conducted to the selected ADB developing member countries during August–

4. In the reverse factoring scheme, the factor purchases all accounts receivable from the suppliers of a single high-quality buyer, such as a creditworthy large company, and in return respective suppliers receive cash-in-advance at a discount from the factor. Before concluding factoring contracts, the factor collects credit information and calculates the credit risk only for high-quality buyers, which is less costly than traditional factoring. Because the credit risk is basically equal to the default risk of a high-quality buyer, reverse factoring is a promising financing tool for risky SMEs.

REFERENCES

Asian Development Bank (ADB) (2011a), Impact Investors in Asia: Characteristics and Preferences for Investing in Social Enterprises in Asia and the Pacific, Manila: ADB.

Asian Development Bank (ADB) (2011b), Key Indicators for Asia and the Pacific 2011, 42nd edn, Manila: ADB.


Bank Indonesia, Data Perbankan Indonesia (Indonesian Banking Statistics), various issues, Jakarta: Bank Indonesia.


17. Global financial regulatory trends and challenges for the development of the insurance and pensions sector in the Asia-Pacific region

Arup Chatterjee

1 INTRODUCTION

The 2008–09 global financial crisis has prompted wide-ranging regulatory reforms to be undertaken by the international community to strengthen the resilience of the global financial sector. Some of the activities of the insurance and private pensions sector, which was relatively less affected by the crisis than other financial sectors, under certain conditions have the potential to be systemically relevant if conducted on a huge scale and with poor risk governance and supervisory oversight. Such non-core activities are closer to quasi-banking and include speculative derivatives trading on non-insurance firm balance sheets and the mismanagement of short-term funding. Therefore, the insurance industry can be considered systemically important.

The regulatory reforms that have been unleashed are a part of important initiatives to reformulate the future landscape for finance, including the IAIS’s Insurance Core Principles (IAIS 2011a), the EU’s Solvency II Directive, and Basel III capital adequacy requirements. The identification of global systemically important insurers (G-SIIs) and the supervision of internationally active insurance groups (IAIGs) is also likely to place additional demands on regulators to address sub-optimal supervisory structures and prudential issues such as enhanced risk-based capital frameworks, and place greater regulatory focus on policyholder compensation schemes, group-wide supervision, and more coordinated resolution mechanisms.

Significant changes in a period of transition to a new era for the financial services industry have led to enhancements to regulatory and supervisory frameworks, which have also had a far-reaching and fundamental impact on how insurers manage risks. Today, questions are being
asked as to whether all proposed regulatory changes are well founded, and whether regulatory changes across the broader financial sector will prove to be mutually consistent. The blurring of banking, insurance, and capital market boundaries resulting from financial innovation creates complications for the design of appropriate regulatory arrangements. Increasing internationalization of financial markets and institutions implies benefits from the harmonization of regulations, but creates risks for national economies and financial sectors, which may imply a need for specific national regulatory requirements. Also open to debate is the suitability of regulatory changes designed to address problems that arose during the GFC in developed market financial sectors for emerging market (and other) financial sectors where these problems did not occur on the same scale.

While insurers in the region have generally held up well through the crisis, the industry now finds itself at the intersection of major regulatory developments that will have an important influence on the way in which the industry responds to new insurance and asset accumulation opportunities in Asia. One can therefore expect that the characteristics of growth in the industry going forward will differ in some respects from the global experience.

Each jurisdiction in the Asia-Pacific region has its own unique features. Examples include varying growth rates, the existence or absence of tariffs for many statutory classes, the presence of Sharia’h-compliant insurers in certain countries, the existence of investment and reinsurance limitations in some markets, and the shortage of long-dated government debt in some markets. Some regulatory requirements, such as data granularity and qualified staffing, are not likely to be implemented soon, although the adoption of capital models, enterprise risk management, IFRS accounting standards, and increased consumer protections have already been anticipated or are already under development across the region.

As a result, insurance regulators from the Asia-Pacific region need to consider a wide range of reform packages in the near future (for example, the revision of solvency standards, risk management, and governance). As more jurisdictions in the region begin to implement the ICPs, and develop some sort of a functional equivalence with European Solvency II and US risk-based capital standards, the region is confronted by a patchwork of insurance regulations. It also lacks the political unity of Europe or the US – homes to the regulatory regimes it is emulating. Therefore, assessing how best to accommodate multi-jurisdictional compliance and reporting requirements will become a growing strategic challenge.

If implemented correctly, the observance of the ICPs will provide a solid foundation for the insurance industry in the future. Therefore, it is
important that the regulators of banks, pensions, and insurance companies analyze interactions among new regulations, including the associated risk trade-offs and their consistency in avoiding the wrong incentives in the long run.

The following sections identify recent global regulatory trends, elaborate on the IAIS response, and explore how insurance supervisors are preparing for change.

2 GLOBAL REGULATORY TRENDS AND THE IAIS RESPONSE

The GFC triggered significant regulatory action. The G20, the FSB, and the Joint Forum have been active in reviewing the regulatory framework for banks, and such analysis has invariably been applied to the insurance industry. The IAIS has responded by revising its ICPs and standards (IAIS 2013). Some common themes emerging from these international regulatory developments include:

- a move toward more risk-based approaches to capital and solvency measurement;
- a greater focus on risk management and governance;
- increased use of stress and scenario testing; and
- group supervision.

2.1 Insurance Core Principles

The IAIS’s ICPs, standards, and guidance that were adopted in October 2011 will have a significant impact on the form and extent of prudential regulation within Asia-Pacific insurance markets. The new ICPs are to be observed by insurance legal entities and insurance groups unless otherwise stated. Although they do not apply to non-insurance entities (regulated or unregulated) within an insurance group, they will apply to insurance legal entities and insurance groups with regard to the risks posed to them by non-insurance entities.

Even though the ICPs currently take the form of high-level, principle-based requirements, they nonetheless require all supervisors to incorporate these requirements into their local supervisory framework. If they do not, they risk receiving an adverse finding from the IMF and World Bank in their Financial Sector Assessment Program review.
Implications for Asia-Pacific jurisdictions

The jurisdictional-based regulatory framework across most of the Asia-Pacific region is far from being harmonized with international financial standards. With the adoption of the revised IAIS ICPs, it is evident that Asian insurance regulators need to consider a wide range of reform packages, including the revision of solvency standards, risk management (for example, the development of Own Risk and Solvency Assessment – ORSA), and governance. The overriding focus of many Asian supervisors is the implementation of the IAIS’s ICPs, which are challenging for both supervisors and firms to implement.

2.2 Macro-prudential Supervision

In responding to the GFC, financial stability, including in the insurance sector, has become one of the core topics in the global financial regulatory agenda. The financial system has become more interconnected and complex than ever before and stress in one institution can spread quickly to related institutions and across sectors and jurisdictions, creating systemic risk. Clearly, the GFC showed that micro-prudential supervision alone was not enough to sustain the stability of the financial system and a greater macro-prudential focus – beyond supervision at the individual firm level, or a micro-prudential perspective – was a missing element in the existing regulatory framework. The GFC has highlighted the need for developing a macro-prudential policy framework and tools for identifying risks and trends in order to detect the potential build-up of systemic risks. Although the need for macro-prudential policy and surveillance (MPS) has been recognized, it remains ambiguous how this approach should apply to the insurance sector in particular.

There are considerable differences between macro-prudential supervision and micro-prudential supervision with respect to their objectives, methods, and recognition of economic conditions (Table 17.1). These differences can have important implications for the diagnosis of threats to financial stability.

While the focus of micro-prudential supervision is to protect financial consumers – investors, depositors, policyholders – with the objective of limiting the distress of or losses at any one specific institution, macro-prudential supervision focuses on the financial system as a whole, with the objective of mitigating the costs of financial distress to the macroeconomy. While micro-prudential supervision is exclusively focused on individual institutions, macro-prudential supervision takes a holistic view of the sector in question and the overall economy.

Through its enforcement of effective regulation of individual
Macro-prudential surveillance is a complement to the existing micro-prudential approach, rather than a substitute for it. Together, macro-prudential and micro-prudential surveillance can better assist supervisors in their efforts to mitigate the detrimental effects of the risks identified.

Macro-prudential surveillance aims to mitigate the impact of systemic shocks by identifying macroeconomic and financial risks that could lead to a large number of financial institutions becoming insolvent and/or significant disruptions to vital parts of the economy. Macro-prudential risks can include trade imbalances, large capital inflows and outflows, asset market bubbles, interest rate risk, inflation risk, liquidity risk, sovereign debt risk, and dramatic changes in market sentiment. Mitigating such risks is a key part of macro-prudential surveillance, thus improving the stability of the financial system and the overall economy.

Progress in developing a macro-prudential surveillance framework is in its infancy in the insurance sector. ICP 24 – Macro-prudential Surveillance and Insurance Supervision – states that the supervisor should undertake macro-prudential surveillance by monitoring and analyzing factors that may have an impact on insurers, insurance groups, and insurance markets. ICP 24 also calls for the development and application of macro-prudential tools aimed to limit systemic risk as a result of (or accentuated by) activities in the insurance sector. Therefore, Asian insurance supervisors need to expand their macro-prudential surveillance activities further in order to strengthen the regulatory framework. They will need to develop and identify industry-specific financial soundness indicators – in the general

Table 17.1  Macro- and micro-prudential perspectives compared

<table>
<thead>
<tr>
<th></th>
<th>Macro-prudential</th>
<th>Micro-prudential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximate objective</td>
<td>Limit financial system-wide distress</td>
<td>Limit distress of individual institutions</td>
</tr>
<tr>
<td>Ultimate objective</td>
<td>Avoid macroeconomic costs linked to financial instability</td>
<td>Consumer (investor, depositor, and policyholder) protection</td>
</tr>
<tr>
<td>Characterization of risk</td>
<td>Endogenous (dependent on collective behavior)</td>
<td>Exogenous (independent of individual agent’s behavior)</td>
</tr>
<tr>
<td>Correlations and common exposures across institutions</td>
<td>Important</td>
<td>Irrelevant</td>
</tr>
</tbody>
</table>

Source: Borio (2003).
categories of capital adequacy, asset quality, market risk, and liquidity – that are important to macro-prudential surveillance. Some of these indicators unique to the insurance industry are the underwriting cycle of hard and soft markets, and the pricing and availability of insurance products. Insurance supervisors need to carry out a regulatory capital assessment – better known as the bank ‘stress test’ of the insurance industry – to align macro-prudential surveillance with micro-prudential perspectives in order to create a stronger regime that addresses a more complete range of supervisory objectives.

The IAIS (2011b) has found that most insurance supervisors do conduct macro-prudential surveillance activities; however, the breadth, reach, and frequency of activities vary from supervisor to supervisor.

Many Asian countries, in an effort to strengthen financial regulation and supervision, have proactively used macro-prudential instruments to address emerging vulnerabilities in the financial sector since the 1997–98 Asian financial crisis. In fact, a macro-prudential framework should not mean merely the monitoring of systemic risks, but should holistically cover all key dimensions of the economy (Figure 17.1). For example, what would be the impact on the macroeconomy? How can insurers support sustainable development? How can insurers play a role in social security systems? How can consumers purchase insurance coverage at affordable prices? All

Source: Okubo (2012).

Figure 17.1 Macro-prudential framework
of these factors should be incorporated into a macro-prudential framework (Okubo 2012).

**Implications for Asia-Pacific jurisdictions**

Although macro-prudential frameworks are not one-size-fits-all and reflect country-specific conditions, in most countries in the Asia-Pacific region financial stability is enshrined in legislation and macro-prudential management is underpinned by either institutional or policy coordination arrangements. In some smaller countries the central bank has a financial stability and crisis management mandate, while in most cases this mandate is shared by the central bank with other regulatory agencies and/or the ministry of finance. These institutional arrangements, which have evolved over the years, served Asia well during the GFC and have provided the impetus for improving the existing arrangements and strengthening interagency cooperation (Lim et al. 2013). However, most of the tools and potential effectiveness of macro-prudential surveillance has dealt with the banking industry, not the insurance industry.

### 2.3 Solvency and Capital Adequacy Standards

The IAIS solvency standards require supervisory regimes to establish risk-based solvency requirements. These standards reflect a total balance sheet approach on an economic entity-wide basis that addresses all reasonably foreseeable and relevant material risks. They require all insurance supervisors to enact the requirements into their local supervisory frameworks. Otherwise, they risk receiving an adverse rating at the time of FSAP reviews from the IMF and World Bank.

Meanwhile, in Europe, the Solvency II program is expected to fundamentally change the capital adequacy requirements and insurers will need to demonstrate that they have adequate financial resources that reflect key quantitative requirements, such as own funds (capital), technical provisions, and the methods for calculating the solvency capital requirement (SCR) and minimum capital requirement (MCR). However, until now at the international level, unlike banking, there is no agreed-upon capital adequacy standard among jurisdictions. Instead, each regulator has created its own local capital requirements. As many of these requirements are historically based, there is usually no confidence level or time horizon on which the capital requirements are based. This also means that there is no consistency in the structure of capital requirements or the view on the adequacy of capital resources for insurers.

Insurance Core Principle 17 brings international capital adequacy standards together. The standards require all solvency regimes to establish
global financial regulatory trends and challenges 683

Regulatory capital requirements at a level sufficient to ensure that, in times of adversity, an insurer’s obligations to policyholders will continue to be met as they fall due. It requires that insurers maintain capital resources to meet regulatory capital requirements. The standard also introduces solvency control levels, which are designed to trigger different degrees of intervention by supervisors.

In the context of an insurance legal entity capital adequacy assessment, the IAIS advocates that regulatory authorities define regulatory capital requirements that establish a solvency control level above which the supervisor does not intervene on capital adequacy grounds. The IAIS describes this intervention level as the prescribed capital requirement (PCR). This is similar to the SCR in Solvency II. The PCR is defined such that assets will exceed technical provisions and other liabilities with a specified level of safety over a defined time horizon. The other intervention level is a solvency control level at which, if breached, the supervisor would invoke its strongest actions in the absence of appropriate corrective actions by the insurance legal entity. This is referred to as the MCR. The MCR is subject to a minimum bound, below which no insurer is regarded to be viable to operate effectively. The interplay between the new capital requirements and supervisory ladder of intervention can be seen in Figure 17.2.

