

# Capitalizing on Globalization

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This paper reviews the challenges facing Asia as it seeks to cope with and capitalize on globalization. It asks how the Asian model of economic development needs to be modified in order for the region's economies to grow and prosper in an increasingly integrated and intensely competitive global environment. Doing so, it argues, will entail modifying institutions for managing innovation, for managing poverty, and for managing volatility. The paper concludes by asking whether the capacity to adapt existing institutions is best developed at the national, regional, or global level and whether initiatives to address the challenge at these three levels are properly regarded as substitutes or complements.

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## I. INTRODUCTION

The world is growing smaller, as powerful forces, political and economic, speed the globalization of markets. Technology is one driver of this process: the relative cost of ocean, air, and road transportation continues to fall, removing an obstacle to cross-border merchandise transactions, while the revolution in information and communications has had an equally dramatic impact on trade in services. Improvements in the availability of information and declining transactions costs have further stimulated international flows of capital, labor, and technology. Of course, none of this would have been possible in the absence of political decisions to pursue policies consistent with globalization. Governments have removed overt and hidden barriers to trade. They have abolished exchange controls and liberalized capital account transactions. They have sought to promote the domestic capacity to produce for foreign markets and to make their economies attractive destinations for foreign investment.

Globalization has further to go. For example, while the United States (US) accounts for 25 percent of global gross domestic product (GDP), nearly 90 percent of the goods and services consumed by its residents continue to be produced at home. In a fully globalized world where the probability of purchasing goods and services from domestic and foreign suppliers was the same, the country's trade would average 75 percent of its income, since other countries account for

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75 percent of global production.<sup>1</sup> And for small countries, the import-to-income ratio in a fully globalized world would approach 100 percent. Clearly, we are still some way from this fully globalized benchmark. Similarly, savers continue to place a much higher proportion of their savings in domestic assets than global portfolio diversification would suggest. National savings and investment rates remain highly correlated, where in a world of perfect capital mobility one would expect their correlation to approach zero. Real interest rates and capital/labor ratios continue to diverge across countries, despite the incentive for capital to flow from where it is abundant to where it is cheap, and from where real rates are low to where they are high.

The point of these observations is to suggest that the process of globalization has considerably further to go. Technology marches only in one direction: forward. Technological progress will continue to reduce the cost of acquiring information and communicating and transacting across distance and borders. Politics similarly acquires its own momentum: trade and financial liberalization will continue to create domestic constituencies with a vested interest in open, globalization-friendly policies.<sup>2</sup>

If this logic is correct, then the challenge for emerging markets, including Asian markets, is not whether to prepare for globalization, but how to prepare for globalization. It is deciding what policies to pursue in order to capitalize on the opportunities afforded by a world of globalized markets.

One challenge that all Asian countries face to varying degrees is altering the basis for their economic growth from emulation to innovation, from accumulation to technical change, and “from perspiration to inspiration.” A large literature

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<sup>1</sup>The reality, of course, is that US purchases of foreign goods and services account for only about 12 percent of US gross national product.

<sup>2</sup>With the liberalization of the People’s Republic of China’s (PRC) coastal provinces, for example, millions of Chinese have moved to that part of the country in search of employment in export industries, and their presence there creates a powerful counterweight to any thought of rolling back the process of market opening. Admittedly, globalization has been reversed before, notably in the 1920s and 1930s. But there are grounds for arguing that this experience was *sui generis* and for doubting that it will happen again, at least in our lifetimes. The collapse of 19<sup>th</sup>-century globalization was due as much to World War I and to the profound economic and political dislocations it set on foot as to any policy decision taken in the 1920s and 1930s (Temin 1989). The additional dislocations starting in 1929 were largely due to the complete and total collapse of banking systems, made possible by the absence of deposit insurance, adequate portfolio diversification, and domestic lenders of last resort (Bernanke and James 1991), institutional gaps which have been largely ameliorated today. (To be sure, Japan suffered serious banking-sector distress at the beginning of the 1990s, and significant bank failures occurred in Asia following the outbreak of its 1997 crisis, but these were not allowed to jeopardize deposits or the functioning of the financial system; if anything the risks now run in the other direction, toward excessive intervention, official forbearance, and moral hazard.) And the very fact that the imposition of trade and capital controls in response to the macroeconomic dislocations of the 1930s consigned the world economy to a decade-long depression makes it less likely that the same policies will be tried again.

documents that Asian economic growth has, for four full decades, rested disproportionately on the accumulation of factor inputs and to more limited extent on increases in total factor productivity (TFP), compared to the experience of countries in other parts of the world. The Asian pattern is not atypical of the now high-income countries in earlier stages of their own development. But those high-income countries, which have sustained their economic growth over long periods, have done so by transforming the basis for their development from factor accumulation to factor productivity growth and by adapting their institutions accordingly. Institutions in Asian countries have been tailored to promoting emulation more than innovation and to encouraging the growth of factor supplies more than the growth of factor productivity. The challenge going forward is how to adapt Asia's institutions to accommodate these new imperatives. It is how to do so in a manner consistent with the opportunities and constraints of globalization.

Section II sets the stage by placing Asian growth in comparative perspective. It reviews evidence that the continent's growth has depended disproportionately on factor accumulation rather than increases in the efficiency of resource utilization, that this pattern is not unusual for countries at a relatively early stage of industrial development, and that Asian institutions have been designed to encourage factor accumulation and imports of technical knowhow. It argues that sustaining growth in the 21<sup>st</sup> century will require adapting these institutions in ways that place a greater premium on innovation and technical change. In particular, this will entail modifying institutions for managing innovation (Section III), for managing poverty (Section IV), and for managing volatility (Section V) in a manner consistent with the imperatives of globalization.

But answering these questions only poses another: how to develop the capacity to adapt existing institutions. Section VI asks whether this capacity is best developed at the national, regional, or global level and whether initiatives to address the challenge at these three levels are properly regarded as substitutes or complements. It examines the role of crisis in catalyzing the transformation of the institutions providing the framework for growth, stability, and equity in a world of globalized markets, both in Asia and in high-income countries like the US that have already undergone this transition. Section VII concludes.

## II. POLICIES AND INSTITUTIONS FOR ASIAN GROWTH

Consensus on the relative importance of factor accumulation and increases in total factor productivity in the growth of the East Asian economies remains elusive. The data are imperfect: national accounts provide data on investment, not capital stocks, for example, and strong assumptions are required before they can be used as the basis for estimates of the latter. Translating the number of workers with different demographic and economic characteristics into an effective stock of labor inputs requires other, equally restrictive assumptions. That the dual and the

primal lead to different conclusions is less than reassuring (Hsieh 1998). And any attempt to distinguish the rate and direction of productivity growth from the elasticity of substitution between capital and labor requires the imposition of further assumptions regarding the form and stability of the aggregate production function.<sup>3</sup>

### A. Contours of Asian Growth

The severity of these problems makes the actual breadth of agreement on what distinguishes East Asian growth from that in other regions striking. Over the last 40 years, most investigators agree, growth in East Asia has relied disproportionately on inputs of capital and labor and to a strikingly slight extent on increases in the efficiency with which those inputs are used. One need not adopt the extreme position of Young (1992) and Krugman (1994) that there was essentially no TFP growth in East Asia from the late 1960s to the early 1990s in order to reach this conclusion. Thus, Kim and Lau (1994) estimate translog production functions for Hong Kong, China; Republic of Korea (henceforth Korea); Singapore; and Taipei, China, which allow the data rather than the investigator's priors to determine the elasticity of substitution, and find that TFP accounted for only a third of the growth of real GDP. This contrasts with the US, where TFP accounted for 80 percent of the growth of real GDP between 1948 and 1990 (see Table 1). Apparently, East Asia initiated its high-growth "miracle" by boosting investment rates (capital being the factor input whose rate of accumulation is easiest to vary in the short run) and sustained its growth by maintaining those high rates of investment. Increases in the efficiency with which capital and other factors of production were used, while not negligible, made a relatively small contribution.

There is less agreement on the meaning of this pattern. Is it evidence of East Asia's singular success at promoting savings and investment, which are two of the keys to modern economic growth? Or does it reflect some peculiar failure to boost productivity? Is the pattern normal for economies at East Asia's stage of economic development, or does it reflect a distinctive Asian growth model and the region's pursuit of a unique development strategy?

### B. International and Intertemporal Comparisons

Answers can only be obtained by placing East Asia in an international context.<sup>4</sup> Table 1 shows that the relative contribution of increases in TFP growth to

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<sup>3</sup>A classic article by Diamond, McFadden, and Rodriguez (1978) shows that it is not in general possible to identify separately a time-varying elasticity of substitution and the bias of technical change.

<sup>4</sup>This discussion draws on the insights of Hayami (1998).

GDP growth is higher, while the relative contribution of factor accumulation is lower, in all of the now advanced industrial countries. The closer an economy is to the technological frontier (measured for present purposes by relative per capita output in the nonprimary sector and epitomized for purposes of 20th-century comparisons by the US), the larger appears to be the relative contribution of productivity growth. Thus, for the post-World War II period as a whole, France, Germany, and United Kingdom (UK) were closer to the US than Japan; and Japan was closer to France, Germany, and UK than the Newly Industrialized Economies (NIEs). When we restrict the comparison to the second half of the period, by which time Europe and Japan had closed much of the gap vis-à-vis the US, the relative contribution of TFP growth is greater. The proximate sources of growth in Europe and Japan resemble even more closely its proximate sources in the US.

Table 1. **Growth Rates of Labor Productivity and Total Factor Productivity in Newly Industrialized Economies and Developed Industrial Economies**

		Output Elasticity of Capital $\beta$	Average Growth Rate per Year (%)			Percentage Contribution of TFP (G(A)/G(Y/L))
			Labor Productivity G(Y/L)	Capital- Labor Ratio G(K/L)	TFP G(A)	
<b>NIEs</b>						
Korea	1960-90	0.45	5.1	8.9	1.1	21
Taipei, China	1953-90	0.49	6.2	9.6	1.5	24
Hong Kong, China	1966-90	0.40	5.2	6.1	2.8	54
Singapore	1964-90	0.44	4.5	6.6	1.6	36
Average		0.45	5.3	7.8	1.8	34
<b>Developed Economies</b>						
France	1957-90	0.28	3.8	4.7	2.5	66
FRG	1960-90	0.25	3.6	4.9	2.4	67
UK	1957-90	0.27	2.3	3.0	1.5	65
US	1948-90	0.23	1.5	1.6	1.2	80
Japan	1957-90	0.30	6.0	9.7	3.1	52
Average		0.27	3.4	4.8	2.1	66

TFP means total factor productivity.

Notes:  $\beta$ : Average estimates using the translog production function.

Y: Real GDP per work hour.

K: Reproducible capital (excluding residential buildings) adjusted for utilization rates.

L: Work hours.

Source: Kim and Lau (1994, tables 3-1, 6-3, and 7-1).

The obvious interpretation is that growth depends disproportionately on factor accumulation, capital accumulation in particular, in its initial stages.<sup>5</sup> When a late-developing economy develops the ability to utilize modern industrial tech-

<sup>5</sup>As emphasized in the 19<sup>th</sup> century context by Gerschenkron (1962).

nologies, the equilibrium capital/labor ratio shifts up. During this transition, the economy exhibits a relatively high level of investment and a correspondingly high rate of growth, subject to the availability of savings. The foreign technologies developed by previous industrializers are embodied in this capital equipment. This is evident in the fact that the elasticity of output with respect to capital is relatively high in economies as they begin to develop (typically, a third higher than in mature economies). Either because the capacity to innovate is late to develop or because the processes of importing technology and of innovating at home compete for the same limited domestic resources, absolute as well as relative rates of TFP growth are low at this early stage of economic development.

If this interpretation is correct, then we should observe similar patterns in the history of the now advanced-industrial economies. As already noted, there are hints of such patterns in Japan and Europe in the aftermath of World War II, since these economies were then far behind the US in terms of technical efficiency, and productive capital stocks were significantly below equilibrium levels due to war-time destruction. As a result of two decades of depression and war, Japan and Europe had done little to adapt and commercialize the new technologies pioneered by the US. They could grow quickly and close much of the gap vis-à-vis the technological leader simply by sustaining high levels of investment in capital that embodied this backlog of available technologies.