![Figure 17.2  Capital requirements and supervisory intervention](image-url)
Significantly, the ICP 17 now requires all jurisdictions to set appropriate target criteria for the calculation of regulatory capital requirements, which underlie the calibration of a standardized approach. It also requires jurisdictions to set criteria for the assessment of the quality and suitability of capital resources, with regard to their ability to absorb losses on both a going-concern and winding-up basis.

In the context of a group-wide capital adequacy assessment, the capital adequacy standard is less specific. Rather than requiring a PCR or MCR, as in the case of an insurance legal entity capital adequacy assessment, it requires that regulatory requirements establish solvency control levels that are appropriate in the context of the approach to group-wide capital adequacy that is applied. Regulators are also increasingly turning their attention to the quality of capital available to meet insurance liabilities and other commitments. The capacity of insurers to absorb losses on both a going-concern and winding-up basis will become more important, increasing the need to have adequate scenario modeling capabilities.

Another major development is that the IAIS capital adequacy standard includes general provisions on the use of an internal model to determine regulatory capital requirements (where this is allowed by the supervisor). The IAIS standards state that the solvency regime should establish appropriate modeling criteria to be used for the determination of regulatory capital requirements. For example, an insurer is required to adopt risk-modeling techniques and approaches appropriate to the nature, scale, and complexity of its current risks and those incorporated within its risk strategy and business objectives in constructing its internal models for regulatory capital purposes. Further, insurers will need to validate their internal models by subjecting them to (at a minimum) the following three tests: (1) statistical quality test, (2) calibration test, and (3) use test. In particular, the IAIS standard requires that the insurer’s board and senior management understand the consequences of the internal model's outputs and limitations for risk and capital management decisions. Insurers will also be expected to have adequate governance and internal controls in place with respect to the internal model.

Increasingly risk-based capital regimes are also employing scenario and stress test requirements. In addition to these capital requirements, many regulatory frameworks are adopting enterprise risk management (ERM) frameworks that consider the organizational structure of risk management, governance, reporting, disclosure, and transparency requirements, as well as considering group risks. Insurance Core Principle 16 requires supervisors to seek high standards of risk management and governance from insurers and, critically, supervisors are being encouraged to challenge the insurers they regulate on risk management issues. In particular, the
ERM standard requires insurers to produce an ORSA, under which an insurer undertakes its own forward-looking self-assessment of its risks and capital requirements, and the adequacy of its capital resources.

**Implications for Asia-Pacific jurisdictions**

Risk-based capital regimes differ greatly between countries in the Asia-Pacific region. Historically, they have been mostly factor based, and these factors often do not vary by company, although some vary by volume of business or level of asset concentration. When setting an insurer’s solvency capital requirements, risk-based capital regimes typically measure asset, insurance, business, credit, market, and operational risks.

The IAIS capital adequacy standards include general requirements on the use of internal models to determine regulatory capital requirements (where this is allowed by the supervisor), and will result in a major step forward in the Asia-Pacific supervisory arena. Moreover, many of the ERM requirements are new to the Asia-Pacific region. Therefore, insurers across the region will need to substantially upgrade their ERM and capital management capabilities over the next few years.

### 2.4 Group-wide Supervision

In light of the events of 2007–09, the international financial services regulatory community, represented by the FSB, advocates the supervision of banking and insurance enterprises and financial conglomerates on a group-wide basis. The FSB has focused on the importance of supervising the whole group, taking into account all risks from all entities within the group that may impact the financial position of the group in order to avoid gaps in regulation and supervision, and the potential for regulatory arbitrage.

The FSB’s viewpoint on the risks posed by insurance groups is derived from the American Insurance Group (AIG) case, in which a London-based non-insurance subsidiary, American Insurance Group Financial Products (AIGFP), was used to write credit default swaps. American Insurance Group Financial Products was able to operate outside of any effective regulation for two reasons: First, as it was not an insurer, it was not directly subject to insurance regulation. Second, because AIG as a whole came under the oversight of the US Office of Thrift Supervision, which had no practical ability to regulate entities other than banks in the US, AIGFP was free of any other effective supervision.

To prevent a replication of this type of regulatory arbitrage, particularly for G-SIFIs and G-SIIIs, the IAIS issued guidance (IAIS 2010) encouraging its members to establish, within the supervisory regime of their jurisdiction,
sufficient supervisory powers and authority to ensure that supervision has proper regard for individual entities as well as all entities that may affect the overall risk profile and/or financial position of the group as a whole, and to promote greater consistency between jurisdictions.

Specifically, ICP 23\textsuperscript{1} sets out principles applicable to the supervision of a group that includes insurance companies, operating and non-operating holding companies, other regulated entities such as banks, non-regulated entities, and special purpose entities. Insurance Core Principle 23 is also a key component of the Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame), which sets out a comprehensive range of qualitative and quantitative requirements for the regulation of IAIGs by ‘customizing supervisory requirements and processes’, which will provide a basis for regulatory comparability across the range of IAIGs, so as to foster commonality and reduce compliance and reporting demands on IAIGs. The IAIS is scheduled to formally adopt ComFrame in 2018, with its members to begin implementing ComFrame thereafter.

Today, a range of approaches is used globally to supervise IAIGs; thus, a situation remains in which global supervisors monitoring IAIGs adequately do so without a multilateral supervisory system in place. Therefore, increasing attention is being paid by supervisors to insurers’ assessments and the management of group risk, both from the perspective of a top-down, group-level assessment of risk and the risk attached to the wider group from a particular local entity.

1. **Internationally active insurance groups.** The ComFrame under development by the IAIS is proposing an international principles-based code of practice to govern the way IAIGs should work. The IAIS has outlined the aims of ComFrame as:
   (a) developing methods of operating group-wide supervision of IAIGs in order to make group-wide supervision more effective and reflective of actual business practices;
   (b) establishing a comprehensive framework for supervisors to address group-wide activities and risks;
   (c) setting grounds for better supervisor cooperation to allow for a more integrated and international approach; and
   (d) fostering global convergence of regulatory and supervisory measures and approaches.

The ComFrame will contain standards outlining specific actions or requirements that IAIGs and supervisors must meet, parameters elaborating the criteria that can be used when ensuring compliance, and specifications explaining the details and definitions. It will require an IAIG to identify its head, governing body, and senior management,
and will bestow on them accountability for their firm’s functions and activities. More specifically, it will require an IAIG to take account of its overall risk strategy and appetite; and have a well-defined and clearly articulated group-wide remuneration policy, and effective systems of risk management and internal controls.

In addition, it also calls for an IAIG to put into place a group-wide ERM framework to ensure the firm can calculate its solvency requirements and keep track of group-wide levels of risk, legal status, business strategy, and day-to-day operations. It will also require an IAIG to regularly perform group-wide ORSA. An IAIG will have to apply a total balance sheet approach to assess all the risks to which the firm is exposed and calculate its group regulatory capital by assessing and measuring these risks. This aims to ensure that a firm will be able to meet obligations to policyholders.

It is likely that national supervisory authorities, in relation to the wider population of firms, will adopt some elements of these requirements.

2. *Systemically important insurers.* At the G20 Cannes Summit in November 2011, the G20 and FSB outlined their clear intention to apply capital surcharges and a recovery and resolution plan (RRP) framework to all SIFIs, including insurers. Additionally, the FSB advised national authorities to put common powers and tools in place specifically for the resolution of insurers, including the transfer insurance provider business.

The IAIS was tasked by the FSB with setting forth the factors used to designate an insurance company as a G-SII. An initial list of G-SIIs has been identified by the FSB in consultation with the IAIS and national authorities. In October 2014, the IAIS adopted the basic capital requirements for G-SIIs and it shall apply to the nine insurers that have been deemed to be G-SIIs including: Allianz, AIG, Generali, Aviva, Axa, MetLife, Ping An, Prudential Financial, and Prudential UK; all of which were designated as globally systemically important in July 2014. Designated insurers will have to demonstrate their corporate agility and strength by setting out recovery actions designed to maintain their going-concern status in the event of a severe stress situation. They will also need to set out the steps that regulators could take to resolve the institution with the minimum possible systemic disruption if the institution fails, despite the planned recovery actions.

The FSB requires higher capital requirements and enhanced supervision at the group level. This enhanced supervision of the designated companies by the FSB commenced immediately after G-SII designation. Over the course of approximately the next six years, G-SIIs will
be required to implement three main types of measures designed to reduce the probability and impact of a systemic shock: (1) enhanced supervision, (2) effective resolution, and (3) higher loss absorbency (HLA) capacity (for example, capital requirements). The regulatory focus will be directed to non-traditional, non-insurance activities of insurers and insurance groups. These reforms are not only pertinent to G-SIIs; many of the concepts and supervisory expectations arising from the current G-SII debate are likely to find themselves being applied by regulators to a much wider group of insurers.

3. *Multilateral memorandum of understanding.* The very nature of recovery and resolution requires cross-border coordination. Insurance regulators and supervisors need to continue their participation in global activities while strengthening regional and global cooperation requirements such as the IAIS Multilateral MOU. The IAIS Multilateral MOU establishes formal cooperation arrangements with overseas insurance regulators. These arrangements cover confidential information sharing, ongoing supervision, and policy development issues. It is important to note that non-participation in such arrangements by any country might hinder the ability of its insurers to operate internationally.

**Implications for Asia-Pacific jurisdictions**

Asia does not have a highly integrated regional financial system. As a result, regional arrangements for financial cooperation, such as the European Systemic Risk Board (ESRB), do not exist. Cross-border arrangements for financial stability in Asia mostly take the form of bilateral MOUs at the micro-prudential regulatory level. These are established to facilitate communication and cooperation between home and host country supervisory authorities.

Insurance firms should begin assessing whether they are likely to be included in the new ComFrame approach and ascertain its likely impacts on them. These developments mean insurers would need to have globally consistent risk and capital management programs, resulting in potentially significant efficiencies.

The only Asian insurer on the list of G-SII is Ping An Insurance based in the PRC. Increased supervisory focus on group-wide management of risks, effectiveness, and performance should mean greater supervisory consistency. Closer links to systemic risk issues could likely influence structure, capital management, and finance considerations. More demanding supervisory colleges could result in additional governance and reporting requirements across group entities.
2.5 Consumer Protection and Market Conduct

The consumer protection agenda is lagging and remains far behind the prudential requirements taken in response to the GFC. It is paramount for market conduct to be addressed due to the social, political, and economic ramifications. Global policymakers, such as the G20, are increasingly turning their attention to issues such as customer protection as part of their financial services reform initiatives. The G20 has tasked the OECD with developing principles to address the market conduct agenda. These developments will influence how financial services companies do business with both clients and peers, especially as consumers themselves increasingly expect to receive informed, fair, and efficient services when it comes to insurer–customer relationships and products. The OECD has advanced ten principles (Table 17.2) that should be integrated by supervisors into their broader regulatory framework alongside prudential regulation, governance, and competition policies. The ten principles are voluntary and designed to complement, not replace, existing international financial principles and guidelines already in force within member countries. The principles can broadly be classified into three pillars of protection, access, and education. The principles do not aim to address sector-specific issues dealt with by the relevant international organizations and the financial standard-setters such as the IOSCO, the BCBS, and the IAIS. The principles may need to be adapted to specific national and sectoral contexts, and should be reviewed periodically by relevant international bodies.

An essential component of insurance regulation is the appropriate oversight of the ways in which insurance companies distribute their products in the marketplace, namely, market conduct regulation that complements financial solvency regulation.

Market conduct refers to problems associated with the distribution and sale of insurance and has become a key insurance regulatory focus over the last decade. Insurance regulators view market conduct as critical to ensuring the welfare of consumers and maintaining public confidence in the insurance industry. Market conduct regulation attempts to ensure consumers are charged fair and reasonable insurance prices. It also strives to ensure consumers have access to beneficial and compliant insurance products, and are protected against insurers that fail to operate in ways that are legal and fair to consumers.

Market conduct regulation is regulatory oversight that primarily focuses on regulated entities’ compliance with laws and regulations other than those related to financial solvency. Problems spotted during a market conduct review can be a precursor to financial solvency concerns. Market
### Table 17.2  G20 high-level principles on financial consumer protection

<table>
<thead>
<tr>
<th>Principles</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Legal, Regulatory, and Supervisory Framework</td>
<td>Financial consumer protection should be an integral part of the legal, regulatory, and supervisory framework, and should reflect the diversity of national circumstances and global market and regulatory developments within the financial sector.</td>
</tr>
<tr>
<td>2. Role of Oversight Bodies</td>
<td>There should be oversight bodies (dedicated or not) explicitly responsible for financial consumer protection with the necessary authority to fulfill their mandates.</td>
</tr>
<tr>
<td>3. Equitable and Fair Treatment of Consumers</td>
<td>All financial consumers should be treated equitably, honestly, and fairly at all stages of their relationship with financial service providers. Treating consumers fairly should be an integral part of the good governance and corporate culture of all financial services providers and authorized agents. Special attention should be dedicated to the needs of vulnerable groups.</td>
</tr>
<tr>
<td>4. Disclosure and Transparency</td>
<td>Financial services providers and authorized agents should provide consumers with key information that informs the consumer of the fundamental benefits, risks, and terms of the product. They should also provide information on conflicts of interest associated with the authorized agent through which the product is sold.</td>
</tr>
<tr>
<td>5. Financial Education and Awareness</td>
<td>Financial education and awareness should be promoted by all relevant stakeholders and clear information on consumer protection, rights, and responsibilities should be easily accessible by consumers. Appropriate mechanisms should be developed to help existing and future consumers develop the knowledge, skills, and confidence to appropriately understand risks, including financial risks and opportunities, make informed choices, know where to go for assistance, and take effective action to improve their own financial well-being.</td>
</tr>
<tr>
<td>6. Responsible Business Conduct of Financial Services Providers and Authorized Agents</td>
<td>Financial services providers and authorized agents should work in the best interest of their customers and be responsible for upholding financial consumer protection. Financial services providers should also be responsible and accountable for the actions of their authorized agents.</td>
</tr>
<tr>
<td>7. Protection of Consumer Assets against Fraud and Misuse</td>
<td>Relevant information, control, and protection mechanisms should appropriately and with a high degree of certainty protect consumers’ deposits, savings, and other similar financial assets, including against fraud, misappropriation, or other misuses.</td>
</tr>
</tbody>
</table>
Table 17.2 (continued)

<table>
<thead>
<tr>
<th>Principles</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Protection of Consumer Data and Privacy</td>
<td>Consumers’ financial and personal information should be protected through appropriate control and protection mechanisms. These mechanisms should define the purposes for which the data may be collected, processed, held, used, and disclosed (especially to third parties). The mechanisms should also acknowledge the rights of consumers to be informed about data-sharing, to access data and to obtain the prompt correction and/or deletion of inaccurate, or unlawfully collected or processed data.</td>
</tr>
<tr>
<td>9. Complaints Handling and Redress</td>
<td>Jurisdictions should ensure that consumers have access to adequate complaints handling and redress mechanisms that are accessible, affordable, independent, fair, accountable, timely and efficient. Such mechanisms should not impose unreasonable cost, delays, or burdens on consumers. In accordance with the above, financial services providers and authorized agents should have in place mechanisms for complaint handling and redress. Recourse to an independent redress process should be available to address complaints that are not efficiently resolved via the financial services providers and authorized agents’ internal dispute resolution mechanisms. At a minimum, aggregate information with respect to complaints and their resolutions should be made public.</td>
</tr>
<tr>
<td>10. Competition</td>
<td>Nationally and internationally competitive markets should be promoted in order to provide consumers with greater choice amongst financial services and create competitive pressure on providers to offer competitive products, enhance innovation, and maintain high service quality. Consumers should be able to search, compare, and (where appropriate) switch between products and providers easily at reasonable and disclosed costs.</td>
</tr>
</tbody>
</table>


Conduct regulation also evaluates companies’ fulfillment of contractual obligations to their policyholders and claimants.

Further reforms to support consumer protection should also be considered. For example, an integrated and effective pan-Asian approach to insolvency structures and requirements could be considered. The possibility of creating an ASEAN-wide compensation scheme for policyholder
protection purposes could also form part of the broader systemic risk considerations to facilitate greater commonality and treatment in response to insolvencies across ASEAN in future.

3 OTHER PRIORITY AREAS OF FOCUS

3.1 Population and Ageing

Within Asia, structural reforms have also increased the importance of domestic sources of growth. Asia’s expanding domestic demand needs to be supported by the development of a much broader range of financing options for healthcare, education, and retirement. This will result in the reduced need for high levels of precautionary savings, which in turn will contribute to strengthening domestic demand. Asia is also experiencing unprecedented growth in its rate of urbanization. Between 1990 and 2010, Asia-Pacific’s urban population increased from 29 percent of the region’s total population to 43 percent.\(^2\) It is projected that another 1.1 billion people in the region will be living in cities over the next 20 years, increasing the urban population to 55 percent of total population by 2030.

The region will also face an ageing population in the years ahead, with Asia accounting for 62 percent of the global elderly population by 2050.\(^3\) This transition is already being experienced in countries such as Japan and the Republic of Korea, as well as in Hong Kong, China. Other countries in the region are also ageing at a rapid rate. To avert the risk that Asia’s population will ‘grow old before growing rich’, most governments in the region are pursuing fundamental reforms in social and economic policies in order to achieve the higher levels of income needed to sustain adequate provisions for welfare and rising healthcare and pension costs.

During the past two decades, given the increase in life expectancy and rapid growth in healthcare costs, there has been a discernible shift toward the voluntary private provision of healthcare and retirement savings, including defined contribution pension schemes. With a policy shift toward fiscal consolidation coupled with broadening welfare coverage, this trend will become even more pronounced in the near future. In 2009, the value of private pension funds in 19 OECD countries was almost 50 percent of aggregate national income. Despite this, the IMF determined that global pension liabilities in 2010 may have been underestimated by up to 50 percent of global GDP. Efforts to close this gap will need to include: (1) measures that result in greater risk sharing between governments, pension providers, and individuals, (2) the development of capital markets
to better support increasing longevity, and (3) extending the retirement age to account for longer life spans.

### 3.2 Climate Change Risks

Climate change has been described as one of the biggest risks to the insurance industry. The cost of climate change, without action, is estimated to be at least 5 percent of global GDP per year,\(^4\) not to mention its significant impact on society. Some of the effects of climate change are already being felt in increased frequency and severity of weather-related natural disasters, water scarcity, and crop failures. Asia is more vulnerable to natural disasters than any other part of the world. According to the ‘Annual Global Climate and Catastrophe Report 2013’, total economic losses from natural catastrophes worldwide totaled $192 billion in 2013 – with insured losses a mere $45 billion. While 67 percent of economic losses in the United States were insured, just 7.6 percent were insured in Asia. Over the past 20 years, Asia has borne almost half of the estimated global economic cost of natural disasters – roughly $53 billion annually. And over the past four decades, direct physical losses from disasters in the region significantly outpaced growth in GDP.\(^5\) Asia’s exposure to climate change effects is also anticipated to increase. As insurance penetration rises across Asia, property insurers will face a greater concentration of exposure to natural disasters. Life insurers will also be impacted in other ways, including higher incidences of diseases while also experiencing pressure on long-term returns on investment.

The insurance industry therefore needs to be able to manage such exposures as well as act as a catalyst for societies to adapt to climate change. A risk management system, in particular, needs to be able to capture and aggregate exposures to such event risks in a timely manner. It is also important to incentivize efficient energy use through innovative product design and pricing. In addition, the industry needs to come together to seek out opportunities to partner with government and non-governmental organizations to facilitate improvements in urban planning, infrastructure design, and building codes. The integration of environmental and social considerations in insurers’ corporate strategies and operations will become increasingly important to long-term sustainability.

### 4 FINANCIAL INCLUSION

These efforts must also include a sustained focus on financial inclusion to achieve balanced and equitable growth. It is important to ensure that all
households continue to have meaningful access to financial products and services, and that even for those currently with access to finance they are not eventually excluded in an environment where financial products and services are becoming increasingly unaffordable or complex. It is estimated that up to 4 billion people worldwide require low-cost insurance protection. The low-income population of the Asia-Pacific region accounts for about 70 percent of the global low-income population. The need for protection from illnesses, natural disasters, and other perils is more acute for this vulnerable segment. Although Asia now accounts for most of the global microinsurance market, covering between 350 million and 400 million people, the overall participation rate is still low owing to liquidity constraints in this segment of households, low financial literacy, and business models that are not inclined toward such low-income segments. Innovative solutions and continued efforts to improve financial education will be needed to achieve greater inroads in this area.

The proportionality principle – the balancing of risks and benefits against the costs of regulation and supervision – is increasingly recognized as a common theme running through the highest level normative standards of the IAIS. Although the ICP requirements should be applied in a manner that takes into account the nature, scale, and complexity of the risks inherent in the individual insurance business, where relevant and appropriate, there is a dimension of practical implementation that explains why proportionality should be applied in each of the following contexts:

- rules – designing and implementing regulatory requirements;
- processes – assessing insurers’ and intermediaries’ adherence to regulatory requirements; and
- powers and actions – exercising supervisory powers.

Proportionality principles can be implemented in practice where relevant and appropriate, as per requirements elaborated in the ICPs. They should be applied in a manner that is proportionate to the nature, scale, and complexity of the risks inherent in the individual insurance business.

Proportionality is one of the principles of good regulation. It takes into account the nature, scale, and complexity of an institution’s activities in defining the requirements of different types of institutions. Other factors include riskiness – whether the same risk is subject to similar regulatory treatment – and systemic relevance in terms of size, substitutability, and interconnectedness. In developing countries, the challenge lies in defining proportionality and applying it in practice in a transparent manner.

In the absence of a proportionate approach to regulations, not only is access to formal financial services limited, but also access to a diverse range
of such services by poor households. In addition, the quality of formal financial services is low, the cost of financial services is very high, and regulation or supervisory actions are unduly onerous when compared to what they intend to achieve. In other words, costs and levels of effort and complexity exceed what is necessary.

It is important to build a policy and regulatory framework that is proportionate with the risks and benefits involved in such innovative products and services, and one that is based on an understanding of the gaps and barriers in existing regulations. Regulations should reflect and be proportionate to the characteristics, type, and variety of products and consumers, including their rights and responsibilities, and must be responsive to new products, designs, technologies, and delivery mechanisms.

The four tests of proportionality are as follows:

- There must be a legitimate aim for a measure.
- The measure must be suitable to achieve the aim (or it must have the potential to show evidence that it will have that effect).
- The measure must be necessary to achieve the aim that there cannot be any less onerous way of doing it.
- The measure must be reasonable.

5  ISSUES FOR THE FUTURE

5.1  Capacity to Support New, Larger, More Complex, and More Concentrated Risks

While these areas of focus present enormous opportunities for the insurance industry, they also pose a challenge in terms of building the capacity to support new, larger, more complex, and more concentrated risks within a much more compressed time frame. Risk management, product development, and underwriting capabilities will be particularly important at the institutional level. At the system-wide level, more attention will need to be given to enhancing financial safety nets for the protection of policyholders and avoiding economic and social dislocations in the event of large-scale insurance failures. In the advanced economies, the insurance industry gradually built this capacity over four centuries. Asia will have a much shorter time span in which to achieve the same results while also ensuring that growth does not outstrip the industry’s capacity to manage the associated risks.
5.2 Common Goals

Although Asia-Pacific economies face different challenges and priorities, the region’s insurance industry shares three important common goals across borders: (1) sustaining growth and performance under challenging economic and financial conditions, (2) strengthening the capacity to support and drive economic transformation, and (3) building resilience to withstand future shocks and economic cycles. Therefore, the task before insurance sector supervisors is how they should respond to these initiatives. In addition, while envisioning the future direction of the insurance industry in the Asia-Pacific region, one also needs to reflect on the industry’s evolution and contextualize this within the prevailing and prospective environments.

5.3 Prudential Regulatory Issues

While the region’s insurance companies generally held up well through the GFC, the industry now finds itself at the intersection of major regulatory developments. The crisis delivered a major blow to consumer confidence in financial institutions. This confidence needs to be regained, as it will have an important influence on the way in which the industry responds to new insurance and asset accumulation opportunities in Asia. One can therefore expect that the characteristics of growth in the industry going forward will differ in some respects from the historical experience.

The changes in capital rules and related accounting standards aim to achieve more risk-based and market-consistent valuations of insurance assets and liabilities. While this should improve understanding of and accounting for the risks inherent in the insurance business, it will also require insurers to more carefully manage risk and capital, while recognizing the prospect for increased short-term volatility. Innovations in insurance solutions will also need to take into account the higher regulatory expectations for more transparency, stronger financial buffers against unexpected losses, and the requirement to do more to ensure that products offered are suitable for different customer segments. Regulators will also be expected to apply a much higher level of scrutiny on complex insurance products that increase risks to financial stability. Simplifying insurance products and institutional structures, and creating a strong risk culture in which managing risks is a shared responsibility within institutions, will be important goals to ensure that the risks facing an insurer are well understood and effectively managed.

On a country-by-country basis, India is moving from a Solvency I to a Solvency II approach, and the PRC is similarly shifting to a more
risk-based approach. The PRC’s regulatory body, the China Insurance Regulatory Commission (CIRC), has raised insurer governance standards, requiring insurers to have designated risk functions headed by a chief risk officer, as well as a risk management committee that reports to the board of directors. Japan has formally sought regulatory equivalence with Solvency II. In Indonesia, Thailand, and Malaysia – three markets that historically have comprised numerous smaller insurers – higher minimum capital requirements are driving consolidation.

Even though Asia generally weathered the GFC well, financial regulation is complex and interconnected, and the unevenness of global requirements will ensure that the application of solutions will remain problematic for insurance supervisors to implement. There is a need for regulations to keep pace and anticipate innovations in financial services.

Since the region is diverse, there are significant differences in both the characteristics of the insurance sector and the sophistication of regulation in each jurisdiction. The jurisdiction-specific models of insurance regulation have implications for group-wide financial reporting and capital management. In the twenty-first century amid increasing connectivity, regulation and management of SIFIs is, in many ways, constrained by a country-by-country approach. Asian insurers can learn from their counterparts in Europe and the US, perhaps most importantly, that enhancements in risk management can assist profitable growth rather than acting as a barrier to growth as is sometimes perceived.

One of the lessons learned from the GFC is that prudential supervision in some countries can be a blunt tool. The two key areas of significant development that are expected to shape the industry in the years to come are risk and capital management, and the impact of global developments in financial reporting by insurers. As some solvency regimes are not very sensitive to risk, they arguably compensate through excessive prudence. This can be a poor trade-off, however, as higher capital requirements are not the solution to all risks. As a consequence, one can observe a move to more risk-based capital regimes. Regulators in the region have been watching the IAIS and Solvency II developments with much interest before undertaking major reforms of their own prudential frameworks. Besides, prudential issues and changes to IFRS continue to be the main areas of focus for most firms.

Across Asia there is a clear trend toward a more risk-based approach to insurance supervision, with risk-based capital frameworks in the PRC, Japan, the Republic of Korea, Malaysia, Singapore, and Taipei, China. One can expect to see significant development in the use of internal economic capital models. However, this may be challenging for certain domestic insurers and smaller players.

At the regional level, group supervision (where possible) can facilitate
cross-border cooperation and systemic risk analysis. There is merit in examining how supervisors in the Asia-Pacific region will undertake and assume full responsibility for the group-wide supervision of insurance groups deemed systemically important, assisted by local regulatory authorities where required. Such a structure may reflect on the initiatives undertaken by the ECB in coordinating supervision for the largest banks across Europe. Such measures would reinforce Asian supervisors’ ability in supervising large non-Asian groups with cross-border activities in the future, and potentially reduce regulatory costs for insurers. As more jurisdictions in the region begin to implement the ICPs, assessing how best to accommodate multi-jurisdictional compliance and reporting requirements will become a growing strategic challenge that will further impact the insurance industry in the Asia-Pacific region. The ability of insurers to internalize new realities and execute strategies that are aligned with these realities will provide the industry with the best hope for growth with stability.