Indeed, we should see the same pattern in the earlier history of the US itself. Table 2 (following Hayami 1998) shows that the US looked remarkably like the high-growth Asian economies today when it began the process of catching up to the technological leader (in that case, Great Britain) in the 19th century.<sup>6</sup> The share of output growth accounted for by the growth of TFP was little more than a third (essentially identical to the averages of the estimates for East Asia in recent decades obtained by Kim and Lau). As the US closed the gap and assumed technological leadership after 1890, the relative contribution of TFP growth to the growth of GDP rose to now conventional levels. As it was no longer possible to rely on known technologies embodied in capital goods to the same extent, the elasticity of output with respect to capital declined to familiar 20th century levels. The bottom half of Table 2 shows that the same broad pattern is evident in Japan, although the transition to more heavily TFP-based growth and the decline in the

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<sup>6</sup>Per capita incomes were already famously high prior to the initiation of industrialization and the emergence of the modern multidivisional corporation pioneered by the US, which might be taken to indicate that the country was the technological leader. So too might the country's singular success at machine building, as reflected in the Crystal Palace Exhibition in 1851. But this reflected an unusual abundance of productive land and natural resources, which put a floor under real wages, and the country's singular success at producing labor-saving machinery for a relatively small number of industries (see Temin 1966, and James and Skinner 1985).

elasticity of output with respect to capital occur later and although capital accumulation continues to play a disproportionate role, even in recent decades.<sup>7</sup>

Table 2. **Long-term Growth in Labor Productivity and Total Factor Productivity in the United States and Japan**

	Income Share of Capital $\beta$	Average Growth Rate per Year (%)			TFP G(A)	Percentage Contribution of TFP (G(A)/G(Y/L))
		Labor Productivity G(Y/L)	Capital-Labor Ratio G(K/L)	Contribution of Capital $\beta$ (K/L)		
<b>United States (Private Gross Domestic Product)</b>						
1855-1890	0.45	1.1	1.5	0.7	0.4	36
1890-1927	0.46	2.0	1.3	0.6	1.4	70
1929-1966	0.35	2.7	1.7	0.6	2.1	78
1966-1989	0.35	1.4	1.8	0.6	0.8	57
<b>Japan (Nonprimary Gross Domestic Product)</b>						
1855-1890	0.39	2.7	6.1	2.4	0.3	11
1890-1927	0.43	2.3	2.8	1.2	1.1	48
1929-1966	0.33	8.2	11.6	3.8	4.4	54
1966-1989	0.28	3.8	7.4	2.1	1.7	45

TFP means total factor productivity.

Notes: Y: Defined in parentheses in the left column.

L: Work hours.

K: United States in total fixed capital. Japan in reproducible capital (adjusted for utilization rate).

Source: United States from Abramovitz (1993, table 1, p.223); Japan from Hayami and Ogasahara (1995, table 2).

Overall, the implication is that Asian growth is not unique, however different it looks from that of many high-income countries in the 1990s. Factor accumulation has mattered more, the growth of TFP less, because the region was relatively late to develop. And as Asia approaches the technological frontier, it will find it harder to sustain rapid growth with high investment, since it will already have in place many of the technologies embodied in new capital equipment. The elasticity of output with respect to capital will decline to more conventional levels.

<sup>7</sup>Two caveats are worth noting. First, the data for the US display a decline in the relative contribution of TFP growth in the period after 1965, reflecting the productivity slowdown of the 1970s and 1980s. Extending these estimates into the 1990s, the period of the "new economy", would of course strengthen the interpretation in the text. In contrast, extending the data for Japan into the 1990s would cast further doubt on the interpretation emphasizing a growing role for TFP growth, since this was a decade when output growth in Japan was depressed but domestic investment was sustained at high levels; as a matter of simple arithmetic, productivity growth was slow. But this plausibly was a cyclical aberration, reflecting the country's economic and financial crisis, rather than a change in the secular pattern of growth.

### C. The Asian Model

To the extent that Asian growth is unique, its uniqueness lies in the arrangements developed to facilitate the process of closing the technological gap. This is where the debate over the nature of the Asian model comes in. Two views, both represented in World Bank (1993), are that Asia's success in catching up reflects its singular reliance on, alternatively, market forces and government guidance for achieving the requisite allocation of resources. From this thesis and antithesis have emerged a synthesis according to which market forces succeeded in sustaining a rapid rate of growth because of the institutions, constructed by government and society, which provided the structure needed for their operation. Governments pursued policies and nurtured institutions to promote saving, from postal savings systems to end-of-year bonuses. Financial systems organized around a relatively small number of large banks, which could be influenced and directed by the authorities, funneled these savings into investment. Subsidies for firms in strategic sectors and barriers to entry, by creating rents and solving coordination problems, ensured that the investment in question was profitable. Interest-rate controls made it more difficult for firms not favored by the authorities to bid for scarce finance. Land reform, public spending on rural infrastructure, deliberative councils, and tripartism provided the necessary reassurance that the returns to these high levels of saving and investment would be widely shared.

These policies and institutions were tailored to facilitate growth based on factor accumulation rather than growth based upon increases in TFP. Policies that encouraged capital accumulation delivered rapid growth so long as the elasticity of output with respect to capital was high. A relatively even distribution of income, implying that higher living standards would be widely shared, favored saving and investment.<sup>8</sup> A bank-based financial system, in which large financial institutions developed long-term relationships with leading industrial firms, was ideally suited to growth based on known technologies, where the problem was not to choose among competing techniques but rather to implement them with as much capital as necessary. A bureaucracy that attempted to "pick winners" was conducive to growth and efficiency when the potential winners, namely firms in those sectors best placed to adapt and implement foreign technologies, were straightforward to identify.

All this is by way of saying that as Asian economies close the gap vis-à-vis the technological leaders, they will have to "graduate" from a growth model based on accumulation to a growth model based on innovation. They will have to adapt their institutions accordingly. And they will have to do so in a manner consistent with the opportunities and constraints of globalization.

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<sup>8</sup>Where greater inequality reflecting the operation of high-powered incentives would have been more conducive to innovation and risk taking.

### III. MANAGING INNOVATION

The policies and institutions that a country uses for managing innovation are referred to as its “national innovation system” (Freeman 1987, Nelson 1992) or its “national system of economic learning” (Kim 1997, Mathews and Cho 2000). The national innovation system is defined as the network of public and private institutions that funds and performs research and development (R&D) and disseminates and commercializes the results, while the national system of economic learning can be understood as the institutional framework used to support R&D-led and market-mediated efforts to absorb, adapt, diffuse, disseminate, and improve new technology. International comparisons emphasize the diversity of such systems (see, e.g., Mowery and Oxley 1995). At the same time they discern sufficient similarities to justify referring to “the Asian model.”

This Asian model in its early stages of development was tailored to transfer technologies from abroad rather than to develop them at home. This made sense for Asian economies that were relatively late to develop and could take rapid strides simply by importing and assimilating foreign technologies. Thus, other countries emulated the “MITI-model” of industry creation, predicated on the assumption that the appropriate technology already exists, that there is no need to create it from scratch, and that it can be acquired “by one means or another” (Mathews and Cho 2000, 76).<sup>9</sup>

But the longer Asian rates of growth outstripped comparable rates in Europe, Japan, and US, the closer Asia drew to the technological frontier. Closer to the frontier, the rate of return to innovation is greater, while the rate of return to emulation is less (Krugman 1985). Put another way, as convergence proceeds, growth responds less to capital formation and more to R&D and other sources of productivity advance (see Gittleman and Wolff 1995, and Pianta 1995).<sup>10</sup> There is overwhelming evidence that the production of new technologies takes place close to a firm’s home base (Freeman 1995, Patel 1995) and that technological spillovers weaken with distance (Keller 2000) even in our technologically globalized world. This points to the need to remake the Asian model to encourage innovation rather than emulation.

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<sup>9</sup> The elements of the model were well known. As these authors describe them, MITI first selected a field with innovation and spin-off potential. After extensive study, it decided whether to target the industry. Targeting entailed pump-priming subsidies designed to get some generic technology developed and to encourage firms to follow up on the commercial possibilities. Where needed, government leverage was used to acquire foreign technology on favorable terms. The recipient firms were then encouraged, through administrative coordination and other mechanisms, to avoid “destructive competition”, coordinate the adaptation and commercialization of the new technology, and collaborate in R&D.

<sup>10</sup> This is evident in the tendency, described in Section II above, for the elasticity of output with respect to capital to decline as an economy matures.

As Mathews and Cho (2000) document, the Asian model has already evolved in this direction. At the same time, the fear remains that because institutions exhibit inertia, Asian innovation systems designed for importing and adapting known technologies remain imperfectly suited to nurturing the radical innovations needed if countries are to remain near the frontier in our technologically dynamic, globalized world.

### A. Channels

Channels for the acquisition of technology from abroad include licensing, capital goods imports, turnkey plants, foreign direct investment, joint ventures, strategic alliances, and outsourcing. Of these, capital goods imports, licensing, and joint ventures have long been the staples of the Asian model; they have been the mechanisms compatible with the late development of Asian economies and with the desire of Asian governments to promote the acquisition of technology and encourage productivity spillovers.

Capital goods imports have long been a key element of the Asian innovation system. Reflecting this fact, East Asian countries have a higher propensity to import capital goods than the typical developing country. New technologies are embodied in new capital goods, and importing and utilizing such equipment opens up opportunities for learning by using and reverse engineering. Table 3 shows machinery imports as a percentage of domestic expenditures on machinery for six economies at different stages of development, including two Asian economies. The contrast is striking between India, which has long encouraged domestic substitutes for imports of capital goods, and Korea, which has relied disproportionately on equipment for technology transfer.<sup>11</sup>

Table 3. **Machinery Imports as a Percentage of Domestic Expenditures on Machinery (ISIC 38)**

India (1983-84)	0-18
Korea (1983)	0-41
Sweden (1982)	0-56
Norway (1982)	0-57
Denmark (1982)	0-70
Netherlands (1980)	0-61

Source: Mowery and Oxley (1995).

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<sup>11</sup>Mathews and Cho (2000) similarly emphasize the disproportionate importance of capital goods imports for technology transfer in Korea. In this context it is interesting to note that the figures for Korea are still lower than those for the smaller European countries, perhaps reflecting the historical protection of Korean industry.

Information on licensing is harder to obtain. Incomplete data suggest substantial reliance on this channel: OECD (1992) reports that Korean spending on licences for imports of technology grew tenfold between 1982 and 1991. Historically, Asian governments have preferred “unpackaged” forms of technology transfer such as licensing to the construction of greenfield plants by foreign investors, on the grounds that licensing (like similarly unpackaged capital-goods imports) offers greater scope for technology transfer.<sup>12</sup> For similar reasons, Asian governments have generally preferred joint ventures to stand-alone operations by foreign multinationals and their subsidiaries.<sup>13</sup>

On the other hand, foreign direct investment (FDI) has the advantage that it is a channel for transferring managerial and technical expertise, which comes bundled with foreign plant and equipment. Such expertise will be particularly valuable when the importing country is attempting to implement relatively sophisticated foreign technologies with a high tacit component. The technologies transferred through wholly owned foreign projects tend to be newer and closer to the technological frontier than those associated with joint ventures and licensing agreements.

Finally, in sectors where minimum efficient scale is modest and foreign managerial and technical expertise is less important, foreign technologies can be acquired via contract manufacturing and assembly operations (that is, being on the receiving end of outsourcing). Such operations facilitate learning by doing. They are an attractive option in a world where information technology allows domestic production to be networked with foreign producers and limits economies of scale.

Table 4 (also reproduced in Mathews and Cho 2000) shows the evolution of these different sources in the Korean case. The special importance of capital goods imports as a source of technology transfer to Korea is apparent throughout the period. Also evident, however, is the economy’s reliance on FDI in the early-to-mid 1970s. The importance of FDI declined thereafter, as policy sought to emphasize different channels for technology transfer and to protect indigenous producers from multilateral competition. In its place licensing as a source of technology transfer was promoted. Comparable figures for Taipei, China would highlight that economy’s greater reliance on licensing, while those for Malaysia and Singapore would show the importance of FDI by multinationals.

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<sup>12</sup>There is some evidence in support of this view; thus, Belderbos et al. (2000) find that local content and related spillovers tend to be lower in Japanese electronics firms’ greenfield subsidiaries than in their joint ventures in the ASEAN-4 countries and People’s Republic of China (PRC).

<sup>13</sup>The PRC government in particular has encouraged joint ventures over wholly owned subsidiaries. In fact, the evidence that licensing and joint ventures lead to more learning by local firms is scant to nonexistent (see Saggi 1999).

Table 4. **Korea: Channels of Technology Leverage in all Industries, 1965-91**  
(\$ millions)

	1962-66	1967-71	1972-76	1977-81	1982-86	1987-91
FDI	47	219	879	721	1,768	5,636
Licensing	1	16	97	451	1,185	4,359
Technology Consultants	0	17	18	55	332	1,348
Capital Goods	316	2,541	8,841	27,978	44,705	52,155
Total	364	2,793	9,835	29,205	47,990	63,498

Source: Based on Hong (1994, table 7).