5.4 Market Conduct and Consumer Protection

Models of consumer protection vary considerably in the Asia-Pacific region, but generally have not yet embraced the principles-based, customer-centric approach seen in the UK and parts of the EU. In Asia, many countries use an alternative model, with a focus on achieving customer protection through regulatory pre-approval of product designs and pricing. Current areas of regulatory focus include: (1) increasingly more stringent controls over data privacy as it impacts direct marketing and cross-selling (for example, between banking and insurance entities of a group), (2) controls over multiple entities and who may sell insurance in bank branches, and (3) increased disclosure.

Many countries focus on achieving customer protection through controls on product pricing and design. There are signs, however, that some markets may be about to relax these controls. In the PRC, for example, following a successful trial in Shenzhen, the CIRC is planning to implement pricing reform that will enable greater flexibility for insurers in setting prices, including the use of risk-based factors. We are also witnessing the process of pricing reform in other jurisdictions, for example, in the Malaysian motor insurance market, which is currently implementing the first rate increases in 30 years in the compulsory third-party motor market. Further reform is expected in Malaysia where Bank Negara Malaysia has announced a target of 2016 for removing the tariffs from motor premiums. Alongside this reform, further regulation is expected that focuses on appropriate and sound corporate governance around the sales process,
underwriting, and pricing risk management, similar to that seen in other markets including Australia, Singapore, and Hong Kong, China.

Not surprisingly, in the aftermath of the GFC, regulators in Asia in many ways reverted to their core aim of policyholder protection. Several policyholder protection schemes, with the goal of providing financial protection to policyholders in the event of the insolvency of an insurer, have recently been established or are in the process of being implemented, adding to the number of schemes already in place. This will bring many Asian jurisdictions in line with their international counterparts in more developed markets.

The GFC also highlighted through significant policyholder losses in a range of financial products, including traditional insurance policies, the ever-present risk of mis-selling.

Regulators seeking to bolster consumer confidence in the insurance industry are also implementing measures to increase product transparency and service standards, and have heightened their reviews of policy wordings and premium rates. Increasingly higher standards for distributors are similarly evident. Examples include the move by the Monetary Authority of Singapore to consider higher qualifications for insurance agents, the Republic of Korea’s Financial Supervisory Service inspections of insurance sales, and the Insurance Regulatory and Development Authority’s (IRDA) guidelines in India to prevent mis-selling of policies. Meanwhile, higher professional and educational standards for agents and financial advisors have been adopted in countries as divergent as Singapore and Viet Nam.

6 CONCLUSION

The Asia-Pacific region offers great potential for insurers by leveraging the enormous demographic and technological changes in both the region and the world at large. However, the evolving international financial regulatory environment will determine the direction of this trajectory and also how national regulatory requirements are calibrated in response to these changes. How these international trends and local developments knit into the day-to-day operations of an institution will remain a key challenge. Access to reliable capital sources to support investments in specific regions and developing alternate distribution channels, including digital finance, that take into account consumer buying patterns and demographic trends are other avenues for growth. Another key challenge faced by insurers is the availability (or lack thereof) of suitably qualified personnel with management, financial, actuarial, distribution, and operations experience.

Cost-effective risk financing solutions in the form of innovative insurance
instruments need to be explored for protecting communities on a sustainable basis. Analyzing and reducing risk – and offering adequate insurance against it – helps to considerably reduce the human and financial impact of natural disasters and support long-term growth. To close the existing gap of insurance coverage, the insurance industry needs to improve its risk assessment in the region, taking into account the rapid developments that create new peak exposures and hot-spot locations, and have an impact on global supply chains.

It is important to put these challenges into perspective as regulators focus more on how to improve the industry’s image, strengthen risk control, and increase overall levels of service and insurance penetration. Companies that can take advantage of the lessons learned from recent challenges and adjust their strategies accordingly will reap the benefits of growth.

NOTES

1. Interestingly, ICP 23 is in the process of being revised in order to further accommodate the goals of the FSB and the Joint Forum – an organization of international banking, securities, and insurance regulators – with respect to group supervision.
5. Asian Economic Integration Monitor, ADB, April 2014.

REFERENCES

18. Impact of the global financial crisis on trade finance in Asia and the cooperative effort to respond

Steven Beck

In the midst of the global financial crisis, Pascal Lamy, then head of the World Trade Organization, called a meeting of trade finance practitioners, the Trade Finance Expert Group, representing the world’s major commercial banks and all major multilateral development banks as well as the International Monetary Fund, the Berne Union (representing the global insurance industry) and the International Chamber of Commerce. It was a relatively intimate gathering of some 25 people.

The context for the meeting in Geneva was grave. What began as a financial crisis – some opinion-makers questioned whether the financial crisis would significantly affect the general economy – had metamorphosed into a full blown economic crisis not seen since the great depression. International trade was in free fall from late 2008, with global merchandise exports dropping by 10 percent in the last quarter of 2008, compared with the last quarter of 2007, and by 22 percent in 2009, compared with 2008. Some questioned whether the international economic order as we knew it would survive. The mood was that grave.

Mr Lamy’s purpose in convening a meeting at WTO headquarters was to ascertain what role, if any, a lack of trade finance might be playing in the precipitous drop in international trade; and if there was a role, what could be done about it.

TRADE FINANCE: GUARANTEES AND LOANS CRITICAL TO TRADE

Before going further, a few words about what trade finance is. It sounds complicated, but it is in fact one of the most basic and oldest forms of finance that dates back hundreds of years. Trade finance is the loans and guarantees that underpin imports and exports. In its narrowest form,
trade finance involves loans from banks (to manufacture for exports or to purchase imports) and guarantees, often in the form of letters of credit (L/C) which represents a bank obligation to pay, thereby removing an export’s payment risk on an importer/buyer and replacing it with a bank risk (risk on the bank that issued the L/C or other trade finance instrument). Trade intermediated by a financial institution, including credit insurance, underpins approximately 50 percent of international trade, but this figure probably understates the reality as working capital loans and other facilities that may be important to trade may not be accurately captured in trade finance statistics. In any case, the percentage tends to be higher for emerging markets where risk is perceived as higher – partly due to less (reliable) information being available on companies and banks in those markets – and therefore guarantees are more commonly required. Importantly, the figure climbs even higher in times of crisis when exporters (concerned about an importer’s ability to pay) and importers (concerned about an exporter’s ability to perform) act to mitigate risks through trade finance instruments as companies into bankruptcy. In addition, trade intermediated by financial institutions becomes more prominent when companies have less capability to finance transactions on their own. In short, trade finance is critical to international trade, even more so in emerging markets and especially in times of crisis.

MELT DOWN OF WESTERN FINANCIAL SECTOR

Back in Geneva, sitting at the table were senior trade finance officials from the world’s biggest banks many of which were unable to meet their own financial obligations and in effect were bankrupt. Needless to say, these institutions, the biggest providers of trade finance in the world, were most concerned about shedding assets and raising more capital to stay alive. Forget trade finance. Trust and confidence are pillars of the financial system and both evaporated and with it the interbank system of loans and guarantees that underpin trade. The trade finance system, at least at the height of the crisis, had effectively broken down.

Mr Lamy divided the three-hour meeting into three parts: (1) market assessment, including the current market environment for trade finance, financial institution capabilities, pricing; (2) how each institution was reacting to the market situation, and (3) what could be done to improve the situation. The tour de table yielded the following (unofficial) consensus. Banks were fighting for their survival; they did not know which bank would go down next; the interbank market – and the system of guarantees
so important to international trade – was basically shut down at the height of the crisis (at any price); and government needed to mitigate the risk of a great depression by providing massive financial support to trade.

**NO FINANCIAL CRISIS IN ASIA, BUT . . .**

Meanwhile, in Asia, the financial sector was doing relatively well. In fact, the less ‘developed’ (or less ‘advanced’) the financial market, the better off it was. Asia can crudely be divided into emerging and developing markets. Emerging markets are represented by those banking systems that are more advanced, such as Republic of Korea, India, the PRC, Thailand, and Malaysia. Emerging market banking sectors typically had access to international capital markets and therefore relied on those markets for an important part of their funding. However, banks in developing countries, such as Bangladesh, Pakistan, Nepal and Viet Nam, had little or no access to international capital markets to begin with. As such, banks in most developing Asian countries did not rely on international capital markets to fund themselves.

Old fashioned deposits are the primary source of funding for most developing market banks and therefore the effective shut-down of capital markets in Europe and the US had little direct, immediate or material impact on banks in developing countries. Moreover, banks in most Asian markets did not get involved with complicated products such as mortgage-backed derivatives. Losses stemming from these kinds of products also had little material direct impact on banks in most Asian countries. Indeed, banking sectors in developing markets tend to be focused on traditional banking: take deposits, provide loans, intermediate remittances, and exchange currency. Treasury functions and investment banking are basic, certainly not the source of huge profits (or losses as the case may be) as in the West pre-'global' financial crisis.

Finally on this point about the relative health of the Asian banking sector during the height of the ‘global’ financial crisis, sovereign loans were not an issue for Asia’s banks – unlike European banks – because most Asian governments learned to live within their means following the Asian financial crisis of 1997 and Asian bank portfolios generally did not include European bonds. In fact, the global financial crisis was not really ‘global’. From 2008 to the first quarter in 2014, there has yet to be a major financial crisis in Asia,¹ except in central Asia. So ironically, the less developed the financial system in Asia, where there was little or no reliance on international capital markets for funding, the less was the immediate and direct material threat from the financial crisis.
CRISIS IMPACT ON ASIA

It was mainly because of the relative health of Asia’s banks and the rising tide of intra-regional trade that the idea that Asia had ‘de-coupled’ from the global economy was fashionable in some circles. This was proven wrong. In today’s global economy and global financial markets, especially with many Asian countries having been dependent on export markets in the epicenter of the crisis, contagion was inevitable also for Asia’s banks.

Asian emerging market banks, on the other hand, being more integrated into the global financial system had trouble acquiring funding in general, including for trade finance. Emerging, and to some extent developing, Asia – indeed the problem spread on a global scale – suffered from a lack of US dollars to support trade. Approximately 80 percent of international trade is conducted in US dollars and insufficient US dollars placed a major strain on Asia’s ability to conduct trade. United States banks that had dollars – US Treasury programs were important to addressing this problem – were reluctant to lend dollars to their correspondent banks around the world because they did not know who to trust; the interbank market was shut. International trade is highly reliant on the US dollar. This overreliance on one currency poses risks to the international trade system, as we have seen at various intervals during the crisis.

In addition to funding issues for banks in Asian emerging markets and a lack of US dollars for all Asian banks, another important impact from the crisis that hit Asia was the inability to get payment obligations from banks (such as L/C) guaranteed. These guarantees are critical to trade. The fact that most Asian banks, more so those in less developed countries, were not in jeopardy and were in better condition than the globally systemically important banks was not understood. Trust and confidence in financial institutions everywhere evaporated at the height of the crisis, and so did the interbank system of guarantees that are so important to trade.

Pricing for trade finance doubled and fluctuated wildly, including for imports (and capital equipment) to Asia that were required for export production. Much of Asia was, and to a lesser extent remains, dependent on export markets in the US and Europe. As a result of the crisis and ensuing recessions in traditional export markets, many Western buyers were performing poorly or going bankrupt and this resulted in non-performing loans rising considerably in many export-dependent Asian developing countries. This of course had an impact on the banking sector.

The main point here is that while Asia’s financial sector was generally healthy, it was not immune from the significant weaknesses in the West’s financial system. Notwithstanding the general health of Asia’s financial
system at the height of the crisis, the impact on banks’ ability to provide finance to support trade was severely impaired.

ASIA’S RESPONSE TO THE CRISIS

Out of the financial crisis, and the periodic lack of dollar liquidity to support trade, came the rise of the renminbi and discussions – with official PRC encouragement – about it becoming a settlement currency. As mentioned above, the international trading system is too reliant on one currency and this poses risks, as we have seen during the crisis. Much needs to be done in order to make the RMB a settlement currency. While the timing may be questionable, RMB as a settlement currency seems likely. Having an additional settlement currency will make for a more systemically sound trading system.

The trend toward greater intra-Asian trade accelerated during the crisis as companies looked to diversify supply chains and export markets away from low-demand US and European markets in recession. This is a healthy development for Asia.

Substantial stimulus packages and official encouragement to banks to increase lending to offset weaker economic growth as a result of lower demand from the West for Asian exports was largely successful – the Chinese example is often cited as important in this regard – but the knock-on effect in the form of bad loans and asset bubbles will be problematic for many banks in a number of Asian economies. The extent of these unintended consequences stemming from crisis measures may not be fully known in the first quarter of 2014 as this chapter is written. International markets remain in flux and while we may have entered the beginning of the end, the end of the crisis has yet to be seen along with all of its ramifications.

The crisis brought a new sense of confidence in Asia and a realization in the rest of the world that Asia is rising, and rising fast. In some respects, you could argue that the crisis accelerated some of Asia’s advance through more intra-Asian trade and more international investment to growing Asia, away from the US and Europe. The role of low interest rates, particularly in the US, in Asia’s growth story is topical. As the US and Europe gradually recover and interest rates begin to rise in the West, it will be a challenge to manage capital flight from Asia back to traditional markets and a corresponding drop in local currencies. There is concern about some Asian economies, notably Indonesia and India, running current account deficits. As we move into what may be the final phase of the crisis, and as emergency measures – cheap money – taper, Asian economies should
be able to take advantage of renewed demand for exports to the West. Ensuring sufficient trade finance is available to support increased demand will be important.

**OFFICIALS WANT TO REACT, BUT NO DATA AVAILABLE TO DIRECT POLICY**

Back in Geneva, one thing that became painfully clear during the Trade Finance Expert Group meetings in 2008 and 2009 was that there was almost no data on trade finance. Trade finance is fundamental to the global economy and yet there was no way of measuring, or knowing empirically, precisely what was going on and to what extent a lack of trade finance might be contributing to the precipitous drop in international trade. No doubt a lack of demand was the most significant factor affecting world trade, but what role was a drop in trade finance playing? There were no statistics measuring how much trade finance was available over the pre-crisis period and how much was available at various/any interval(s) during the crisis. It is strange how little research has been conducted in what is arguably one of the most critical and basic forms of finance to the international economy.

Policymakers like to have data and statistics to help direct policy decisions. But none were available to guide an official reaction to the crisis in trade finance and for dealing with calls from the private sector for massive government and multilateral action to enhance and create financial support for trade.

On 19 February 2009 Bob Zeolick, then head of the World Bank, said that up to 10–15 percent of the drop in international trade could be attributed to a lack of trade finance. Reading this on the front page of the *Financial Times*, ADB trade finance staff contacted counterparts at the IFC to understand how he arrived at this figure. They had no idea. Speculation was that the figure was just a guesstimate.² It was an excellent move on Mr Zeolick’s part. His statement, and the herculean efforts of Mr Lamy, brought attention to trade finance and the important role it plays in international trade.

The G-20 London summit issued a communiqué on 2 April 2009 reflecting concern about the role a lack of trade finance was playing in the unfolding crisis. It stated:

We will take, at the same time, whatever steps we can promote to facilitate trade and investment, and we will ensure availability of at least $250 billion over the next two years to support trade finance through our export credit and invest-
ment agencies and through the multilateral development banks. We also ask our regulators to make use of availability of flexibility in capital requirements for trade finance. (G-20 2009)

The public sector response to augment trade finance programs and implement new programs was swift.

**ADB’S RESPONSE TO THE TRADE FINANCE GAP**

In response to the global financial crisis, in 2009 ADB’s Board of Directors increased the amount of risk its Trade Finance Program could assume to $1 billion at any one time, from the original limit of $150 million. The TFP closes private sector market gaps by providing guarantees and loans within 24 hours at market rates through partner banks to support trade. The TFP was implemented in 2004 in the wake of the Asian financial crisis. Initially, little attention was paid to it and virtually no resources were provided to extend it. Notwithstanding this, the TFP grew 1300 percent in 2008 and supported $461 million in trade through 458 transactions (Figure 18.1). Between 2009 and 2013, ADB’s TFP grew exponentially and supported over $16 billion in trade in more than 8000 transactions.

![Figure 18.1 Growth of supported transactions, 2004–13](source)

*Source:* ADB’s Trade Finance Program.
Global shock, risks, and Asian financial reform

Because demand exceeded the TFP’s financial capabilities, TFP staff designed a strategy of focusing where gaps were proportionally the largest, in the least advanced developing economies. This meant that the TFP did not assume risk in markets such as the PRC, India, Thailand, and Malaysia. There were, and continue to be, numerous requests from the private sector for the TFP to assume Indian and PRC trade finance risk, but finite resources require focus on the more challenging markets. Of the 18 markets\(^3\) where the TFP has been implemented – Myanmar will be the nineteenth market in which the TFP operates, hopefully by the second quarter in 2014 – over 90 percent of the TFP’s portfolio has been in Asian Development Fund (ADF) countries (Figure 18.2). The six largest markets for the TFP have been Pakistan, Bangladesh, Viet Nam, Sri Lanka, Nepal, and Uzbekistan.

Another important element to the TFP’s strategy has been to leverage its finite resources by bringing in co-financing partners. In addition to the risk assumed by commercial bank partners, the TFP signed risk distribution agreements with the Export Finance and Insurance Company (Australia’s official export credit agency), FMO (the Dutch development finance institution), OFID (OPEC Fund for International Development) and Swiss Re Insurance, the latter being the largest destination of distribution for the TFP by far. It was a combination of short tenors – the TFP portfolio’s

---

**Figure 18.2** Percentage of Trade Finance Program transactions in poorer countries eligible for concessional (ADF) financing, 2013

Sources: ADB’s Trade Finance Program.

Non-ADF countries (2%)
average tenor is less than 120 days, enabling it to roll-over amounts for new transactions within a year – and its co-financing arrangements that enable it to support more than $1 billion in trade every year: the TFP supported $4.03 billion in trade within 2013 alone (see Figure 18.1). Between 2009 and 2013, the TFP has attracted over $10 billion in co-financing to support trade in the most challenging markets, where gaps are proportionally the largest.

In addition to supporting more trade, co-financing delivers arguably an even more important result: that, notwithstanding their own limitations during crisis, private sector entities are drawn into challenging markets for the first time ever. The TFP’s due diligence and monitoring of bank risk is rigorous, more so than in the private sector, and this, along with the TFP’s perfect record of zero defaults and losses, provides comfort and brings the private sector into TFP transactions in the most challenging markets. Over time, once a credit history is established under program guarantees, and because the TFP charges market rates for guarantees, the private sector has a natural incentive to fill market gaps without using the program. This is the perfect scenario – the private sector filling market gaps without requiring ADB guarantees and funding – and, in an ideal world, the TFP would render itself redundant over time. In fact, that is one of the ADB’s objectives. But with trade finance gaps growing, fuelled by political, economic, and regulatory uncertainties, it does not seem likely to be soon. That said, ADB needs to keep this overall objective in view, to ensure the private sector is drawn in as much as possible.

In addition to the transactions the TFP does, it has implemented knowledge dissemination, which delivers tangible and measurable results. The TFP speaks regularly with partner banks and insurers, including their risk management departments, to share its experience in markets of operation. This knowledge sharing has resulted in the private sector establishing limits for new markets to support trade. Information is critical to closing private sector market gaps and it has been in short supply as far as trade finance is concerned. The TFP’s efforts at creating statistics to close information gaps, as explained below, has helped reduce trade finance gaps.

Small and medium-sized enterprises have always had difficulty acquiring the financial resources they need to grow and participate in international trade. When financial resources are tight, financial institutions tend to focus on core clients in core markets, to the exclusion of SMEs and developing countries. The TFP has helped here as well. From 2009 to 2013, the TFP supported more than 4500 SMEs (Figure 18.3).

The crisis did not create market gaps for trade finance in developing and emerging Asia, but it did enlarge them, at times exponentially. Developing countries, such as those where the TFP is most active, have always had large trade finance gaps that impede growth, development and, ultimately,
Global shock, risks, and Asian financial reform

poverty reduction. Perversely, the crisis provided a good opportunity to acquire resources to deliver more support through trade finance programs from the ADB, the African Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank, and the World Bank.

OFFICIAL RESPONSE TO TRADE FINANCE GAPS PRaised: GOOD EXAMPLE OF COOPERATION/COORDINATION

As the crisis unfolded, the US bailed out banks, Europe nationalized and bailed out banks, and both epicenters of the crisis provided a great deal of cheap funding to financial institutions. These measures were critical to stabilizing financial markets and to mitigating the adverse impact on trade finance, including Asia’s ability to acquire dollars and guarantees for trade. By the second quarter in 2010 multilateral development banks and official export credit agencies (ECAs) committed $190 billion in increased program support for trade finance, of which $105 billion had actually been used.
A trade finance industry magazine, *Trade & Forfaiting Review*, carried on the front page of its May 2011 issue a photo of a Superman-like figure – cape and all – with the headline: ‘Unsung heroes: how DFI’s protect world trade’. It reflected the generally held view in the trade finance community that the multilateral development banks and export credit agencies responded quickly to the crisis by ramping up and creating new financial programs to support trade. The coordinated efforts of the trade finance community, both official and private, and largely initiated and coordinated by Pascal Lamy, was significant and successful. Mr Lamy’s pivotal role may be little known in general circles, but the trade finance community is well aware and grateful.

Since the first Geneva meeting of the Trade Finance Expert Group in 2008, two meetings per year were conducted prior to G-20 summits, where Lamy had a seat at the table. The last Trade Finance Expert Group meeting in Geneva before Lamy’s term as Director-General of the WTO expired was in the spring of 2013. The summary conclusion was that: (1) there was sufficient liquidity in the market for the time being, but conditions could change quickly; (2) pricing had stabilized and was continuing to go down, possibly to levels that were not commensurate with risk in some markets; (3) substantial trade finance gaps remained in developing economies; (4) concern around the impact on trade finance from Basel and other regulatory issues remained high; and (5) officials needed to remain vigilant and continue cooperating to close market gaps for trade finance, especially in developing countries. Hopefully the WTO’s new Director-General will continue the Trade Finance Expert Group meetings. The meetings have resulted in real, measurable, and concrete action to ensure a lack of trade finance does not impede international trade and have proven excellent examples of international cooperation.

**Crisis Not Over, Gaps Persist and Will Continue**

The crisis is not over. Economies are starting to settle into a ‘new normal’ but no one seems sure of what exactly that new normal will entail. Are we destined to have a protracted period of low growth and slower development in emerging and developing Asia? The *Financial Times* reported on 11 August 2013 that European banks will need to shed €3.2 trillion worth of assets and raise at least €47 billion in capital in order to meet Basel III regulatory requirements. Banks in these markets are important to trade finance support in Asia. Notwithstanding whether and to what extent Asia implements Basel III, one wonders what comparable figures are for Asia’s
financial system. The significance is that a huge amount of finance to support general economic activity, including support for trade, will disappear and could threaten to enlarge trade finance gaps in Asia. If financial institutions have limited capital, their focus will be on core clients (large corporates) and key markets (not developing Asia).

There is no denying the good intentions of the Basel Committee: to create a more sound and robust global financial system. This is an extremely important and difficult responsibility Basel has been asked to undertake. But with almost any regulation, especially one that will be quite sweeping, there is an inherent risk of unintended consequences: something that is perhaps impossible to avoid in wide-ranging regulatory guidelines that will affect arguably every aspect of financial and economic life.

By not distinguishing trade finance as a separate asset class – one that carries relatively low risk – Basel guidelines will deliver an unintended consequence of encouraging financial institutions to veer toward higher-risk, higher-margin business segments and away from lower-risk, lower-margin trade finance. If the cost of capital under both business segments is more or less the same, this unintended consequence seems inevitable, unless trade finance is treated as somewhat distinct and unless the cost of capital in a trade finance transaction is commensurate with the relatively low probability of loss.

**Trade Finance Register**

In an effort to give statistical weight to the argument that trade finance carries a relatively low probability of loss, the TFP took the initiative, at a Trade Finance Expert Group meeting in Geneva in 2009, to establish the Trade Finance Register and to house it at the ICC. The ICC-ADB Trade Finance Register, as the pilot came to be known, worked with commercial banks to collect data on over 5.2 million trade finance transactions. This dataset, which spanned the previous five years including the global financial crisis, found a very low 0.02 percent probability of default. Since the initial Register report in 2010, others have been released on an annual basis. In the 2013 report, the default rate on trade finance was identified at 0.05 percent on over 11 million trade finance transactions. These statistics have been presented to the Basel Committee and have helped Basel consider the possibility of treating trade finance differently for regulatory purposes. Having played its developmental role in establishing the Register, the TFP left the ICC and its private financial institution partners to develop future reports. That said, the TFP continues to work closely with ICC and its sister multilateral development banks to provide data that will contribute to broader, deeper and ongoing Register reports.
While the statistical work TFP initiated is important to underpin a substantive dialogue with regulators to loosen requirements for trade finance and therefore close the related gap, this information is also encouraging the private sector to assume more trade finance risk in challenging markets. For example, one of the largest insurance companies informed TFP that the statistical work (demonstrating the low probability of loss) was the single greatest factor in deciding to start a credit insurance business for trade finance.

As tougher regulatory requirements take hold and require the financial sector to continue deleveraging, new sources of trade finance funding need to be found to replace it. Investment funds are one potential large pool that should be attracted to trade finance. The Register’s statistical work will help provide potential investors with the information they require to enter the trade finance business, still a little known and understood business in capital markets and investor circles.

**ADB Study on Trade Finance Gaps and their Impact on Growth and Jobs**

In a continuing effort to close the information gap on trade finance, the ADB’s TFP conducted a survey-based study, released on 12 March 2013. The survey indicated that banks around the world rejected $1.6 trillion in trade finance transactions in 2012, $425 billion of which was in developing Asia. Companies surveyed indicated that the availability of 5 percent more trade finance would increase production by 2 percent and would require a corresponding increase of staff by 2 percent. Companies also indicated that 5 percent less trade finance would mean 2 percent less production and 2 percent fewer staff. The survey thus suggested that less trade finance would mean less production and fewer staff. The significance of this study is that: (1) there is a gap for trade finance; (2) trade finance gaps result in less growth and; (3) there is less job creation. It is important that this statistical work be deeper and broader and that it be conducted at regular intervals so that officials can monitor trade finance gaps and react accordingly. From a data and statistical point of view, we have more information than was available at the first Trade Finance Export Group meeting in Geneva, but more work needs to be done, consistently.

There are many reasons for gaps in trade finance in Asia: low (or no) country ratings that prevent or impede global financial institutions and investors from providing trade finance; weak and poorly rated banks (and banking systems) which also act as barriers or impediments to international financial engagement; and regulatory issues.

With respect to the regulatory environment, Basel is one contributing factor, but another is anti-money-laundering and know-your-customer
requirements. Following the 9/11 terrorist attacks, a plethora of strict AML and KYC requirements have come into force. The problem is not so much that they have come into force, but that they are not uniform across jurisdictions and that they are very costly. For a financial institution to go into a country such as Nepal or Bangladesh, to carry out these requirements on an annual basis in accordance with requirements in multiple jurisdictions, is extremely costly and time-consuming. The result is that banks generally do not bother going into developing markets and, as such, are not able to provide the guarantees that are so important to trade with emerging markets. This contributes to the trade finance gap. Even after the financial crisis abates, this lack of regulatory harmonization in AML/KYC will likely remain.