## B. Policies

Each of these channels for technology transfer has been fostered by policy. The application of uniform tariff rates that do not discriminate against capital-goods imports has already been noted. Similarly, Asian governments, following the example of Japan, have sought to secure technology licences for domestic producers on the most favorable possible terms and made entry by foreign multinationals contingent on such licensing agreements.<sup>14</sup>

Asian governments have also pursued policies to maximize the spillovers and externalities associated with licensing, foreign direct investment, capital goods imports, and outsourcing, again taking a cue from Japan, which in the 1950s and 1960s required technology licensing as a quid pro quo for permission for foreign firms to engage in FDI in the Japanese market, encouraged domestic firms to bundle imports of heavy electronic machinery with licences to produce copies of the equipment, and supported entry by domestic producers into the production of this equipment (Ozawa 1985). Thus, Korea both protected domestic producers and placed pressure on foreign joint venture partners in the 1970s to withdraw and leave the field to indigenous firms (Mathews and Cho 2000, 19). The Korean Law for Promotion of Engineering Services, adopted in 1973, stipulated that all government-financed projects should engage local engineering firms as the prime contractor. A 1976 revision extended favorable tax treatment to local engineering firms involved in such projects (Kim and Ma 1997).

Macroeconomic, trade, and financial policies are integral to the Asian system of innovation. Stable monetary and fiscal policies, supplemented by favorable demographics, supported high levels of saving. Much of this saving was channeled through government-controlled bank and postal savings systems that provided concessionary credits to firms and conglomerates in technologically progressive

<sup>14</sup>Thus in the 1950s and 1960s, MITI encouraged the negotiation of unpackaged technology transfer in the form of patent rights, detailed drawings, operating instructions, and manuals. Often it informally designated a particular firm to negotiate with a specific foreign company and sometimes delayed its approval in order to enhance that firm's bargaining power or made approval conditional on the extension of lower licensing rates (Kim and Ma 1997).

sectors. More controversially, controls on capital exports were used to ensure that domestic saving, once mobilized, was devoted to capital formation at home. Japan; Korea; and Taipei, China all employed such restrictions in the early stages of their industrial growth, and the People's Republic of China (PRC) continues to do so.<sup>15</sup> Barriers to entry by multinational corporations and domestic start-ups gave incumbents Schumpeterian breathing space to learn by doing. Where economies of scale were important and where multidivisional structure was seen as necessary to capture technological spillovers, governments of countries like Korea provided preferential credit for the growth of integrated industrial groups. Since leading-edge technologies (for integrated steel making in the 1970s and 1980s, or semi-conductors in the 1990s) were characterized by substantial minimum efficient scale and dynamic increasing returns, policies of export promotion were used to overcome the constraints posed by limited domestic markets, while the imperative of exporting exposed producers to the discipline of foreign competition.

Asia is not alone in pursuing policies to encourage the transfer of advanced technologies from abroad, although it arguably has had more success than most other late-developing regions. This success can be attributed to three factors. First, Asian economies possess the engineers and scientists needed to recover the principles underlying foreign technologies, which in turn facilitates the dissemination of techniques from foreign firms to domestic producers and allows substitutes for foreign capital goods to be produced at home at a relatively early date.<sup>16</sup> Hong Kong, China; Singapore; and Taipei, China have long been ahead of other developing countries in the share of their populations enrolled in post-secondary education in scientific and engineering fields and have encouraged the best students in these fields to acquire advanced training abroad. One of Singapore's first initiatives when the decision was taken to attract foreign high-tech producers was to train a cadre of knowledge workers. Korea and Taipei, China have established publicly funded advanced research institutes staffed by these scientists and engineers trained at foreign universities, and encouraged them to establish links with commercial firms. That such initiatives have enhanced absorptive capacity is clear.

A more controversial assertion is that the Asian system of innovation was successful because firms were subjected to relatively intense competition, applying pressure to emulate best practice, specifically the best-practice techniques of foreign-owned and operated firms. The intensity of the competition to which producers in Asia's rapidly industrializing economies have been exposed is

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<sup>15</sup>At the same time, Hong Kong, China; and Singapore promoted savings, investment and technology transfer while permitting—indeed, encouraging—the free international flow of portfolio capital.

<sup>16</sup>Thus, Urata and Kawai (2000) measure technology transfer by comparing the level of TFP between parent firms and overseas affiliates, and find that transfer is highest for Asian countries with relatively ample supplies of scientists and engineers.

contested.<sup>17</sup> Instances can be cited where incumbent firms enjoyed protection from foreign competitors and domestic entrants and devoted their energies to lobbying government against granting licences to new entrants rather than to raising productivity.<sup>18</sup>

Third, it is asserted that this Asian system of innovation was successful because restraints on entry and other policy interventions were guided by well-defined rules and because technocrats enjoyed the bureaucratic autonomy necessary to avoid capture by domestic industry. Bureaucrats are protected by civil service systems that ensure adequate compensation and merit- (exam-) based recruitment and promotion, and disciplined by strictly enforced dismissal policies. Japan, Korea, and Singapore are the paradigmatic cases. Early land reform and support for small- and medium-scale industry was similarly important for preventing the emergence of concentrated interests positioned to capture the policy making process.

This argument has been rendered controversial by the Asian crisis; where commentators once wrote approvingly of “bureaucratic autonomy”, they now decry “crony capitalism.” The capture of industrial policy, in this view, is as much a problem in Asia as in other parts of the world. Perhaps the traditional interpretation was never right, or maybe the new emphasis on crony capitalism is overdrawn.

Or possibly problems of capture have intensified with time. The longer industrial policies are pursued, the more intimate become the connections between the regulators and the regulated. The longer the period for which preferences are extended to certain firms and sectors and the greater the government’s emphasis on solving coordination problems, the larger grow the leading firms and conglomerates, and the more able they are to influence policy. And as the economy grows more technically sophisticated, monitoring the performance of the enterprises receiving preferential treatment grows more difficult for the bureaucrats.

### C. Adapting to Globalization

This argument—that policies of bureaucratic direction that worked well at an earlier stage of Asia’s technological development work less well today, is a specific illustration of a more general point. National systems of innovation and learning are dynamic: their structure varies with time. In early stages of their industrial development, Asian countries relied heavily on arms-length transac-

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<sup>17</sup>In addition, this argument is controversial because of Schumpeter’s thesis that a degree of restraint of competition may actually encourage technical progress by giving firms the breathing space they need to experiment with unproven techniques.

<sup>18</sup>Kim and Ma (1997) cite the Indian petrochemical industry in this connection. To the extent that competitive pressure has been felt, this would appear to have been experienced mainly by export-oriented firms.

tions—technology licensing and purchases of foreign capital goods—and less on foreign direct investment, joint ventures, and outsourcing. Adopting licensed technologies arguably requires more limited adaptations of domestic economic structure than FDI and joint ventures, which will be attractive to foreign firms only if the economy is comprehensively restructured. Licensing also tends to be a source of less sophisticated technologies (Mansfield et al. 1982). Thus, as economies approach the technological frontier, they increasingly prefer FDI. Because joint ventures also tend to transfer older and less sophisticated technologies (Smarzynska 1999), there is a similar tendency to move away from them as a country approaches the technological frontier. This evolution of the national system of innovation also finds reflection in the growing R&D-intensity of domestic firms.

But while there is a tendency for national innovation systems to evolve as the economy matures, there is also a tendency for the policies and institutions developed for and appropriate to earlier stages of economic and technological development to become locked in. Thus, if small firms are disproportionately responsible for the development of new technologies, then at some point industrial policies conducive to the growth of large conglomerates will become an obstacle to innovation.<sup>19</sup> And the existence of those large conglomerates will create pressure to retain those policies. If the development of new technologies requires venture capital to fund start ups, and if venture capital can be allocated efficiently only by decentralized securities markets, then a relatively concentrated bank-based financial system, while once having been appropriate to funding large firms using known technologies subject to substantial minimum efficient scale, will now become an obstacle to indigenous innovation.<sup>20</sup> Moreover, the existence of those large banks will create pressure to slow the emergence of the securitized markets needed to efficiently allocate capital to research-intensive activities. Increasingly, the pre-existing system of innovation will be a barrier to technical change.

Moreover, as globalization proceeds, the national innovation systems of the continent's early developers may no longer be available to the latecomers. The multinational corporations that are the source of advanced technologies are

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<sup>19</sup>Acs and Audretsch (1987, 1990) find that smaller firms (with fewer than 500 employees) have a higher number of innovations per employee in a majority of US industries. The subsequent literature has reached mixed conclusions, although it is fair to say that a majority of studies find that R&D intensity is greatest for relatively small and relatively large firms, and least for middle-sized firms. Also relevant in this connection are the conclusions of Cohen et al. (1987), who find that if size favors R&D, it is the size of the business unit and not the overall size of the firm that matters, which does not favor the conglomerate form of organization adopted in some Asian countries.

<sup>20</sup>Carlin and Mayer (1998), using data from 27 industries in 20 countries, show that equity-financed industries tend to carry out more R&D and employ more highly skilled workers, while bank-financed industries tend to be more physical-capital-intensive (see also Hoshi et al. 1990).

inclined to license the latter only when they are prevented from setting up their own branch plants utilizing these techniques in promising foreign markets themselves. As more emerging markets have thrown open their economies to foreign direct investment, it becomes harder for individual governments to insist on licensing as an alternative. Even as Korea has created a world-class electronics industry while minimizing its reliance on FDI, as firms there and elsewhere in Asia are recognized as competitors by US producers, the latter will become more reluctant to license them their most advanced technologies.<sup>21</sup>

If it is correct that globalization makes it more difficult for economies to approach the technological frontier by importing capital goods, luring foreign direct investment, and licensing foreign technologies, and if it is correct that Asian economies as they reach more advanced stages of technical development must in any case rely more heavily on indigenous technical change, then the Asian system of innovation must be comprehensively remade. Preferences for large firms and conglomerates must be removed. Banks will have to give way to securities markets. Governments' command over resources and technocrats' efforts to control their allocation will have to be reduced.

This is not to say that the Asian system of innovation will become indistinguishable from its foreign counterparts. On the contrary, certain features of the Asian system are eminently well suited to a globalized, technically fluid world—and these are strengths on which the Asian model can build. The emphasis on export competitiveness remains an admirable characteristic of national systems of innovation faced with rapidly changing technologies and globalized production. Investments in scientists and engineers should of course remain a high priority. Governments should still encourage and actively support collaboration between universities, technical institutes, and private-sector firms and promote the commercialization of new technologies.

That said, the Asian system of innovation will have to be renovated top to bottom. This will require the same concerted efforts that Asian countries used to initiate industrialization and transfer technology from the West after World War II. But this time it will require taking government out of the process rather than putting it in.

#### IV. MANAGING POVERTY

Globalization will be most warmly received if its benefits are widely shared. The fact that economies that are more deeply integrated into global markets tend to have larger public sectors can be understood as providing social protection for

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<sup>21</sup>Similarly, insofar as the Internet allows firms to outsource the production of components internationally, it makes it harder for governments to promote the transfer of advanced technologies by requiring the construction of branch and turnkey plants.

those who cannot protect themselves from the volatility and pressures of globalization (Rodrik 1998). Such protection helps to support the broad-based political coalition needed to sustain a commitment to openness. It facilitates the quick policy adjustments needed to absorb globalization-related shocks insofar as there is the perception that the costs of adjustment, like the benefits, are equitably shared.<sup>22</sup>

There are two characterizations of the links between globalization and poverty. One current in the advanced industrial economies is that globalization aggravates inequality by increasing skill premiums and reducing the demand for unskilled labor.<sup>23</sup> There appears to be evidence for individual countries, such as PRC and Thailand, that opening and globalization aggravate inequality and lead to an increasing concentration of poverty in particular regions and occupations (see Ahuja et al. 1997; Table 5 for trends in poverty in Asia). However, systematic cross-country empirical studies of developing countries provide little support for this claim. Dollar and Kraay (2000) find no evidence that openness to foreign trade benefits the poor less than the whole economy. They find no evidence that the presence or absence of capital account restrictions has a differential impact on the relative status of the poor.

The other view is that globalization increases risk rather than redistributing income, and that the poor are least able to cope with the consequences. The poor have the least savings. They have the fewest assets and least valuable collateral. They are least able to afford insurance. Hence, they suffer disproportionately from the insecurity caused by globalization.<sup>24</sup>

For countries seeking to capitalize on globalization, this points to the need for two policies: for the short term, insurance against shocks; and for the long term, measures to foster the accumulation of forms of human capital that are useful in an economically globalized world, specifically among socioeconomic groups that have not traditionally possessed them.

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<sup>22</sup>The advantages of shared growth are a theme of much of the recent literature on the Asian Model: see for example World Bank (1993) and Campos and Root (1996). Rodrik (1997) links the concept to ease of adjustment to external shocks.

<sup>23</sup>In relatively poor developing countries, however, the opposite is plausibly true: openness and globalization should lead to increasing specialization in the production and export of labor-intensive goods, not skill-intensive goods.

<sup>24</sup>Agenor and Aizenman (1998) show that globalization that raises growth but also raises volatility can reduce welfare when costly state verification makes insurance difficult to obtain. While the authors do not explicitly distinguish the poor, it is to them that the rationing of insurance most plausibly applies.