Weak banking systems and a lack of transparency in Asia account for an important segment of the trade finance gap. In many markets where the TFP operates, financial statements are difficult to figure out, central bank oversight is weak, non-performing loan ratios are high, and there are often high concentrations to loss-making state-owned enterprises. These elements mean that risk management units around the world are reluctant to agree to credit limits that would result in the provision of bank-to-bank guarantees (and funding) to support trade. The TFP provides technical assistance and quarterly feedback to the banks on which it assumes risk. This assistance and feedback helps to provide benchmarks for improvement in Asia’s banks, and increase banks’ ability to provide companies in developing Asia with more financial resources to trade, to grow, and to create jobs. Arguably the most critical element to closing trade finance gaps is financial reform, to create stable banking systems that function well.

CONCLUSION

Trade finance is important to the global economy. The global financial crisis forced the international community to realize the importance of closing trade finance gaps and enabled programs such as the TFP to acquire more resources.

The TFP focuses on the more challenging developing countries that had huge trade finance gaps before the crisis. Because of systemic issues not related to (but exacerbated by) the crisis, trade finance gaps are likely to persist in these countries long after the crisis is over.

Asia, where the crisis did not originate, suffered. But some good came from the crisis: Asia and its exciting prospects were in the spotlight; Asia received an influx of investment; Asia became more confident about its
future and moved to rebalance its dependence on export-led growth and increased intra-Asian trade.

The international community coordinated and responded well to the challenge of closing trade finance gaps during the crisis. Beyond crisis, the international community needs to remain vigilant and continue to coordinate to address impediments to providing sufficient trade finance, especially to developing countries in Asia and elsewhere. Coordinated action in three main areas – financial reform, regulatory environment, and more statistics in trade finance – needs to continue.

NOTES

1. An obvious exception to this general statement is Kazakhstan’s banking sector which had significant exposure to international capital markets.
2. Since then, Auboin and Engmann (2012) showed that the order of magnitude was reasonably accurate.
3. The TFP currently assumes risk in the following 18 markets: Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Cambodia, Georgia, Indonesia, Kazakhstan, the Kyrgyz Republic, Mongolia, Nepal, Pakistan, the Philippines, Sri Lanka, Tajikistan, Uzbekistan, and Viet Nam.
5. ADB (2013).
6. The ADB’s TFP supported the African Development Bank’s implementation of a trade finance program for Africa.

REFERENCES

Index

ABF, see Asian Bond Fund
ABF (asset-based finance) 643–4
ABF2 (Asian Bond Fund 2) 510–11, 535
and debt structure 534
Abiad, A. 276
ABIF (ASEAN Banking Integration Framework) 402–3
ABMF (ASEAN+3 Bond Market Forum) 340
ABMI (Asian Bond Market Initiative) 336, 338–9, 396–7, 510, 511
ABMIF (Asian Multicurrency Bond Issuance Facility) 342
ACCION International Center for Financial Inclusion 600
accounting framework for core and non-core bank liability aggregates 25–8
Acharya, V.V. 289, 291, 298, 299, 300, 301, 302
ACMF (ASEAN Capital Markets Forum) 401–2
Adam, K. 364
ADB, see Asian Development Bank
Adrian, T. 63, 231
AEC, see ASEAN Economic Community
AEC Blueprint 557–8
AFSD (Asian Financial Stability Dialogue) 395
ageing population, impact on insurance and pensions sector 692–3
agency costs and capital structure 513
Agung, J. 636
Ahearne, A. 349, 365
AIGFP (American Insurance Group Financial Products) 685
Allayannis, G. 512, 513, 516, 521, 528, 531
Amador, J. 184
AMBD (Autoriti Monetari Brunei Darussalam) 565
American Insurance Group Financial Products (AIGFP) 685
AMRO (ASEAN+3 Macroeconomic Research Office) 297, 336, 398
Anderson, C. 349
Andrade, S. 349
anti-money laundering standards 617–19
APEC (Asia-Pacific Economic Cooperation) 296, 399
Arestis, P. 251
Arnold, B. 219, 220
ASEAN
financial integration 340–41
and financial services liberalization 398–9
see also ASEAN Economic Community; ASEAN+3
ASEAN Banking Integration Framework (ABIF) 402–3
ASEAN Capital Markets Forum (ACMF) 401–2
ASEAN Economic Community (AEC) 340, 400–403
and BCLMV countries 557–8
ASEAN Economic Community Blueprint (AEC Blueprint) 557–8
ASEAN Regional Comprehensive Economic Partnership (RCEP) 400
ASEAN Vision 2020 400
ASEAN+3
banks systemic risk 314–16, 328–32
capital flows 172–4
deposit insurance regimes 423–42
Economic Review and Policy Dialogue (ERPD) 398
Global shock, risks, and Asian financial reform

and financial services liberalization 399
resolution regimes 475–87, 494–509
ASEAN+3 Bond Market Forum (ABMF) 340
ASEAN+3 Macroeconomic Research Office (AMRO) 297, 336, 398
Ashcraft, A. B. 231
Asian Bond Fund (ABF) 396–7, 510–11, 535
and debt structure 534
Asian Bond Market Initiative (ABMI) 336, 338, 396–7, 510
Asian Development Bank (ADB) and Myanmar 562
Trade Finance Gaps study 713–14
Trade Finance Program 707–10
Asian financial crisis 150, 251, 336–8, 396
Asian Financial Stability Dialogue (AFSD) 395
Asian Multicurrency Bond Issuance Facility (ABMIF) 342
asset-based finance (ABF) 643–4
asset value correlation (AVC), Basel III 255
assets and liabilities
corporate sector 156, 160–63, 166–9, 189–91
financial institutions 152–4, 156, 157–60, 163, 164–6, 186–8
households 156, 157
Australia, regulatory structure 239
Autoriti Monetari Brunei Darussalam (AMBD) 565
AVC (asset value correlation), Basel III 255
Avgouleas, E. 240
backup financing, deposit insurance 437–8
bad loans, PRC 313
Baele, P. 350, 353, 354, 358, 363, 368
Balli, F. 350
Bangladesh, microfinance regulations 649, 650, 653
bank-led flows 150, 175–6, 177–8
bank liability aggregates 22–72
accounting framework 25–8
by claim holder 24–5, 28–48
Indonesia 35, 38–9
by instruments 27–8, 30
Malaysia 35, 40–41
Philippines 35–7, 42–3
procyclicality 48–67
Republic of Korea 29–35
responsiveness to global liquidity conditions 62–7
responsiveness to policy interest rates 54–62
responsiveness to real GDP 48–54
Singapore 37, 44–5
Thailand 37, 46–7
Bank Restructuring Act, Germany 473
Banking Act 1933, USA 289
banking union, EU 389–93
banks
bias against SMEs 264, 266
claims to non-bank customers, Hong Kong, China 109
systemic risk 201–3, 302–17
Basel Committee on Banking Supervision (BCBS)
D-SIBS identification 288
and financial inclusion 602, 603
and SIFIs 220–23, 227–9
Basel III 570–73
and financial inclusion 603
liquidity requirements 222–3, 294, 571
and shadow banking 234
and SME finance 264–5, 550, 647–8
and trade finance 254–5
BCBS, see Basel Committee on Banking Supervision
BCLMV countries 558–63
and the AEC 557–8
capital adequacy and liquidity management 570–75
capital flow management 590–92
disclosure and transparency 584–90
financial regulatory and supervisory systems 563–70
macro-prudential surveillance 575–83
see also Brunei Darussalam;
Cambodia; Lao PDR;
Myanmar; Viet Nam
Beck, S. 655
Bekaert, G. 63, 276, 350, 353, 363, 368
Belgium, special resolution regime 473
Bellalah, M. 350
Bhamra, H. 348, 351, 370
BIS (Bank for International Settlemnets), transparency principles 584
Black, S. 518, 537
bond issuance decisions 526–8
bond markets 336–40
ABMI 336, 338, 396–7, 510
local currency bond markets 175, 178, 510–36
and risk 178, 342
Booth, L. 518
Borensztein, E. 350, 353, 367
Bosch, T. 350
branchless banking 616–17
bridge banks 422
Brownlees, C. 299, 300
Brunei Darussalam 559–60
banking reform 573
capital flow management 591
deposit insurance 426, 451–2
financial regulation and supervision 565–6
financial sector development priorities 594
macro-prudential surveillance 582
stock exchange development 586
Brunei Darussalam Long-Term Development Plan: Wawasan Brunei 2035 560
Bruno, V. 16, 59, 62, 63, 119
Cabral, S. 184
Calomiris, C. 517
Cambodia 560–61
banking reform 573–4
capital flow management 591
financial regulatory and supervisory system 566–7
financial sector development priorities 594
macro-prudential surveillance 582–3
mortgage market 260
resolution authority 480
transparency and disclosure 586–7
Canada regulatory structure 239
Caner, A. 251
Cantor, R. 517
capital adequacy and liquidity management 570–75
capital flow management 341–3
BCLMV countries 590–92
capital flows 171–6, 341–3
BCLMV countries 579–81
and macro-financial risks 176–8
and non-core liabilities 581–2
and socioeconomic risks 179–92
Capital Market and Non-Bank Financial Industry Master Plan, Indonesia 270–71
capital market financing, SMEs 658–68
Capital Market Implementation Plan 401
capital market integration 401–2
capital market openness measurement 77–8
non-core liabilities and credit crises 84–90
non-core liabilities and currency crisis 79–84
capital requirements 682–5
Basel III 571
SIFIs 220–23, 286–9
capital structure 528–34
and bond issuance decision 512–14
capital surcharges on TBTF institutions 291–2
Carrieri, F. 348
carry trade 61–2
cash holdings and financial liabilities 113–47
China 113–21, 140
by country and sector 138–42
and growth rates 131–8
Indonesia 129, 133, 136
Japan 122, 126, 127, 133, 134
Korea 122, 126, 128, 133, 135, 140
Malaysia 130, 137
Philippines 131, 138
Thailand 132, 133, 138, 139
CBM (Central Bank of Myanmar) 568
CCPs (central counterparties) 343
CDSs (credit default swaps) 237–8
Cecchetti, S.G. 249
Central Bank of Myanmar (CBM) 568
central banks and regulatory cooperation 395–6
central counterparties (CCPs) 343
Global shock, risks, and Asian financial reform

CGAP (Consultative Group to Assist the Poor) 600
Chan, E. 513, 515, 518, 537
Chan, K. 349, 363
Chhaochharia, V. 349
Chiang Mai Initiative Multilateralization (CMIM) 297–8, 335–6, 397–8

Core Principles for Effective Deposit Insurance Systems 416, 437, 444–5 corporate bonds 536 corporate sector assets and liabilities 155, 156, 160–69, 189–91 countercyclical capital buffer 294 CPSS (Committee on Payment and Settlement Systems) 602 Craig, R.S. 72 credit bureaus 641 credit constraints and legal rights 641 credit crises 76 impact of global market conditions 93–5 and non-core liabilities, impact of capital market openness 84–90 credit default swaps (CDSs) 237–8 credit demand curves 636 credit derivatives trading 536 credit guarantees and SME finance 645–6 credit-score-based lending 644 credit supply curves 636 cross-border cooperation 295–8 resolution regimes 484–5, 488 SIFI resolution 225, 292–3 on trade finance 255–6 cross-border financial institutions 402–3 crowdfunding 644 currency crises 75–6 impact of global market conditions 90–93, 94–5 and non-core liabilities, impact of capital market openness 79–84 current account gaps 629
Index

D-SIBs 211, 288
Dash, E. 290
Datta, S. 517
Davis, E. 575–6
De Jonghe, O. 299, 300
debt flows 150, 175
debt securities 519–21
debt structure 532–4
Deors report 383
Demirguc-Kunt, A. 288, 518
Dennis, D. 517
deposit insurance 416–47
    ASEAN+3 countries 423–42
    EU 392–3
    and failure resolution 439–41
    and financial crisis 418–23
    funding 420–21, 434–8
    governance 431
    legal issues 438–9
    and moral hazard 427–9
    objectives 426–7
    public awareness 438
    reform agenda 442–7
    reimbursing depositors 441–2
Deposit Insurance Core Principles 416,
    437, 444–5
deposit reserve ratio (DRR) 421
derivatives market as market
    development measure 515–16
Detragiache, E. 288
developmental state model 248, 394
disclosure and transparency 584–90
Dodd–Frank Act 2010 292, 437, 474–5
DRR (deposit reserve ratio) 421
dynamic capital buffer 294
Dziuda, W. 349