Table 5. Poverty in East Asia, 1975-1995

Economy	Number of People in Poverty (millions)				Head-count Index (percent)				Poverty Gap (percent)			
	1975	1985	1993	1995	1975	1985	1993	1995	1975	1985	1993	1995
East Asia <sup>a</sup>	716.8	524.2	443.4	345.7	57.6	37.3	27.9	21.2	n.a.	10.9	8.4	6.4
East Asia excluding												
PRC	147.9	125.9	91.8	76.4	51.4	35.6	22.7	18.2	n.a.	11.1	6.0	4.6
Malaysia	2.1	1.7	<0.2	<0.2	17.4	10.8	<1.0	<1.0	5.4	2.5	<1.0	<1.0
Thailand	3.4	5.1	<0.5	<0.5	8.1	10.0	<1.0	<1.0	1.2	1.5	<1.0	<1.0
Indonesia	87.2	52.8	31.8	21.9	64.3	32.2	17.0	11.4	23.7	8.5	2.6	1.7
PRC	568.9 <sup>b</sup>	398.3	351.8	269.3	59.5 <sup>b</sup>	37.9	29.7	22.2	n.a.	10.9	9.3	7.0
Philippines	15.4	17.7	17.8	17.6	35.7	32.4	27.5	25.5	10.6	9.2	7.3	6.5
Papua New Guinea	n.a.	0.5	n.a.	1.0 <sup>c</sup>	n.a.	15.7	n.a.	21.7 <sup>c</sup>	n.a.	3.7	n.a.	5.6 <sup>c</sup>
Lao PDR <sup>d</sup>	n.a.	2.2	2.2	2.0	n.a.	61.1	46.7	41.4	n.a.	18.0	11.5	9.5
Viet Nam	n.a.	44.3	37.4	31.3	n.a.	74.0	52.7	42.2	n.a.	28.0	17.0	11.9
Mongolia	n.a.	1.6	n.a.	1.9	n.a.	85.0	n.a.	81.4	n.a.	42.5	n.a.	38.6

n.a. means not available.

Note: All numbers in this table (except for Lao PDR) are based on the international poverty line of \$1 per person per day at 1985 prices. Italics are explained in Appendix A.

<sup>a</sup>Includes only those economies presented in the table.

<sup>b</sup>Data are for 1978 and apply to rural PRC only.

<sup>c</sup>Data are for 1996.

<sup>d</sup>Available data on purchasing power parity (PPP) exchange rates and various price deflators for Lao PDR are not very reliable and lead to anomalous results. Poverty estimates for Lao PDR are not very reliable and lead to anomalous results. Poverty estimates for Lao PDR are based on the national poverty line, which is based on the level of food consumption that yields energy level of 2,100 calories a person per day and a nonfood component equivalent to the value of nonfood spending by households who are just capable of meeting their food requirements (see World Bank 1995a for details). While the \$1 a day poverty line is based on characteristic poverty lines in low-income countries that have comparable food and nonfood consumption needs, this is a different methodological approach than that used for the rest of the economies in the table. Thus the poverty estimates for Lao PDR are not strictly comparable to those for other economies.

Source: World Bank staff estimates.

## A. Social Insurance

Insurance provides protection against accidents. In the context of globalization, the relevant accidents can range from sharp changes in relative prices on world markets to full-blown economic and financial crises. Building an effective social safety net takes time, however; ramping up programs in response to a crisis can be difficult and inefficient (Birdsall and Haggard 2000). This makes it important to put in place the infrastructure providing social protection before a crisis strikes.

To maximize bang for the buck, the safety net should be targeted at the poor. To limit welfare dependency, it should offer support for a limited period of time. Once one moves beyond these generalities, however, difficult issues of

design immediate arise. Insofar as there is a consensus on these issues, it runs as follows.

- (i) *The safety net should provide workfare for those able to work.* Workfare is a relatively efficient way of providing relief, especially when local input is used in selecting works projects and the workers are also the beneficiaries of the public works in question (which helps with quality-control problems: see Ravillion 1999). Workers can be offered public employment at a wage equal to, say, 90 percent of the wage for unskilled agricultural labor prior to the crisis. Workfare designed in this way will protect the poorest workers against the loss of income associated with the crisis without drawing other workers away from private employment or encouraging welfare dependency.

South Asia has been a pioneer among developing countries in the development of workfare programs. The Indian State of Mahrastra is known for its Employment Guarantee Scheme, which efficiently targets the poor.<sup>25</sup> Bangladesh has experimented with similar programs, though these have been limited by the availability of donor resources to finance them. Sri Lanka's Janasaviya Program makes entitlement to food coupons conditional on a household supplying 24 days of labor monthly to rural public works projects; in contrast to Bangladesh's program, it enjoys dedicated budgetary funding. These programs are not free of criticism: women receive only 25 percent of the benefits, many of the assets created are of poor quality, maintenance is inadequate, and wages are often too high to provide efficient self targeting (Subbarao, Braithwaite, and Jalan 1995). Still, they are an obvious element of the social safety net that societies need to build to protect their poorest members.

- (ii) *The safety net should provide targeted transfers to those unable to work.* Workfare should be supplemented with cash transfers targeted at subgroups such as the elderly and pregnant women. Effective targeting maximizes the budgetary bang for buck. On the other hand, targeting runs the risk of creating social stigma for the recipients, especially in the Asian context (Birdsall and Haggard 2000). And an emphasis on targeting can create a clash between poverty alleviation, strictly defined, and other social programs,

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<sup>25</sup>The relatively low wage, which is only a fraction of the formal sector minimum wage, encourages self-selection by the poor.

such as the provision of education, which are universal and investment-based.

Making targeting effective is a perennial problem in such programs, since politically powerful groups seem to be able to insist on a share of the spoils. India's Public Distribution System has long been criticized for failing to target its benefits.<sup>26</sup> Bangladesh's public food distribution scheme is said to cost six times the value of the transfers actually received by targeted households. The Philippines' generalized food subsidy program costs the government three pesos for every peso transferred to households, and the households in question are not generally the poorest.<sup>27</sup>

- (iii) *The safety net should provide credit for those affected by the fallout from financial crises.* Crisis conditions can force poor households into distress sales of productive assets that depress their postcrisis income and productivity. Disruptions to financial markets can interrupt access to the trade and producer credit needed to obtain essential inputs. Limited amounts of credit extended in response to these disruptions should therefore minimize the adverse consequences for poor households. Here, too, Asia has considerable experience with such programs, providing a foundation on which to build. India's Integrated Rural Development Program provides credit to means-tested households for purchases of nonland assets. While it has been criticized for not reaching the poorest households or only doing so at considerable budgetary cost, the approach taken by Bangladesh's Grameen Bank is seen as a solution to this problem. Credit has been effectively channeled to the ultrapoor, including women. Studies suggest that participants' incomes rose by more than 50 percent relative to those of the relevant control groups (Khandker, Khalily, and Khan 1994).

Poverty alleviation should build on the existing safety net. As noted above, scaling up existing workfare, microcredit, and targeted transfer programs in response to a crisis is easier than creating new programs from scratch. Additional

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<sup>26</sup>An exception is the state of Kerala, where the poorest 60 percent of the population has historically received 80 to 90 percent of the benefits. Other Indian states are now using various forms of means testing to more effectively target PDS benefits. Sri Lanka's food stamp program also appears to be relatively well targeted.

<sup>27</sup>Thus, in the first half of the 1990s, the National Capital Region and Cagayan Valley, which account for less than 3 percent of the poor (measured in terms of nutritional standard) received 35 percent of the subsidized rice (Subbarao, Braithwaite, and Jalan 1995).

support can be distributed through existing channels and can build on the existing administrative infrastructure.

While South Asia has considerable experience in the administration of such programs, the limited success of the poverty alleviation efforts in East Asia in 1997-1998 can be understood in terms of the absence of pre-existing safety net programs that could be quickly ramped up.<sup>28</sup> While the proportionate increase in spending on such programs was largest in Korea, where it rose from negligible levels prior to the crisis to nearly five percent of the budget, and in Indonesia, where the budgetary share rose from very low levels to 3.6 percent, in both cases only a fraction of the poor was covered. In Korea, safety net programs covered only a third of the poor prior to the crisis, and this share fell to 17 percent in 1998 despite rapid increases in spending. As of June 1998, only 7 percent of the 1.5 million unemployed had received unemployment benefits. Numbers participating in the government's newly created workfare scheme reached 200,000 at the beginning of 1999, but there were more than 700,000 applicants for these positions (despite the fact that they paid submarket wages), again indicating the partial nature of coverage. Indonesia, for its part, introduced a public works scheme and a rice distribution program. Estimates suggest that no more than a third of poor Indonesian households have participated in some form. Birdsall and Haggard (2000) argue that well-organized rural lobbies prevented the program from being extended to the urban poor. And while the rice distribution scheme made available to targeted households ten kilos of medium-grade rice each month at subsidized prices, this was the equivalent to only a small fraction of the income of a household living at the poverty line.<sup>29</sup>

## **B. Structural Remedies**

Turning from crises to structural sources and remedies for poverty one finds an enormous literature. The standard emphases for relatively poor countries like those of South Asia are on land reform, education, the abolition of pricing policies that discriminate against agriculture, and the creation of a stable macroeconomic and legal framework. Education is associated with the adoption of relatively innovative agricultural technologies by rural residents, and perhaps more importantly, from the point of view of income distribution and poverty alleviation, facilitates their movement from rural to urban employment. Market liberalization and stable macroeconomic and legal frameworks stimulate growth, whose benefits filter down to the poor. A relatively equal distribution of land encourages the

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<sup>28</sup>In addition, of course, there was the exceptional severity of the crisis and the budgetary strains it entailed. Manuelyan Atinc and Walton (1998) estimate that a fully-funded workfare program in Indonesia would have cost the central government of that country as much as 5 percent of GDP, where precrisis spending on safety net programs was less than a tenth this amount.

<sup>29</sup>Data and estimates in this paragraph are from World Bank (2000).

adoption by family farmers of economically and organizationally efficient modes of cultivation.

These points are well known; the question is what difference, if any, globalization makes for the antipoverty agenda. Because globalization exposes national economies to external shocks, it requires workers as well as firms to be quick on their feet. The implication is that educational spending should impart general knowledge rather than technical training and sector-specific skills. The literature on this subject (e.g., Heckman 2000) shows that such general knowledge is imparted most efficiently at early stages in the education process. This suggests targeting educational subsidies at primary education and ensuring that the poorest (and both genders) are included. The first point feeds into an Asian strength: the high-performing Asian economies have long allocated a disproportionate share of educational spending to basic as opposed to higher education.<sup>30</sup> In contrast, the second observation points to the need to reorient the Asian model, which has traditionally focused heavily on vocational training of sorts that are likely to be less easily transferred in a rapidly changing high-tech world.

Recent contributions to the development literature (e.g., Lopez, Thomas, and Wang 1998) suggest that a more equal distribution of education has a positive impact on average per capita incomes. The obstacle to a more equal distribution of education, according to much of the development literature, is the fact that the extra income from child labor, which is indispensable to poor families, comes at the expense of the children's longer-term prospects of escaping poverty through education.<sup>31</sup> And insofar as openness leads poor countries to specialize in the production and export of labor-intensive goods, there is the danger that globalization will draw poor children out of school. Targeted subsidies for school attendance are an obvious policy response. Bangladesh's Food-for-Education Program, which offers a stipend to selected participants (somewhat more than the equivalent of 13 percent of monthly earnings for boys and 20 percent for girls) has demonstrated an ability to ensure nearly full school attendance by those to whom it is extended.<sup>32</sup> Early evidence similarly suggests that Indonesia's Stay in School

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<sup>30</sup>World Bank (1993) takes the contrast between Venezuela and Korea as illustrative: whereas Venezuela allocated 43 percent of its education budget to higher education in 1985, in the same year Korea allocated only 10 percent to higher education. While government finance in Korea accounts for nearly 100 percent of the direct costs of primary schooling, it provides less than 50 percent of such costs for tertiary education.

<sup>31</sup>The ancillary assumption is that parents cannot borrow to finance schooling.

<sup>32</sup>Ravillion and Wodon (1999) find, however, that reductions in the incidence of child labor account for only a proportion of the increase in school enrollment. Taken literally, their results suggest that many households are substituting children's leisure for their schooling. But it is also not possible to reject the hypothesis that informal, nonreported work is the actual substitute for schooling. Similar results obtain for the *Bolsa Escola* program in Brazil—both its effectiveness in increasing school enrolment and its uncertain effects on child labor (Sedlacek, Ilahi, and Gustafsson-Wright 2000).

program, which provides grants to the poorest schools and transfers to the poorest students, has been similarly effective (Birdsall and Haggard 2000, 31). Such programs have the additional advantage that local schools are important stakeholders, leading them to become actively involving in monitoring and administering their operation.

## V. MANAGING VOLATILITY

Globalization, recent experience has made clear, can be a source of volatility. As they integrate into the global economy, emerging markets are increasingly exposed to disturbances emanating from outside their borders. For example, the slump in global semiconductor prices, an instance of an adverse terms-of-trade shock, is blamed for undermining the health of the Korean economy in the run-up to its 1997-1998 crisis (Goldstein 1998). And as they become integrated into global markets, economies become increasingly susceptible to contagion-related spillovers from national, regional, and global financial crises. The fact that the PRC did not succumb to the Asian crisis has been ascribed to the fact that it retained capital controls and consequently was not deeply integrated into global financial markets. More generally, Eichengreen, Rose, and Wyplosz (1995) have shown that countries are more likely to be able to contain speculative pressure when they are not yet integrated into global financial markets. This is not to suggest that the costs of globalization swamp the benefits, but to emphasize the importance of developing institutions and pursuing policies aimed at limiting volatility and minimizing its adverse social consequences.<sup>33</sup>

### A. Effects of Volatility

There is now ample evidence of the costs of macroeconomic volatility.<sup>34</sup> Ramey and Ramey (1995) estimate that a unit increase in the standard deviation of the innovation in GDP reduces the rate of growth of GDP per capita by one-fifth of one percent per annum. Easterly and Kraay (1999) also find that an increase in the standard deviation of growth reduces the average annual rate of per capita growth by roughly the same order of magnitude as Ramey and Ramey.<sup>35</sup> Upon controlling for other determinants of the secular rate of growth that are standard in the empirical growth literature, IDB (1995) finds that growth depends negatively on the volatility of the terms of trade, the volatility of the real exchange rate, the

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<sup>33</sup>While the view that openness is a source of volatility is commonplace (and will strike many readers as intuitive), the evidence is mixed. Kraay (1998) analyzes the connections between financial openness and the volatility of capital flows and fails to detect a consistent effect.

<sup>34</sup>A compendium of research on this topic is Interamerican Development Bank (1995).

<sup>35</sup>Obvious issues arise about the direction of causality underlying all of these correlations that should be borne in mind when interpreting the results.

volatility of monetary policy, and the volatility of fiscal policy.<sup>36</sup> Using data ending in 1992, IDB estimates that real GDP (measured in growth rates) was half again as volatile in East and South Asia as in the advanced industrial countries.<sup>37</sup> De Ferranti et al. (2000), upon updating these calculations through the end of the 1990s (thereby including the Asian crisis), predictably find a larger differential: real GDP volatility has been fully twice as volatile in East Asia as in the industrial countries.<sup>38</sup> South Asia, for its part, lies midway between East Asia and the industrial countries according to these calculations.<sup>39</sup>

Does this volatility reflect external disturbances or domestic policies? For the period ending in 1992, the answer is “policies” if the comparison is with the industrial countries. On average, the external shocks experienced by East and South Asian countries have not been dramatically different in magnitude than those hitting the advanced industrial countries. The standard deviation of the change in the terms of trade was roughly the same.<sup>40</sup> Nor was the standard deviation of international capital flows as a percentage of GDP dramatically different than in Europe, Japan, and US.<sup>41</sup> But budget deficits were relatively volatile outside the four East Asian “miracle economies” (in which the volatility of fiscal policy is indistinguishable from the advanced-industrial countries).<sup>42</sup> And monetary policy was relatively volatile throughout the region. The IDB’s estimates imply that this volatility reduced growth in East Asia over the period 1960-1985 by about a tenth of a percent a year.<sup>43</sup>

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<sup>36</sup>The largest effects are associated with the volatility of the terms of trade and the real exchange rate. A variety of other studies (e.g., Mendoza 1994; Guillaumont, Jeanneney, and Brun 1999; Easterly and Kraay 1999) have also documented this association between terms-of-trade volatility and growth.

<sup>37</sup>In an accounting sense, much of this differential is attributable to investment (again measured in terms of its rate of growth), which was twice as volatile in the “East Asian Miracle” economies as the industrial countries over the sample period.

<sup>38</sup>Their estimates (Figure 2.1) include also seven Pacific countries.

<sup>39</sup>Thus, real GDP growth volatility as calculated by de Ferranti et al. (2000) has risen from 3 percent in the 1960s through 1980s to 4.5 percent in the 1990s for East Asia, but fallen from more than 2.5 percent to a bit more than 1.5 percent in South Asia over the same period.

<sup>40</sup>Terms-of-trade shocks can obviously be calculated in different ways, and decisions of how to do so may be important for such comparisons. Thus, de Ferranti et al. (2000) compare the volatility of the change in the terms of trade across regions and decades, but also interact this measure with the openness of the economy (to derive a measure they label “terms of trade shocks”). While terms-of-trade disturbances to South Asia in the 1990s were nearly four times as large as to East Asia according to the first measure, they were of identical magnitude according to the second.

<sup>41</sup>This pattern obviously changed as Asian economies opened their markets to international capital flows in the 1990s, as the 1997 crisis revealed, and the updated estimates to be discussed momentarily indicate clearly.

<sup>42</sup>The public consumption component of the budget, however, has consistently been more volatile in East Asia than the industrial countries (de Ferranti et al. 2000).

<sup>43</sup>And by about half that amount in South Asia.

## **B. Effects on Growth**

The negative association of volatility with growth reflects adverse impacts on productivity and investment. Productivity will suffer if unpredictable changes in relative prices render one technology appropriate but lead firms to choose another. In the face of relative-price uncertainty, companies may hedge their bets by investing in several alternative technologies, all but one of which will be less efficient and productive than the optimal technology in any state of nature. Countries where volatility is high also display relatively low investment rates, reflecting the reluctance of entrepreneurs to commit to projects when prices and macroeconomic conditions change unpredictably. While East Asian investment rates are high by international standards, recent empirical work suggests that they would have been higher still (by an additional two to three percentage points of GDP) if volatility had been as low as in Europe, Japan, and US (see IDB 1995, Goldberg 1993, and Kenen and Rodrik 1986).

It can be argued that this emphasis overlooks a major source of volatility and a key channel through which volatility exercises its adverse effect on growth, namely, financial crises. Crises are incompatible with growth: they lead to stop-go policies, interfere with the operation of the domestic financial system, cause distress in the corporate sector, and force governments to curtail public investment. Crises have multiple causes, but one unquestionably important cause is financial fragility, which becomes increasingly important as the action shifts from the current to the capital account and thus from nonfinancial to financial transactions. Because creditors will rationally hesitate to tie up their funds in a volatile macroeconomic environment, volatility encourages reliance on short-term debt, which heightens the fragility of financial systems. Creditors will similarly hesitate to invest in assets denominated in domestic currency when exchange rates are volatile. This “double mismatch problem,” that the balance sheets of domestic financial and nonfinancial firms display either a maturity mismatch (a combination of long-term assets and short-term liabilities) or a currency mismatch (a combination of domestic-currency-denominated assets and foreign-currency denominated liabilities), leaves domestic markets vulnerable to destabilization by sudden changes in financial conditions.

## **C. Effects on Other Social Indicators**

There is now ample evidence that volatility has undesirable consequences for the distribution of income, poverty, and educational attainment. The poor, unskilled and uneducated are least able to protect themselves by hedging their incomes and diversifying their investments; it stands to reason that they should suffer disproportionately from volatility. Gavin and Hausmann (1995) find, in a study of a cross section of countries, that the volatility of real GDP has a strong

negative effect on the equality of income distribution. Other studies (e.g., Guitan 1995) have similarly found that countries with more volatile rates of inflation display higher levels of income inequality. Moreover, there is evidence that crises and the policy adjustments they entail are particularly bad for income distribution and that their unequalizing effects are especially pronounced in middle-income countries (the category into which many Asian economies fall) (see Bourguignon, de Melo, and Suwa 1991).

Similar results obtain for poverty rates. The poor and near poor tend to be employed in sectors and activities that suffer from volatility, and cuts in social spending in times of crisis fall disproportionately on their shoulders (Morley 1994). As noted above, households near the poverty line have the least savings, the worst collateral, and the most tenuous access to credit and insurance. Moreover, volatility aggravates poverty through its negative impact on growth. Ravallion (1997) estimates that the elasticity of poverty, as measured by the proportion of the population falling below the poverty line, with respect to the growth of per capita income lies between -1.5 and -3.5. Dollar (2000) obtains similar results for a larger sample of countries. Crises are an extreme case in point, in that the elasticity of poverty with respect to income rises sharply in crisis periods. In Indonesia in 1997-1998, the rate of increase of poverty is estimated to have been ten times the rate of decline in income and consumption. In Korea, the poverty rate as conventionally measured more than doubled between 1997 and 1998. Previous studies relating poverty rates to per capita incomes in Korea would have led to forecasts of barely a fifth this amount (see the discussion in World Bank 2000).

Cutler et al. (2000), in a study of several successive Mexican crises, find that crisis-related volatility worsens health outcomes. In the Tequila crisis of 1995-1996, mortality rates were 5 to 7 percent higher than in the immediate precrisis years. The greatest percentage increase was among the elderly. This effect seems to operate mainly by reducing incomes and placing a heavier burden on the medical sector, rather than by forcing less healthy members of the population into the labor force or by compelling primary care givers to go to work.

Finally, volatility is associated with low levels of educational attainment. It affects education partly through its impact on inequality: Williamson (1993) finds that more egalitarian societies (as measured by the ratio of the share of total income of the bottom 40 percent to the share of the top 20 percent) have higher secondary school enrollment rates. In economies that are volatile, the poor, who are already on the margin of subsistence, may be forced periodically to withdraw their children from school so that the latter can contribute to household income, and this interruption of attendance will hinder educational attainment. Governments, forced by crises to cut social services, may be unable to sustain adequate levels of spending on schooling and to retain capable instructors. Where volatility hinders the development of financial markets, families will find it particularly difficult to insure against these risks, forcing them to rely on their children for

relatively inefficient insurance. These effects are likely to be most pronounced in poorer countries suffering larger shocks: thus, it is revealing that school enrollment rates fell in Indonesia but not in Korea or Thailand in 1998 (Frankenberg, Thomas, and Beegle 1999).

#### **D. Managing Volatility**

If globalization can aggravate volatility and volatility can aggravate social ills from slow growth to low investment, income inequality, poverty, and inadequate educational attainment, then it is important to adopt policies and develop institutions to limit the volatility that globalization can bring. There is an immense literature on policies for limiting volatility in emerging markets and safeguarding against crisis, and a broad consensus around the following points.

First, foreign trade and investment confer substantial benefits. The positive impact on the growth of merchandise trade and FDI is now widely recognized, though the benefits of portfolio capital flows continue to be questioned. In principle, the portfolio investment permitted by capital account liberalization should relax financial constraints on growth, deepen domestic financial markets, and make direct investment more attractive by facilitating the hedging of exposures and the repatriation of profits. That said, there is concern that the interaction of portfolio capital flows with preexisting distortions can heighten volatility and create crisis risk. The results of Klein and Olivei (1999) are interpretable in this light; the authors find that portfolio capital flows stimulate financial deepening and, by inference, growth in relatively high-income countries, where policy and market distortions are least, but if anything have a perverse effect on financial development in low-income non-OECD countries.

Second, as globalization proceeds, statutory restrictions on transactions on capital account will become increasingly difficult to operate without disrupting other forms of economic activity. Foreign direct investment and multinational production will lead to a growing volume of cross-border transactions by financially sophisticated agents on the lookout for ways of circumventing controls. As small firms penetrate export markets, they will gain the ability to evade controls through leads and lags and over- and under-invoicing. The wider adoption of information and communications technologies will open up avenues for evasion by households, by facilitating international financial transactions via the Internet, for example. Thus, the effective operation of capital controls will require increasingly comprehensive and invasive restrictions on economic behavior, extending to domains well beyond the financial. This is something that individuals are unlikely to welcome and something that they can effectively oppose in an age of democratization.

The bottom line is that capital account liberalization is likely to become increasingly difficult to resist as economic and financial globalization proceeds. This

heightens the importance of coordinating international financial liberalization with the elimination of distortions that would otherwise cause it to heighten volatility and crisis risk. Concretely, this means the following.<sup>44</sup>

- (i) *Strengthen the financial sector in preparation for capital account liberalization.* Capital account liberalization will have benefits on balance only if it is preceded by measures to strengthen the domestic financial sector, remove implicit guarantees, and impose hard budget constraints on financial institutions. If bank capitalization is inadequate, managers will be inclined to excessive risk taking, and the offshore funding available through the capital account will permit them to lever up their bets. If bank liabilities are guaranteed on the grounds that widespread bank failures would be devastating to a financial system dominated by banks, foreign investors will not hesitate to provide the requisite funding. A simple explanation for why the resolution costs of banking crises have been larger in the 1980s and 1990s than in earlier decades and larger in emerging than advanced economies is the coincidence of these domestic financial weaknesses with premature capital-account opening. Capital account liberalization thus should follow rather than precede recapitalization of the banking sector, the reinforcement of prudential supervision and regulation, and the removal of blanket guarantees.