East Asia
    financial innovation 247–52
    financial regionalism 394–9
    single financial market 399–407
economic growth
    and financial innovation 249–50
    and liberalization 250–51
    and mortgage market 259
economic integration 380
education, financial 613–16
Eichengreen, B. 518
Electronic Trading Platform (ETP),
    Malaysia 536
Elliot, D.J. 277
Elliot, W. 516
EMEAP (Executives’ Meeting of East
    Asia-Pacific Central Banks) 395,
    396
EMS (European Monetary System)
    381
EMU (European Monetary Union)
    382–3
Engle, R. 299, 300
enterprise risk management (ERM)
    frameworks 684–5
equity home bias 347–72
    emerging Asia 355–69
    measurement 351–4
equity markets for SMEs 660–61,
    665–6
ERM (enterprise risk management)
    frameworks 684–5
ERPD (ASEAN+3 Economic Review
    and Policy Dialogue) 398
ESAs (European Supervisory
    Authorities) 388–9
ESFS (European System of Financial
    Supervision) 388–9
ESM (European Stability Mechanism)
    390–91
ETP (Electronic Trading Platform),
    Malaysia 536
Euro Plus Pact 389
European Banking Union 391–3
European banks
    systemic risk 304, 305
    withdrawal of trade finance to Asia
    253
European Monetary System (EMS)
    381
European Stability Mechanism (ESM)
    390–91
European Supervisory Authorities
    (ESAs) 388–9
European System of Financial
    Supervision (ESFS) 388–9
European Union (EU)
    banking union 391–3
    directive on deposit insurance 420
    and financial crises 385–8
    financial integration 378–85
    financial regulation infrastructure
    388–91
institutional weaknesses 393–4
regulatory structure 208–9
resolution regimes 392, 472–4
Eurozone crisis 385–8
Evans, O. 576
excess savings 151–5
impact on agents’ preferences 156–69
Executives’ Meeting of East Asia-Pacific Central Banks (EMEAP) 395, 396
exercise equity markets, SMEs 665–6
exit financing, SMEs 645

factoring and SME access to finance 265–6, 655–8
Fair, R.C. 632
FATF (Financial Action Task Force), anti-money laundering 617–18
Faulkender, M. 531
FDI flows 172
federal deposit insurance 289–91
Federal Deposit Insurance Corporation (FDIC) 289, 290
Fidora, M. 353, 367
Financial Action Task Force (FATF), anti-money laundering 617–18
financial conglomerates
capital and liquidity requirements 223
resolution 224
supervision recommendations 228, 229
financial crises
and deposit insurance 418–23
and financial sector development 543
and mortgage financing 261–2
and special resolution regimes 469
and trade finance 701, 702–15
see also Asian financial crisis;
Eurozone crisis; global financial crisis
Financial Crisis Law, Belgium 473
financial cycle and monetary aggregates 23–5
Financial Development Strategy 2011–20, Cambodia 586
financial education 613–15
financial inclusion 548–50, 600–624, 693–5
and consumer protection 608–13
definitions 600–601
and financial literacy 613–16
and mobile financial services 272–3
and regulation 621–3
financial innovation 200–201, 246–76
and financial inclusion 612–13
limits 249–50
mobile financial services 272–5
mortgage markets 258–63
non-bank finance 267–72
SME finance 263–7
trade finance 252–8
financial institutions
assets and liabilities 152–4, 156, 157–60, 186–8
as bank liability claim holders 30–32
financial integration
definitions 380
East Asia 399–407
and equity home bias 350–51, 347–8, 358–72
EU 378–85
measurement 359–60
financial liberalization, see liberalization
financial literacy 613–16
financial market integration, East Asia 401–2
Financial Market Supervisory Authority (FINMA) 209, 227, 229
Financial Policy Committee, UK 210
financial products pricing, and financial inclusion 606–8
financial regulation, see regulation
Financial Sector Assessment Program (FSAP) 444
financial sector integration 380
Financial Services Authority, UK 209
financial services liberalization
ASEAN 398–9
EU 384
Financial Stability Board (FSB) 284, 351
G-SIFI designation 290–91
and global regulatory reforms 554–6
and resolution regimes 428, 470–72
and shadow banking 232–7
Financial Stability Forum (FSF) 470
financial stability trilemma 379
<table>
<thead>
<tr>
<th>Index</th>
<th>723</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINMA (Financial Market Supervisory Authority)</td>
<td>209, 227, 229</td>
</tr>
<tr>
<td>Forbes, K.J.</td>
<td>63, 184</td>
</tr>
<tr>
<td>foreign currency bonds, PRC</td>
<td>112–13</td>
</tr>
<tr>
<td>foreign investment as indicator of market depth</td>
<td>515</td>
</tr>
<tr>
<td>foreign liability ratio</td>
<td>84, 87, 90</td>
</tr>
<tr>
<td>Fortis Group</td>
<td>468</td>
</tr>
<tr>
<td>FPC (Financial Policy Committee), UK</td>
<td>210</td>
</tr>
<tr>
<td>Frankel, J.</td>
<td>75</td>
</tr>
<tr>
<td>Free Trade Area of the Asia-Pacific (FTAAP)</td>
<td>399</td>
</tr>
<tr>
<td>French, K.</td>
<td>347</td>
</tr>
<tr>
<td>frontier market economies</td>
<td>343–4</td>
</tr>
<tr>
<td>FSAP (Financial Sector Assessment Program)</td>
<td>444</td>
</tr>
<tr>
<td>FSB, see Financial Stability Board</td>
<td></td>
</tr>
<tr>
<td>FSB, see Financial Stability Board</td>
<td></td>
</tr>
<tr>
<td>FTAAP (Free Trade Area of the Asia-Pacific)</td>
<td>399</td>
</tr>
<tr>
<td>functional regulatory structure</td>
<td>209, 216–19</td>
</tr>
<tr>
<td>funding, deposit insurance</td>
<td>420–21, 434–8</td>
</tr>
<tr>
<td>G-SIBs</td>
<td>219–20, 220–21</td>
</tr>
<tr>
<td>G-SIFIs</td>
<td>219, 286–9, 290–91</td>
</tr>
<tr>
<td>resolution</td>
<td>485–6</td>
</tr>
<tr>
<td>G-SIIFs (systemically important insurers)</td>
<td>687–8</td>
</tr>
<tr>
<td>G20 and financial consumer protection</td>
<td>690–91</td>
</tr>
<tr>
<td>and financial inclusion</td>
<td>272–3, 548–9, 601–2</td>
</tr>
<tr>
<td>and trade finance</td>
<td>252, 706–7</td>
</tr>
<tr>
<td>Garcia, R.</td>
<td>636</td>
</tr>
<tr>
<td>GDP elasticity of bank liabilities</td>
<td>49–54</td>
</tr>
<tr>
<td>Gécz, C.</td>
<td>516</td>
</tr>
<tr>
<td>Gelos, R.</td>
<td>348, 351, 585–6</td>
</tr>
<tr>
<td>generally accepted accounting principles (GAAP)</td>
<td>316–17</td>
</tr>
<tr>
<td>Germany, special resolution regime</td>
<td>473</td>
</tr>
<tr>
<td>GFC, see global financial crisis</td>
<td></td>
</tr>
<tr>
<td>Ghosh, A.R.</td>
<td>636</td>
</tr>
<tr>
<td>Ghosh, S.R.</td>
<td>636</td>
</tr>
<tr>
<td>Glick, R.</td>
<td>83, 251</td>
</tr>
<tr>
<td>global financial conditions and likelihood of crises</td>
<td>90–95</td>
</tr>
<tr>
<td>measurement</td>
<td>78</td>
</tr>
<tr>
<td>global financial crisis and Eurozone</td>
<td>385–8</td>
</tr>
<tr>
<td>and regulatory reform</td>
<td>547–8</td>
</tr>
<tr>
<td>and saving behavior</td>
<td>156–69</td>
</tr>
<tr>
<td>and trade finance</td>
<td>252–3, 551–2, 701, 702–15</td>
</tr>
<tr>
<td>global imbalances and SMEs</td>
<td>629–32</td>
</tr>
<tr>
<td>global liquidity conditions, and bank liabilities</td>
<td>62–7</td>
</tr>
<tr>
<td>Goldstein, M.</td>
<td>290, 291</td>
</tr>
<tr>
<td>Gomez, J.-P.</td>
<td>349</td>
</tr>
<tr>
<td>governance, deposit insurance</td>
<td>431</td>
</tr>
<tr>
<td>government guarantees</td>
<td>289–91</td>
</tr>
<tr>
<td>Graham, J.</td>
<td>514, 518</td>
</tr>
<tr>
<td>Greece, special resolution regime</td>
<td>473–4</td>
</tr>
<tr>
<td>group-wide supervision</td>
<td>685–8</td>
</tr>
<tr>
<td>growth, see economic growth</td>
<td></td>
</tr>
<tr>
<td>Habib, M.</td>
<td>514, 518</td>
</tr>
<tr>
<td>harmonization legislation, EU</td>
<td>383–5</td>
</tr>
<tr>
<td>Hartmann, P.</td>
<td>299, 300</td>
</tr>
<tr>
<td>Harvey, C.</td>
<td>514, 518</td>
</tr>
<tr>
<td>Hattori, M.</td>
<td>19, 104, 110, 112, 126, 133</td>
</tr>
<tr>
<td>Hong Kong, China banks' transactions to PRC</td>
<td>109</td>
</tr>
<tr>
<td>mortgage regulation</td>
<td>260–61</td>
</tr>
<tr>
<td>SME stock exchange</td>
<td>660</td>
</tr>
<tr>
<td>Hoogduin, L.</td>
<td>575</td>
</tr>
<tr>
<td>Hoshi, T.</td>
<td>513</td>
</tr>
<tr>
<td>household assets and liabilities</td>
<td>152, 156, 157</td>
</tr>
<tr>
<td>HRE (Hypo Real Estate) takeover</td>
<td>468</td>
</tr>
<tr>
<td>Huisman, R.</td>
<td>300</td>
</tr>
<tr>
<td>Hummels, D.</td>
<td>184</td>
</tr>
<tr>
<td>Hutchinson, M.</td>
<td>251</td>
</tr>
<tr>
<td>Hypo Real Estate takeover</td>
<td>468</td>
</tr>
<tr>
<td>IADI, deposit insurance guidance</td>
<td>443–4</td>
</tr>
<tr>
<td>IAIGs (internationally active insurance groups)</td>
<td>686–7</td>
</tr>
<tr>
<td>IAIS (International Association of Insurance Supervisors) and financial inclusion</td>
<td>602</td>
</tr>
<tr>
<td>and group-wide supervision</td>
<td>685–6</td>
</tr>
</tbody>
</table>
multilateral memorandum of understanding 688
solvency and capital adequacy standards 682–5
see also Insurance Core Principles
ICAPM (International Capital Asset Pricing) 353
ICC Trade Register 257, 712–13
ICPs, see Insurance Core Principles
IFRS (International Financial Reporting Standards) 316–17
IMF and transparency 584
Impact Exchange 667
income inequality 179–82
India
banks, systemic risk 304, 307, 314, 324–7
mobile financial services 274–5
mortgage lending 259, 261
non-bank finance 269–70
SME stock exchange 660
individuals as bank liability claim holders 32
Indonesia
bank liabilities 35, 38–9, 51–3, 56, 64, 60, 68
corporate assets and liabilities 162, 169, 191
deposit insurance 423, 426, 432, 434, 440, 452–3
excess savings 151–5, 193
financial institutions, assets and liabilities 159, 165, 187
microfinance regulation 650–51, 653
mortgage market 259–60
non-bank finance 270–71
resolution regime 477–8, 480, 482, 483
savings by agent 192
SME finance gap 637–40
informal finance 619–21
information asymmetry and financial inclusion 610–11
Information Disclosure System, Vietnam 589
Institution-Specific Cross-Border Cooperation Agreements 486
institutional quality and equity home bias 348
institutional regulatory structure 207
insurance and pensions sector 551, 676–700
Insurance Core Principles (ICPs) 678–9
and financial inclusion 602
ICP 16 Enterprise Risk Management for Solvency Purposes 684–5
ICP 17 Capital Adequacy 682–4
ICP 23 Group-wide Supervision 686
ICP 24 Macro-prudential Surveillance and Insurance Supervision 680
interest rate caps and financial inclusion 607–8
interest rate fluctuations 3–4
Interest Rate Restriction Act (1954), Japan 271
interest rates, responsiveness of bank liabilities 54–62
International Association of Insurance Supervisors, see IAIS
International Capital Asset Pricing (ICAPM) 353
international cooperation, see cross-border cooperation
International Financial Reporting Standards (IFRS) 316–17
International Organization of Securities Commissions (IOSCO) 236–7
internationally active insurance groups (IAIGs) 686–7
interoffice loans 16, 93–5
investor behavior and equity home bias 349
Ioannidou, V. 58
IOSCO (International Organization of Securities Commissions) 236–7
Ireland, special resolution regime 473
Isler, P.R. 221
Ito, H. 359, 515, 518
Jacome, L.I. 295
Jaffee, D.M. 632
Japan
banks, systemic risk 304, 307, 308–9, 321–2, 331
and CMIM 297–8
deposit insurance 423, 434, 453–5
mortgage market 259
non-bank finance regulation 271
Index

nonfinancial firms and financial intermediation 104–5
resolution regime 477, 478, 480, 481, 482–3, 484
trade finance 253
Jeanneney, S.G. 249
Jochem, A. 350, 363–4, 368
Joy, M. 514, 518
Judge, A. 516
Kawai, M. 590, 591
Kenya, mobile financial services 272
Key Attributes for resolution regimes 470–71
Kharroubi, E. 249
Khurana, I. 348, 351, 370
Kim, Y. 537
Korea, Republic of
corporate assets and liabilities 160, 163, 168, 190
deposit insurance 423, 434, 440, 455–6
excess savings 151–5, 194
financial institutions, assets and liabilities 154, 155, 158, 160, 165, 187
household liabilities 156, 157
procyclicality of monetary aggregates 106–8
resolution regime 440, 476, 477, 478, 480, 481, 483
SME stock exchange 660–61
systemic risk 332
Kpodar, K. 249
Kuntchev, V. 641
Laffont, J.J. 636
Lamberte, M. 590, 591
Lamfalussy process 385
Lamy, Pascal 701, 702, 711
Lane, P. 77, 359
Lao PDR 561
banking reform implementation 574
capital flow management 591
deposit insurance 423, 456–7
financial regulatory and supervisory system 567–8
financial sector development priorities 594
macro-prudential surveillance 583
resolution authority 480
transparency and disclosure 587–8
Lastra, R. 408
LCR (liquidity coverage ratio) 255, 294
LCY (local currency) bond markets 175, 178, 510–36
leasing and SME finance 265–6
legal rights and credit constraints 641
Leland, H. 526
leverage and bond issuance decisions 528
leverage ratio 254–5, 571
liabilities
  corporate sector 156, 161–3
  financial institutions 156, 158–60
  households 156, 157
liberalization and financial innovation 250–51
Japan 104–5
liquidity and bond issuance decisions 528
liquidity coverage ratio (LCR) 294
liquidity pool for trade finance 256
liquidity requirements
  Basel III 571
  SIFIs 222, 223, 229–30
  living wills (resolution recovery plans) 225–6, 230
local currency (LCY) bond markets 175, 178, 510–36
Louis, J.-V. 408
Loungani, P. 350, 353, 367
M-PESA 272
Maastricht Treaty 382–3
macro-financial risks from increased capital flows 176–8
macro-prudential indicators (MPIs) 576
macro-prudential regulation 293–5
macro-prudential surveillance 575–8, 679–82
Majluf, N. 512, 526
Maksimovic, V. 518
Malaysia
  bank liabilities 35, 40–41, 52, 57, 60, 65, 69
Global shock, risks, and Asian financial reform