The corollary is that capital-account restrictions should remain in place until prudential supervision is strengthened and implicit guarantees are removed. Unfortunately, maintaining barriers to capital flows and foreign financial competition may diminish the pressure for restructuring; developing countries may never achieve the nirvana where their domestic financial systems have been strengthened sufficiently to allow the capital account to be liberalized. This suggests using capital account liberalization to force the issue. But recent experience in Asia and elsewhere casts doubt on the notion that external liberalization that increases the urgency of complementary financial reforms will necessarily deliver the needed reforms before crisis strikes. While crisis itself can breed reform, it does so at a price.

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<sup>44</sup>More details on the points that follow can be found in Eichengreen (2000), from which this discussion draws.

- (ii) *Liberalize foreign direct investment quickly.* FDI is the form of foreign investment that most plausibly comes packaged with managerial and technological expertise. It is the form least likely to aggravate weaknesses in the domestic banking system. It is the form least likely to be associated with capital flight and creditor panic. This suggests liberalizing inward foreign investment as the first stage of financial-side opening. It suggests liberalizing inward FDI as quickly as possible. This advice would seem obvious but for the large number of governments that have failed to heed it. As of 1996, 144 of 184 countries surveyed by the International Monetary Fund still maintained controls on FDI. One element of the Korean crisis was the government's reluctance to allow inward FDI and its readiness, in the face of foreign pressure, to instead open other components of the capital account.<sup>45</sup>

Skeptics like Kraay (1998) question whether FDI is more stable than other capital flows. In fact, data on the volatility of flows (World Bank 1999) do not suggest a strong contrast between direct investment and portfolio capital. Still, there is an obvious sense in which a foreign direct investor cannot easily unbolt machines from the factory floor in order to participate in a creditor panic.<sup>46</sup> Admittedly, direct investors have a particular incentive to hedge by purchasing other financial assets they can liquidate in a crisis. They can borrow on domestic markets in order to sell short the domestic financial assets needed to take positions in anticipation of a currency collapse. The implication is that the share of inward foreign investment in the form of FDI will offer some protection against financial instability in the early stages of capital account liberalization, that is, before the rest of the capital account has been opened and direct foreign investors, like others, can take positions on securities markets to hedge their exposures. But the more open the capital account, the easier it becomes to arbitrage different instruments, and the less the share of FDI in total capital inflows is likely to matter in this respect.

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<sup>45</sup>Admittedly, Thailand's lifting of most restrictions on inward FDI in import-competing industries in the 1970s and on export industries in the 1980s did not prevent a serious crisis. But the problem there was that the country also opened the capital account to portfolio flows without strengthening its financial system and rationalizing prudential supervision.

<sup>46</sup>A recent study by Sarno and Taylor (1999), using time series data for Asian and Latin American countries and Kalman filtering methods, does in fact find that FDI flows have a larger permanent component than bank credit, equity flows, bond flows, and official credit.

- (iii) *Use internationalization to strengthen the banking system.* The case for liberalizing FDI early in the process of external financial opening extends to the banking system. Entry by foreign banks is a low-cost way of upgrading the sector's risk-management capacity. The knowledge spillovers that figure prominently in discussions of other forms of FDI apply also to the financial sector. Moreover, insofar as foreign banks are overseen by their home-country regulators, opening the banking sector to foreign investment should raise the average quality of prudential supervision. And insofar as foreign banks are better capitalized, they are less likely to engage in excessive risk taking. For all these reasons, entry by foreign banks can accelerate the upgrading of domestic financial arrangements that is a prerequisite for further capital account liberalization (Demirguc-Kunt, Levine, and Min 1998).

Two caveats should be noted here. First, foreign entry tends to squeeze margins, reduce franchise values, and intensify pressure on weak intermediaries. If gambling for redemption is a problem, then that problem is likely to intensify as entry gets underway. Hence, the stabilizing impact of opening the banking system may be less initially than subsequently. The first-best solution is to strengthen the domestic financial system early in the process of capital account opening (as emphasized above). Failing that, it may be desirable to phase in competition from foreign banks rather than throwing the domestic market open to foreign entry all at once.

Second, entry by foreign banks will undermine the effectiveness of measures designed to limit portfolio flows. International banks with local branches and ongoing relationships with domestic broker-dealers will find it easier than other international investors to borrow the domestic securities needed to short the currency, controls or not.

It follows that banks should be permitted to fund themselves offshore only late in the game. This is a lesson of the Asian crisis and of the literature on sequencing capital account liberalization. It is the message of Korea's crisis, which cannot be understood without reference to the decision to give the banks access to foreign funding before liberalizing other components of the capital account.

Equally, it is important to avoid creating artificial incentives for bank-to-bank lending. Thailand opened other components of the

capital account before giving banks access to offshore funds. But it then created the Bangkok International Banking Facility, under which Thai banks borrowing offshore (and onloaning the proceeds in foreign-currency terms) received favorable tax and licensing treatment. In part this policy is to be understood as an attempt to develop Bangkok as an international financial center. In part it reflects the government's tendency to use the banks as an instrument of industrial policy. Either way it is indicative of policies that are incompatible with the goal of limiting volatility.

- (iv) *Rely on market-friendly instruments for regulating foreign exposures.* The preceding might be taken as encouragement for governments to micro-manage the process of liberalization. But efforts to fine-tune the capital account carry their own dangers. They threaten to create a heavy administrative bureaucracy conducive to rent seeking and capture. Financial development makes it progressively easier for participants to evade the authorities' efforts by relabeling positions and repackaging obligations. Interventions relying on markets instead of bureaucrats minimize these risks. This is the attraction of the Chilean approach to capital-import taxes. The Chileans required a noninterest-bearing deposit of one year duration from investors seeking to import capital from abroad.<sup>47</sup> Since the deposit had to be maintained for a year, the implicit tax fell more heavily on investors with short horizons than on those prepared to stay for the long haul. It was transparent and insulated from administrative discretion. There was less scope for evasion than of taxes designed to fall on some foreign investments but not others.

There is an enormous debate over the effectiveness of these measures (Ulan 2000). Some warn that avoidance is a problem. Others point to the lack of evidence that Chile's taxes limited the overall level of foreign borrowing. And still others observe that the Chileans have themselves abolished the measure, which should raise questions about its efficacy. The third objection is misplaced in the sense that the Chilean tax remains on the books; all that has been done is to set the tax rate to zero for the time being. The rationale

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<sup>47</sup>The tax was initially set at 20 percent in 1991, raised to 30 percent in 1992, reduced to 10 percent in June of 1998 and set to zero percent in October, and the scope of capital flows to which it was applied was progressively widened. Investors could opt to pay the central bank a sum equivalent to the forgone interest without actually placing the deposit with the bank, as some in fact chose to do.

for doing so was that capital inflows were in particularly short supply following the Asian and Russian crises; a prudential measure that might have been desirable under other circumstances then became too expensive to operate in this period of capital scarcity. More fundamentally, Chilean-style holding periods taxes can be justified as a form of prudential supervision, where short-term inflows, because they are volatile, pose risks to financial stability.<sup>48</sup> Attempting to limit bank borrowing offshore will be futile if domestic nonfinancial corporations are free to borrow and to pass on the proceeds to the banks. Hence the case for an across-the-board holding-period tax on inflows on prudential grounds.<sup>49</sup> This should be regarded as a transitional policy to be pursued until more conventional forms of prudential supervision and regulation have been upgraded, at which point exceptional measures directed toward the capital account can come off. Chile itself can be thought of as having completed this process of upgrading in the 1980s and 1990s.

The second objection—that there is no evidence of the measure reducing the level of capital inflows—overlooks the fact that the goal was never to limit the level of borrowing. Rather, the goal was alter its maturity—to limit short-term inflows as a share of total debt and a share of international reserves. And on the maturity front the evidence is compelling (see Gallego, Hernandez, and Schmidt-Hebbel 1999<sup>50</sup>; see also Table 6.) As for the first objection, it is important to recall that such a measure, to effectively lengthen the maturity structure of the debt, need not be evasion-free.

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<sup>48</sup>This analogy is not without limitations; see Laurens and Cardoso (1998) for the relevant objections.

<sup>49</sup>Valdes-Prieto and Soto (1998) argue that this invocation of prudential supervision does not justify controls on nonbanks. But this view overlooks the scope for arbitrage between the bank and nonbank sectors.

<sup>50</sup>That studies of other countries that have employed similar policies reach analogous conclusions is reassuring; see for example Cardenas and Barrera (1995) on Colombia. More generally, Calvo and Reinhart (1999) find in a 15-country panel, including Chile, that the presence of capital controls is associated with a lower share of portfolio plus short-term capital flows as a percentage of total flows. That they do not find the same when they look at portfolio flows alone suggests that the impact on short-term flows is doing most of the work.

Table 6. Capital Flows and Reserves before and after Implementation of Capital Controls

	Period <sup>a</sup>			
	<i>t</i> - 1 year	<i>t</i>	<i>t</i> + 1 year	<i>t</i> + 2 year
<b>Capital Account Balance (percent of GDP)</b>				
Brazil (August 1994)	1.7	1.5	4.2	4.3
Chile (June 1991)	9.4	2.8	7.5	6.7
Colombia (September 1993)	0.4	5.3	4.3	5.1
Czech Republic (August 1995)	11.0	15.8	7.3	2.1
Malaysia (January 1994)	16.8	1.8	8.7	9.4
Malaysia (September 1998)	2.2	-3.5	-3.6 <sup>b</sup>	—
<b>Short-term Flows (percent of GDP)</b>				
Brazil (August 1994)	1.1	-0.8	1.0	1.4
Chile (June 1991)	0.0	-2.6	4.2	0.6
Colombia (September 1993)	2.1	0.9	2.0	0.8
Czech Republic (August 1995)	—	4.2	1.6	1.2
Malaysia (January 1994)	5.2	-1.1	1.5	3.3
Malaysia (September 1998)	3.4	-7.4	-1.8 <sup>b</sup>	—
<b>Change in Reserves (billions of US dollars)</b>				
Brazil (August 1994)	8.1	6.5	12.7	8.6
Chile (June 1991)	2.5	1.0	2.1	0.5
Colombia (September 1993)	1.3	0.2	0.2	0.4
Czech Republic (August 1995)	2.4	7.7	-1.5	-2.7
Malaysia (January 1994)	10.0	-1.8	-1.6	3.2
Malaysia (September 1998)	-6.2	4.8	4.2 <sup>c</sup>	—
<b>Ratio of Reserves to Short-term Debt</b>				
Brazil (August 1994)	1.0	1.5	1.6	1.4
Chile (June 1991)	1.5	2.2	1.9	1.9
Colombia (September 1993)	2.4	2.2	1.5	1.4
Czech Republic (August 1995)	3.8	3.6	2.6	1.8
Malaysia (January 1994)	3.7	3.9	3.0	2.4
Malaysia (September 1998)	1.4	2.8	3.8 <sup>b</sup>	—

<sup>a</sup>Period *t* refers to the year in which controls were imposed.

<sup>b</sup>World Bank staff estimates.

<sup>c</sup>As of November 1999.

Source: World Bank (2000).

The same point—the desirability of transparent, comprehensive, market-based taxes rather than controls—applies equally to the outflow side. One manifestation of this fact is how Malaysia has moved from comprehensive outflow controls to an exit tax on foreign capital satisfying a minimum-stay requirement.<sup>51</sup> But not too much should be expected of outflow controls in times of crisis, given the strong incentives that then exist for avoidance.

- (v) *Liberalize stock and bond markets next.* Because bank deposits are a contractual obligation to repay at par, the withdrawal of foreign deposits can jeopardize the stability of the banking system. In contrast, when investors liquidate their positions in stock and bond markets, their actions simply show up in the prices of securities, which is less destabilizing to the financial system.<sup>52</sup> When banks and firms can fund themselves by floating bonds as well as issuing short-term debt, the destabilizing impact on their balance sheets of sharp changes in market interest rates will be less. And when they can fund themselves by issuing bonds denominated in domestic as well as foreign currency, the destabilizing financial impact of sharp changes in exchange rates will be reduced. This suggests developing bond markets as a way of diversifying the sources of corporate debt, and developing stock markets as a way of avoiding excessive reliance on debt in general. It suggests liberalizing foreign access to domestic stock and bond markets before freeing banks to fund themselves offshore.

The reality is that securitized markets are late to develop. Historically, markets in corporate bonds and debentures tend to develop before deep and liquid equity markets since their informational requirements are less. But even they tend to develop only once a deep and reliable market has first grown up in a benchmark asset, typically treasury bonds, transactions in which provide liquidity and minimum efficient scale and whose prices provide a reference point

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<sup>51</sup>In September of 1998, nonresidents were prohibited from repatriating investments in domestic-currency-denominated financial assets for a 12-month period. These quantitative controls were replaced by graduated exit levies in February 1999.

<sup>52</sup>In reality, things are not so simple. A stock- or bond-market crash can damage the balance sheet position of banks and others who themselves hold stocks and bonds. It can make life difficult for entities, including the government, with funding needs and for whom the prices of their liabilities are an important signal of credit worthiness. But the single most reliable predictor turned up by the copious literature on leading indicators of currency crises is the term structure of portfolio capital inflows (Radelet and Sachs 1998, Rodrik and Velasco 1999).

for other issues. And the development of a deep and liquid treasury bond market in turn requires a government with a record of sound and stable macroeconomic and financial policies. Where that record is lacking, banks become the captive customers for government bond placements, which is not good for their balance sheets and in return for which they receive other favors (such as guarantees) which give rise to the financial-sector problems alluded to above.

Firms in countries where equity finance is available are likely to enjoy additional advantages in a globalized world. In terms of managing volatility, firms in countries with well-developed equity markets will be less dependent on short-term finance and less susceptible to liquidity crises. Compared to countries where enterprises rely disproportionately on debt finance, enterprises will be less highly geared, rendering their balance sheets less sensitive to the changes in interest rates that exposure to globalized financial markets can bring. Compared to countries where debt is denominated in foreign currency, they will suffer less damage from exchange rate changes. And in a technologically dynamic world, where firms are forced to choose between as-yet-unproven, competing technologies, equity finance has advantages in terms of competitiveness and innovation (as explained in Section III above).

In practice, the informational and contractual prerequisites for the development of deep and active stock markets are substantial—even more substantial than the prerequisites for the development of deep and active bond markets. In the absence of disclosure by firms following recognized auditing and accounting practices, outsiders will be reluctant to purchase their securities for fear of market manipulation by insiders; hence, stock market capitalization and turnover will be low. In the absence of adequate contract enforcement and equitable bankruptcy procedures, investors will be reluctant to invest for fear that issuers will walk away from their obligations. And in the absence of adequate mechanisms for corporate control, investors will be reluctant to purchase minority stakes in publicly traded enterprises for fear of being expropriated by majority stakeholders. This is why significant stock market capitalization and turnover tend to be observed relatively late in the process of financial development—as was the case historically even in countries like the UK and US that now have some of the most advanced market-based financial systems in the world. It is why many countries, and developing countries in particular, rely on

banks for intermediation services, banks having a comparative advantage through long-term relationships with their clients in assembling information and enforcing contracts.

Creating active stock and bond markets thus requires putting in place a regulatory framework mandating the disclosure of accurate and up-to-date financial information, the use of recognized auditing and accounting standards, penalties for insider trading and market manipulation, and statutes protecting the rights of minority shareholders. In the US, putting in place these prerequisites for deep and liquid markets took several decades (Bordo, Eichengreen, and Irwin 1999). Late-developing economies in Asia and elsewhere can telescope this process by importing proven regulatory technologies.<sup>53</sup> Still, developing deep and active stock and bond markets is a hard slog. Success will not be achieved overnight.

- (vi) *Strengthen monetary and fiscal institutions.* Limiting volatility in a financially globalized world requires building credible policy-making institutions. The greater the credibility of the individuals and institutions responsible for monetary policy, the less the danger that a shock will incite an investor panic and a self-fulfilling crisis. To the contrary, if policy makers have accumulated sufficient credibility, the markets will do much of the stabilizing work for them. If inflation accelerates, for example, pushing up interest rates and depressing the prices of short-term interest-bearing assets, investors anticipating that the acceleration of inflation is only temporary will buy into temporarily depressed fixed-income markets, stabilizing asset prices and interest rates. If the currency depreciates, investors will similarly purchase domestic-currency-denominated assets at their temporarily depressed prices, providing capital inflows that work to strengthen the exchange rate.

Similarly, the more credible is fiscal policy, the greater will be the capacity to pursue countercyclically stabilizing budgetary policies. If the fiscal authorities are committed to running budgets that are balanced over the cycle, they will be able borrow and run deficits in recessions. If, on the other hand, policy makers' intentions are sus-

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<sup>53</sup>They can also follow the example of US companies prior to the emergence of deep and liquid domestic securities markets—US railways, the large corporations of their time, issued bonds and debentures in London as a way of circumventing the underdevelopment of American financial markets—but this will not solve the currency-of-denomination issue; it will not create an investor base with an appetite for domestic-currency-denominated issues.

pect, they will have to cut spending and/or raise taxes in recessions, rendering fiscal policy procyclical and aggravating rather than limiting volatility.

One solution is to delegate responsibility for policy to an individual or individuals with a reputation for valuing the appropriate objectives; the utility of this approach is questionable, however, so long as the policy makers in question can be arbitrarily dismissed (Drazen and Masson 1994). The alternative is to design policy-making institutions so that the individuals in question have an incentive to pursue particular objectives and the capacity to do so. Hard-and-fast rules—a currency board arrangement for monetary policy, or a balanced-budget rule for fiscal policy—are the obvious way of doing so, but these lack the flexibility desirable for coping with a volatile environment. A more flexible approach is to give the policy authorities a mandate and the independence to pursue it. For monetary policy this is the well-known formula of independence for the central bank and a mandate to pursue price stability. For fiscal policy there is an analogous argument for creating an independent fiscal authority responsible for setting a ceiling for the budget deficit and a set of rules for cutting expenditure in the event that the fiscal authorities overrun it (Eichengreen, Hausmann, and von Hagen 1999).

This is only one of a variety of possible formulas for enhancing the credibility of policy-making institutions. There are a number of other approaches to developing monetary policy credibility; inflation targeting—a regime in which the central bank is given a mandate to pursue an explicit target for inflation, shares with the public its forecasts and its model of the links from monetary policy to inflation, and is held accountable for missing that target—is an increasingly popular approach in many parts of the world. Its advantages are greater flexibility than a rigid monetary rule but the same stabilizing impact on market expectations. Its principal limitation is that it can create policy credibility only when the central bank has the independence required to pursue it. Not only must the central bank enjoy statutory independence, but there must be political support for its independent status, in order to limit the prospect that its autonomy will be compromised if it pursues policies that are not congenial to the government. Moreover, its mandate to pursue low inflation must be supported by a broadly compatible economic policy stance by the government; in particular if the fiscal authori-

ties are prone to chronic deficits, monetary policy may have to used to fill the fiscal gap (the “fiscal dominance” problem), in which case the stated objective of pursuing policies of low inflation will lack credibility.

In the case of fiscal policy, alternatives to rigid rules include delegating more agenda-setting and veto power to a single agent—typically, the finance minister or the prime minister—who possesses more of an incentive to internalize the externalities associated with excessive deficits, and adopting more centralized and hierarchical budgetary procedures (von Hagen and Harden 1994, Alesina and Perotti 1994).

Other means of building credibility are conceivable. But, whatever the solution, policy credibility is essential in a world of globalized markets.

## VI. CATALYZING INSTITUTIONAL CHANGE

Economists tend to assume the existence of appropriate institutions. Put another way, if a certain set of institutions is efficient, economists assume that they will develop in response to the latent demand (Davis and North 1971). Thus, if new technologies generated by start-up firms are the motor for growth, and if supporting their development requires financial markets capable of providing venture capital and bidding for initial public offerings, then a market-based financial system will spring up in response to the profit incentives perceived by aspiring venture capitalists. And if, to attract FDI, countries must adopt demanding corporate disclosure standards and legal systems affording strong protection for creditor rights, then they will do so in order to prevent FDI from being diverted to jurisdictions that are quicker to respond.

The existence of this presumption makes it important to understand why, in this context, demand need not elicit a corresponding supply. Institutions can be understood as coordinating mechanisms—as coordinating the actions of economic and social agents. They do so by providing standards for socially constructive behavior. Because they function as standards, they are a source of network externalities. And like any technology that throws off network externalities, once established they tend to become locked in. As David (1993) has put it, institutions, by virtue of their inertial character, become the “carriers of history.”

### A. The Constructive Role of Crises

Because institutions have an inertial character, radical institutional change is the exception, not the rule. Wholesale change requires that the political and economic system be displaced from its equilibrium. It follows that radical change

oftentimes occurs in response to major shocks—crises, for example.<sup>54</sup> By definition, crises disrupt the operation of existing institutions. That disruption creates a vacuum in which new arrangements can develop.<sup>55</sup> More generally, the suboptimal performance of existing institutions made clear by a crisis can foster the consensus needed for agreement on changes in prevailing arrangements. Thus, the political and economic crises of the 1940s and 1950s are commonly credited with creating a hothouse environment conducive to the growth of the institutions that served Asia so well in its period of rapid economic growth. Economies like Korea and Taipei, China emerged from World War II and from the Asian conflicts that erupted in its wake in a parlous economic state. In Korea, for example, years of foreign occupation and civil war had left the population on the margin of subsistence. There was reason to fear that economic failure could jeopardize national survival, given political disputes in the region and the fact that East Asia was a principal battleground of the Cold War. “South Korea was threatened by invasion from the North; Taiwan, from the mainland; and Thailand, from North Vietnam and Cambodia. Thailand, Indonesia, Malaysia and Singapore faced formidable internal communist insurgencies; Malaysia and Singapore had to contend with additional difficulties imposed by ethnic diversity” (Campos and Root 1996, 28). These conditions created a crisis of national survival. This crisis in turn cultivated political support for the institutional changes needed to strengthen the state and the economy. It supported land reform in Korea and Taipei, China, which allowed the benefits of rising agricultural productivity to be widely shared and created a rural middle class. It supported the development of effective tripartism (coordinated negotiations over wages and other determinants of industrial development involving labor, management, and government) in Korea; Singapore; and Taipei, China. It induced powerful urban interests to acquiesce to government programs designed to develop the rural infrastructure necessary for balanced growth. It gave regime leaders the autonomy to develop independent technocracies and performance-based civil service systems. These institutional ingredients of Asia’s “miracle” are by now well understood. The point is that their development should be seen as a social response to this crisis of national survival.

In the wake of the financial crisis of 1997-1998, it is again clear that a crisis can catalyze reform. This is particularly evident in the steps taken by Asian countries to update and strengthen their financial institutions, with the aim of restoring investor confidence and also the long-run goal of equipping themselves with the institutional prerequisites for navigating a world of global finance. Prudential supervision and regulation have been strengthened, and new rules have been adopted to encourage arms-length dealing between financial institutions and their custom-

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<sup>54</sup>A model of the linkage is provided by Drazen and Grilli (1993).

<sup>55</sup>This is the story famously told by Mancur Olson of institutional change in the wake of war and crisis (Olson 1982).

ers. Governments have encouraged the development of bond markets long suppressed in favor of bank-based intermediation. Foreign investment has been liberalized in all countries in the region: Thailand replaced its Alien Business Law with new provisions allowing foreign firms to hold up to 100 percent equity in Thai banks, and 39 sectors have been opened to increased foreign participation; Korea opened real estate, securities dealing and other financing business to foreign investors and granted foreigners the right to purchase 100 percent of equity in domestic firms. East Asian countries have taken comprehensive action to facilitate mergers and acquisitions, both domestic and international.<sup>56</sup> Indonesia and Thailand have adopted significant legislative changes to their bankruptcy systems. In the second half of 1998, Indonesia created a specialized commercial court with jurisdiction over bankruptcy-related matters and adopted an automatic stay provision similar to that provided for under the US bankruptcy code. In Thailand, new bankruptcy legislation pushed through over political opposition had a decidedly positive impact on the equity valuation of financial and nonfinancial companies (Foley 1999). Such reforms can be seen as prerequisites for growth and stability in a financially globalized world. While financial reform has long been on Asia's agenda, it is hard to imagine such rapid progress in the absence of the crisis.

While crisis can breed reform, reform without crisis is to be preferred. The question is how it is best achieved.

## **B. Global Initiatives**

One level at which this process can be organized is globally. Thus, the IMF, the World Bank, and the Financial Stability Forum, with impetus from G7 governments, have launched a multi-pronged effort to encourage industrial and developing countries to upgrade their financial practices and institutions. The focus of this effort is institutional arrangements in areas like data dissemination; fiscal, monetary, and financial policy transparency; banking regulation and supervision; securities and insurance regulation; accounting; auditing; bankruptcy; and corporate governance. The mechanism is the promulgation of international standards for acceptable practice in these areas that all countries, including Asian countries, must meet, and efforts to encourage compliance through a combination of IMF surveillance, peer pressure, and market discipline (see <http://www.imf.org/external/standards>).