deposit insurance 423, 426, 434, 457–9
Electronic Trading Platform (ETP) 536
resolution regime 475, 476, 478, 480, 481, 483–4, 484–5, 487–8
SME stock exchange 661
Malaysian Deposit Insurance Corporation Act 475
market conduct, insurance and pensions sector 689–91, 698–9
market depth and capital structure 513
market development and debt structure 532–4
measures 515–16
Markets in Financial Instruments Directive (MiFID) 385
Markowitz, H. 353
Mauritius, Impact Exchange 667
Máxima, Queen of the Netherlands 600
McBrady, M. 514, 518
MCR (minimum capital requirement) 683
mean-variance approach of portfolio optimization 353–4
Mehl, A. 516
Mercado, R. 350
Merton, R. 354
MFIs (microfinance institutions) 648–9
Michas, P. 348, 351, 370
micro-prudential regulation objectives 679–80
microfinance 248, 648–9
MiFID (Markets in Financial Instruments Directive) 385
Mihow, V. 517
Milesi-Ferretti, G.M. 77, 359
Mizen, P. 517, 518, 520, 526, 528, 531
mobile financial services 272–5, 616–17
Mody, A. 277
Mondria, J. 349, 350
monetary aggregates
accounting framework 25–8
and the financial cycle 23–5
and global liquidity 102–48
and procyclicality of the financial system 22–72, 106–9
Monetary Authority of Singapore (MAS) 475–6
monetary integration 380
East Asia 403–4
monetary union, EU 381–3
moral hazard
and deposit insurance 427–9
and government guarantees 289
Morse, A. 349
mortgage markets 258–63
MPIs (macro-prudential indicators) 576
Multilateral Memorandum of Understanding, IAIS 688
Munro, A. 514, 518, 537
Myanmar 561–2
capital adequacy and liquidity management 574
capital flow management 592
financial regulatory and supervisory system 568–9
financial sector development priorities 594
macro-prudential surveillance 583
stock exchange development 588
Myers, S. 512, 526
National Bank of Cambodia 566, 582
NBFIs (non-bank financial institutions) 267–72
Neir, E.W. 295
Nepal, microfinance regulations 649, 651, 653
net stable funding ratio (NSFR) 294
Netherlands, special resolution regime 474
non-bank finance (shadow banking) 200, 231–8, 267–72
definition 232
regulation 215, 217, 218–19, 233–4
and SME finance 654
non-bank SIFIs, capital and liquidity requirements 223
non-core assets 157
non-core liabilities 26
accounting framework 25–8
BCLMV countries 578–9
and capital flows 579–82
as indicator of financial cycle stage 23
Malaysia 35, 40–41
measurement 76
Philippines 35–7, 42–3
as predictor of crises 576–8
Republic of Korea 29–35
Singapore 37, 44–5
Thailand 37, 46–7
and vulnerability to crisis 74–100
non-financial firms
as bank liability claim holders 32
as financial intermediaries 18–19, 104–48
Northern Rock 419, 468
NSFR (net stable funding ratio) 294
OECD principles on disclosure and transparency 584, 585
Ofek, E. 516
Opler, T. 19, 110, 112
optimal foreign portfolio weights 353
Orderly Liquidation Authority, US 475
Ozeki, K. 259
Packer, F. 511
Pagano, M. 517, 528
Pakistan, microfinance regulation 649, 650, 651, 653
passport directives, EU 384
Pazarbasioğlu, C. 636
PCR (prescribed capital requirement) 683
pecking order of finance 512–13, 514
pensions and insurance sector, regulation 551, 676–700
People’s Republic of China (PRC), see China, People’s Republic of
Petersen, M. 531
Philippines
bank liabilities 35–7, 42–3, 54, 57, 61, 65, 69
corporate assets and liabilities 161, 163, 167, 190
deposit insurance 423, 436, 440–41, 459–60
excess savings 151–5, 194
financial institutions, assets and liabilities 160, 164, 186
microfinance regulation 652, 653
mobile financial services 273
resolution regime 478, 480–81
political integration 380
population ageing, impact on insurance and pensions sector 692–3
portfolio returns calculation 353–4
Poterba, J. 347
PRA (Prudential Regulatory Authority), UK 210
PRC, see China, People’s Republic of prescribed capital requirement (PCR) 683
pricing of financial products and financial inclusion 606–8
pricing reform, insurance and pensions sector 698
private sector
and financial inclusion 615–16
and trade finance co-financing 257
procyclicality of bank liability aggregates 48–67, 106–8
of core and non-core liabilities 28
profitability and bond issuance decisions 528
prompt corrective action 292, 468
proportionality principle 694–5
Prudential Regulatory Authority (PRA), UK 210
prudential supervision, insurance and pensions sector 696–8
public financial institutions and SME finance 646–7
public–private sector trade finance co-financing 257
purchase and assumption transactions, deposit insurance 421–2
Pyle, D. 526
RAF (risk appetite framework) 228
Rajan, R. 528
RBI, see Reserve Bank of India
RCEP (ASEAN Regional Comprehensive Economic Partnership) 400
real GDP, responsiveness of bank liabilities 48–54
recovery and resolution plans (RRPs) 225–6, 230, 487
regional bond markets 336–40, 396–7
regional cooperation
and equity home bias 372
resolution regimes 484–5
on systemic risk 295–8
on trade finance 255–6
regional financial integration
Asia 393–407
EU 378–93
regional monetary integration
East Asia 403–4
EU 381–3
regional trade finance database 257–8
regulation
BCLMV countries 563–70
and equity home bias 348, 351, 358, 370–72
EU 388–9
of financial inclusion 621–3
financial regulatory structure 205–19
informal finance 620–21
insurance and pensions sector 676–700
microfinance institutions 648–53
mobile financial services 273–4
mortgage lending 260–61
non-bank finance 233–8, 269–72
SIFIs 219–31
SME capital markets 661–5
SME finance 640–41, 668–71
of systemic risk 285–98
regulatory quality
and equity home bias 348, 351, 363–4, 366, 368, 370–71
measurement 360
Reinhart, C.M. 276
Remolona, E. 511
Renminbi 404, 705
Republic of Korea, see Korea, Republic of
Reserve Bank of India (RBI) and mobile financial services 274–5
and non-bank finance 270
resolution regimes 464–88
ASEAN+3 475–88, 494–509
cross-border cooperation 484–5, 488, 504–5
and deposit insurance 439–41
EU 393–3, 472–4
funding 483–4, 503–4
information sharing 487, 508–9
large financial firms 292–3
recovery and resolution planning 487, 508
resolution authority 480–81, 496–8
resolution powers 481–2, 498–500
safeguards 483, 502–3
scope 479, 494–6
segregation of client assets 482–3, 501
SIFIs 223–6, 230–31, 485–6, 505–7
US 474–5
resolvability assessments 226, 230–31, 486, 507
Rey, H. 349, 351, 370
Reynaud, J. 516
Richardson, M. 298, 299
Rimbara, Y. 632
ring-fenced liquidity pool for trade finance 256
risk appetite framework 228
risk management and capital structure 513–14
Rose, A. 75
RRPs (recovery and resolution plans), SIFIs 225–6, 230
rural bank services, India 265
safety net 465–6
Santomero, A.M. 632
Sbrancia, M.B. 276
SBV (State Bank of Viet Nam) 569, 570
Schill, M. 514
Schinasi, G. 408
Schönmaker, D. 350
SECC (Securities and Exchange Commission of Cambodia) 566–7, 586–7
sectoral regulatory structure 207–8, 214–16
secured transaction regime and SME finance 265
Securities and Exchange Commission of Cambodia (SECC) 566–7, 586–7
securitization 236–7
Sendi, I. 350
SGP (Stability and Growth Pact) 386
shadow banking, see non-bank finance
Index 729

Shin, K. 23, 24, 25–8, 74, 79
Shive, S. 349
Siackhachanh, N. 510
Siegfried, N. 515
SIFIs (systemically important financial institutions) 219–31, 290–93
insurers (G-SIIs) 687–8
and regulatory structures 214–15, 216–17, 218
resolution 223–6, 230, 485–6
supervision 226–31
Singapore
bank liabilities 37, 44–5, 54, 55, 58, 60–61, 63–5, 66, 70
banks’ systemic risk 314, 329
cross-border bank operations 485
deposit insurance 423, 426, 432–3, 436, 460–61
mortgage market 258–9
resolution regime 475–6, 478, 480, 481, 483, 487–8
SME stock exchange 661
single integrated regulatory structure 208–9, 216–17
single passport facility, EU 384
single resolution mechanism, EU 392
single supervisory mechanism, EU 392
Siswanto, J. 406
SME finance 263–7, 550–51, 628–72
asset-based finance 643–4
and Basel III 264–5, 647–8
capital market financing 658–68
cluster financing 644
credit guarantee systems 645–6
credit-score-based lending 644
crowdfunding 644–5
factoring 655–8
infrastructure 641–3
microfinance 648–9
non-bank financial institutions 654
public financial institutions 646–7
regulatory framework 668–71
supply chain finance 654–5
supply–demand gap 632–40
SME stock exchanges 266–7, 660–61
SNB (Swiss National Bank) and SIFI supervision 227
social capital markets 666–8
Social Stock Exchange, UK 667
socioeconomic risks from increased capital flows 179–82
solvency and capital adequacy standards 682–5
Solvency II program 682
Sørensen, B. 350, 353
South Asia capital flows 174
Spain, special resolution regime 474
special resolution regimes 468–9
SRISK measures of systemic risk 202, 300–316
Asian banks 304
European banks 304
US banks 302–4
SRM (single resolution mechanism) 392
SSC (State Securities Commission), Viet Nam 570
SSM (single supervisory mechanism) 392
Stability and Growth Pact (SGP) 386
standby financing, deposit insurance 437–8
State Bank of Viet Nam (SBV) 569, 570
State Securities Commission (SSC), Viet Nam 570
static trade-offs and capital structure 513
Stein, P. 632
stock exchanges, SMEs 266–7, 660–61
Structural Improvement of the Financial Industry Act, Korea 476
Stulz, R. 537
supply chain finance, SMEs 654–5
supply–demand gap in SME finance 632–40
swap requests, CMIM 297
Switzerland
financial regulatory structure 206
recovery and resolution plan 225
SIFI capital requirements 221–2
SIFI supervision 227, 229
systemic expected shortfall (SES) 299
systemic risk 284–317
banks 302–16, 321–32
measurement 298–302
regulatory policy 285–98
systemically important financial institutions, see SIFIs
systemically important insurers
687–8
Taipei, China
corporate assets and liabilities 162, 164, 168, 189
corporations, financial assets and liabilities 189
excess savings 151–5
financial sector, assets and liabilities 159, 164, 188
Tarashev, N. 219
TBTF, see ‘too big to fail’ institutions
Thailand
bank liabilities 37, 46–7, 54, 58, 62, 66, 71
banks’ systemic risk 314, 328
corporate assets and liabilities 160, 161, 167, 189
deposit insurance 423, 426, 432, 434, 461
excess savings 151–5
financial sector assets and liabilities 158, 166, 186
mortgage market 259
resolution regime 477, 480
SME stock exchange 661
‘too big to fail’ (TBTF) institutions 290–92
regulations, Switzerland 206
‘too interconnected to fail’ 290
TRACE (Trade Reporting and Compliance Engine) 536
Trade & Forfaiting Review 711
trade finance 252–8, 551–2, 701–15
SMEs 654
Trade Finance Expert Group 701, 702–3, 711
Trade Finance Program 707–10
Trade Finance Register 712–13
Trade Reporting and Compliance Engine (TRACE) 536
transaction costs and equity home bias 349
transparency and disclosure 584–90
in corporate bond trading 536
trust products, PRC 313
Tsoukas, S. 517, 518, 520, 526, 531
Twin Peaks regulatory structure 210, 217–19
United Kingdom
deposit insurance system 418–19
Northern Rock 468
regulatory structure 209
Social Stock Exchange 667
special resolution regime 473
Twin Peaks regulatory structure 210
United States
banks, systemic risk 302–4
broker dealer leverage 119
deposit insurance 419–20
financial sector regulatory structure 207–8, 289–91
GAAP and IFRS convergence 316–17
resolution regime 474–5, 468
VAMC (Viet Nam Asset Management Company) 570
Van Niekerk, S. 349
Veldkamp, L. 349
Veron, N. 290, 291
Viet Nam 562–3
banks’ systemic risk 330
capital adequacy and liquidity management 574–5
capital flow management 592
deposit insurance 423, 426, 441, 462–3
disclosure and transparency 589–90
financial regulatory and supervisory system 569–70
financial sector development priorities 594
macro-prudential surveillance 583
microfinance regulations 649, 652, 653
mortgage market 260
resolution authority 480
VAMC (Viet Nam Asset Management Company) (VAMC) 570
VIX volatility index 63, 78
and bank liabilities 65–70
Volcker, Paul 249  
Volz, U. 350, 364, 368  
Wang, X. 350, 353, 363, 368  
Warnock, F. 63, 349, 353  
wealth management products (WMPs) 311–13  
Weber, R.H. 208  
Wei, S.-J. 348, 351, 585–6  
Wihardja, M. 406  
WMPs (wealth management products) 311–13  
Wooldridge, P. 514, 518, 537  
World Bank, principles for financial inclusion 602  
Wu, T. 350  
Zeolick, Bob 706
Global Shock, Risks, and Asian Financial Reform

The growth of financial markets has clearly outpaced the development of financial market regulations. With growing complexity in the world of finance, and the resultant higher frequency of financial crises, all eyes have shifted toward the current inadequacy of financial regulation.

This book expertly examines what this episode means for Asia’s financial sector and its stability, and what the implications will be for the region’s financial regulation. By focusing on legal and institutional frameworks, the book also elaborates on various issues and challenges in terms of how financial liberalization can maximize the benefits and minimize the risks of crisis.

The book will appeal to academics, students, and policymakers across a diverse range of fields including: international finance and trade, economics, Asian studies, development, and development economics.

Iwan J. Azis is at the Asian Development Bank and Cornell University, USA and Hyun Song Shin is Professor of Economics at Princeton University, USA.