The case for these global initiatives is straightforward. If markets are global, so must be their regulation, as must be the institutions through which that regulation takes place. In a world of contagious crises and systemic risk, economic and

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<sup>56</sup>Indonesia and Malaysia appear to be exceptions: the Indonesian system does not favor mergers and acquisitions, while Malaysia's appears to favor domestic but not international M&A activity.

financial stability takes on the character of a global public good (Wyplosz 1999). Institutional arrangements affecting, *inter alia*, prudential supervision and the conduct of monetary-cum-exchange-rate policies are of critical interest to not just the initiating country but also the rest of the world. Global initiatives to influence national practices are justified as a way of internalizing these externalities.

The danger is that these global initiatives will subject countries to one-size-fits-all advice, denying them the opportunity to design regulatory institutions responsive to their distinctive economic, cultural, and legal traditions. This is where standards come in. Standards, which define criteria to be met by all countries but permit them to meet them in different ways, offer a way of reconciling the common imperatives created by participation in international markets with the diversity of economic systems and structures. The complaint that the IMF's structural interventions are arbitrary and capricious at least partly explains the backlash they have provoked; with the promulgation of standards there will exist objective criteria to which the Fund can refer when it demands structural reforms.

There are also objections to the approach. Neither the IMF nor the official community as a whole possesses the resources to design and monitor compliance with detailed international standards in all the relevant areas. In its early country reports on the observance of standards and codes, the Fund has been forced to rely on self-evaluations by the subject countries, a practice that threatens the objectivity of the process. For the IMF to carry out this function in a satisfactory way would require a very significant increase in its staff and a radical change in expertise, which are unlikely for the foreseeable future.<sup>57</sup>

Moreover, reservations have been voiced about how much can be accomplished through the promulgation of international standards. There is disagreement about the definition of acceptable standards; observe the dispute between the US and Europe over accounting standards or the wide variation among the advanced-industrial countries in the provisions of bankruptcy and insolvency codes. There is the danger that an international standard broad enough to encompass these variations will tend toward a lowest common denominator. Moreover, standards, by defining the minimum acceptable threshold, may weaken the incentive for countries to do better. What will prevent governments from taking steps to meet the letter of the requirement without in fact satisfying its spirit?

Such qualms are reinforced by the experience with the most important experiment in standard setting to date, the Basle Capital Standard. The 1988 Capital Accord established an 8 percent minimum (weighted) capital adequacy standard for international banks. It deserves some credit for steps taken subsequently, by countries represented on the Basle Committee of Banking Supervisors and others, to bring capital adequacy up to this minimum. Reassuringly, the existence of the Basle Accord has not prevented countries like Argentina from doing better. But, at

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<sup>57</sup>See the discussion of resource implications in IMF (1999).

the same time, the Basle standard has been subject to evasion. The gap between the reported and actual capital of Japan's international banks is a case in point; the Basle Accord did nothing to head off or resolve the Japanese banking crisis. Banks have discovered ways of shifting assets subject to high capital charges off balance sheet through securitization and the use of derivative securities without modifying the underlying risks. This should serve as a warning of the danger that the standard setters will always be one step behind the markets. Finally, experience with the 1988 Accord points up the fact that poorly designed standards, or standards that lag behind circumstances, can create perverse incentives. One need only recall the incentive in the Accord to engage in short-term lending to non-OECD countries.<sup>58</sup> Observers of the Asian crisis will be aware of the consequences.

In hindsight, the perverse incentives conferred by the Basle capital adequacy standards for international banks are clear. But there is a more fundamental point. The idea that appropriate institutional arrangements for financial stability can be identified at the global level assumes a knowledge of the operation of those institutions that does not exist. The problem is not the limited resources of the IMF but the limitations of economic science in its prevailing state. Economists disagree among themselves over the design of an efficient bankruptcy law, over the stabilizing or destabilizing effects of additional data disclosure, and over the merits of fixed versus flexible exchange rates. This is a reflection of the state of knowledge in the discipline. Casual observation confirms a continued diversity of institutional arrangements among the high-income countries themselves, and opinion about the merits of these competing institutions has oscillated over time. If the experts cannot agree among themselves, then how can the international community be confident that a global initiative to change national institutions and practices in a particular way will in fact make the world a safer financial place?

There follows, by analogy to evolutionary biology, an argument for encouraging a continuing diversity of national practice, on the grounds that this will encourage the survival of the "species" best adapted to a globalized environment.<sup>59</sup> The burden of reform, in other words, should remain at the national level.

### C. National Initiatives

If one buys into this argument for diversity of national practices, then one must also accept that there is no single blueprint for how countries should identify and implement those national arrangements. No single mode of governance is op-

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<sup>58</sup>While lending to OECD banks was given a risk weight of 20 percent irrespective of the term of the loan, lending to non-OECD banks carried this reduced weight only for loans of less than a year, whereas loans of longer maturity carried the full 100 percent risk weight.

<sup>59</sup>Rodrik (1999) refers to this as the case for "local knowledge."

timal, in other words. The implication is that there is not much more to say under the present heading.

Scholars seeking to go further distinguish three forms of governance: the strong state, the participatory state, and the decentralized state. The strong-state model vests responsibility for designing and implementing institutional arrangements with an authoritarian government and its bureaucratic arm: Singapore and Korea prior to the 1990s have been seen as cases in point. The decentralized state encourages experimentalism and competition among local jurisdictions, on the same grounds that the national approach encourages experimentation and competition among countries. Thus, India's federal system encourages competition in the design of industrial policy among its states and has led to some notable successes, as with Bangalore's development of a thriving software industry. Policies of regional devolution in the PRC, which led to the emergence of town and village enterprises, can be seen in a similar light.

Rodrik (1999) suggests that there are advantages to the participatory approach. Democratic governance facilitates the development of institutions that produce greater short-term stability, ease adjustment to adverse shocks, and deliver superior distributional outcomes. The implication is that these characteristics will be particularly advantageous in a globalized world where volatility is pervasive, small states are susceptible to adverse shocks emanating from international markets, and income distribution is under strain.

Sah (1991) observes that democracies empower a wider range of decision makers and argues that this diversification implies less risk in an environment of imperfect information; hence, democracy should be positively associated with short-term stability. Rodrik (1997) provides cross-section evidence for the period 1960-1989 supportive of this hypothesis. He also reports evidence that democracies were more successful in adjusting to external (terms-of-trade) disturbances over this period. A stronger point follows: more open democracies with less executive autonomy handle shocks better.<sup>60</sup> Finally, there is evidence that participatory systems pay higher wages and are characterized by less income inequality, since the participation leads to the development of more elaborate social insurance and transfer mechanisms.

#### **D. The Regional Option**

Regional initiatives have been suggested as a compromise between the national and global approaches by those who suggest that they combine the best of both. The argument for the coordination of policies and institutions across coun-

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<sup>60</sup>Rodrik observes that the recent experience of East Asia is consistent with these conclusions: Korea and Thailand, with their more open, participatory political regimes, handled the crisis better than Indonesia, by providing an alternative to "voice" (that is, to riots, protests and demonstrations) and by facilitating the smooth transfer of power to new leaders.

tries can be addressed at the regional level, while the need for continued diversity of policies and institutions can be satisfied by differences in these practices across regions. Insofar as the cross-border externalities associated with national policies are felt mainly by countries within a region, they create an argument for coordination at the regional and not the global level. There is evidence that the spread of currency crises is mainly a regional phenomenon (Glick and Rose 1999). Eaton, Gutierrez, and Kortum (1998) similarly show that R&D spillovers are regionally concentrated and that their magnitude diminishes with physical distance. These are arguments for coordinating exchange rate and R&D policies at the regional rather than the global level.

Frameworks for addressing such problems at the regional level have developed in other parts of the world, providing precedents that Asia could follow. The European Monetary System, which gave birth to Europe's monetary union, illustrates the scope for regional cooperation in the monetary-cum-exchange-rate domain. The Consultative Group on International Agricultural Research (CGIAR), which encourages its participating centers to share the fruits of their agricultural research, is an example of similar arrangements for R&D.

The regional option attracted new attention in Asia in the wake of the 1997-1998 financial crisis, reflecting the perception that the advice and conditionality of the international financial institutions were inadequately tailored to the particulars of the Asian crisis and the distinctive features of the Asian model. The proposal for an Asian Monetary Fund can be seen as a reflection of this desire to build a regional financial institution better tailored to Asia's needs. The Chiang Mai Initiative to expand swap lines among Asian countries can similarly be seen as a way of addressing regional financial pressures on terms better suited to Asia's distinctive economic, social, and financial system. And discussions of the case for a common basket peg for Asian countries (*viz.*, Williamson 1999) are seen as responding to the dilemma of having to choose between a hard peg and a floating exchange rate; since there is strength in numbers, the argument goes, Asian countries can skirt this Hobson's choice by agreeing to a collective peg and supporting one another in its maintenance. This regional approach to institution building has worked in Europe, where it has promoted cooperation, encouraged the harmonization of policies and institutions, and created a zone of monetary and financial stability. And if it has been successful in Europe, there is no reason why it should not be pursued in other regions, including Asia.

It is critical to observe that a very special set of historical circumstances have allowed European countries to effectively manage the challenges of globalization at the regional level, culminating in their crowning achievement, European monetary unification.<sup>61</sup> European monetary unification was the culmination of a half-century-long process of strengthening regional economic, monetary, and po-

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<sup>61</sup>The argument here draws on Eichengreen and Bayoumi (1999).

litical ties. The immediate origins go back to the Treaty of Rome, which established the European Economic Community and identified the exchange rates of member countries as a matter of common concern. A plan for monetary union was drawn up in 1962 by the Commission of the European Communities. In 1970 the Werner Committee recommended completing that transition within a decade (although this timetable was disrupted by the collapse of the Bretton Woods System and the generalized financial turbulence that followed). From the “snake-in-the-tunnel” in 1972 to the Maastricht Treaty in 1991, mechanisms for limiting exchange rate variability were the vehicle for the pursuit of economic and monetary integration.

But, in an important sense, the origins of European monetary integration go back even further than this. There is a long-lived strand of integrationist thought in Europe that has permitted politicians and the public to contemplate compromises of national sovereignty more readily than their counterparts in other parts of the world. The Pan-European Union, founded in 1923, lobbied for a European federation, attracting the support of, among others, Konrad Adenauer and Georges Pompidou. Even earlier, in the mid-19th century, European intellectuals like Victor Hugo were advancing the case for a United States of Europe. Before him, William Penn proposed a European parliament, Jeremy Bentham a European assembly, Jean-Jacques Rousseau a European federation, Henri Saint-Simon a European monarchy. One could go on, but this is enough to make the point. Many generations before the signing of the Maastricht Treaty and the advent of the euro, there already existed a powerful strand of European integrationist thought.

After World War II, the lesson drawn was that nationalism and the struggle for industrial resources had been the cause of the three bloody wars in less than a century. This geopolitical logic, advanced in Europe but argued and financed by the United States, lent momentum to the process. Underlying it were two powerful European dynamics, for commercial integration and political integration. Europe’s first great postwar project was its customs union, to which currency instability posed an ever-present threat. But always present behind the scene was the desire on the part of the founding members of the European Communities for political integration, to be achieved by building a Single Market whose need for governance would encourage the development Europe-wide political institutions.

In Asia, the motivation for monetary cooperation is different. There is no desire for political integration, given the split between Malaysia and Singapore in the 1960s, conflicts between Indonesia and Malaysia, and the Viet Nam War. Rather, the impetus for monetary cooperation reflects the desire to create a zone of financial stability. The fear created by the 1997-1998 crisis is that small currencies and large financial markets are incompatible. Asian central banks, left to their own devices, lack the resources to cope with global financial flows and even with the position-taking ability of a few highly leveraged institutions. Confronted with the vast liquidity of global capital markets, unilateral floats and unilateral pegs are

subject, in this view, to speculative manipulation, and both are therefore equally uncomfortable for the government attempting to operate them. The solution is the pooling of reserves designed to marshal sufficient resources for the authorities to counter speculative pressures and, ideally, maintain the stability of intra-Asian rates. Whether this desire, unaccompanied by commercial and political integration a la Europe, proves strong enough to support regional cooperation, only time will tell.

## VII. CONCLUSION

This paper has reviewed the opportunities and risks of globalization. Its premise is that there exist powerful technical, economic, and political forces that will render the world economy even more globalized in the future than today. Globalization has been rolled back before but only under extraordinary circumstances. Countries, their governments, and their citizens all have made substantial investments in globalization. Significant costs have been sunk, making it less likely that the clock will be turned back. Contingency planning is always prudent, but extensive planning for the disintegration of international markets makes little sense if this is in fact a remote possibility.

The challenge therefore is how to capitalize on the opportunities for growth and development afforded by globalization while at the same time minimizing the risks. In an obvious sense this means following appropriate policies: stable macro-economic policies, prudent financial policies, and sound regulatory policies. But the appropriate policies are easier to describe than to implement. And their specifics are likely to vary over time. The more fundamental problem is thus how to develop institutions with the capacity to determine appropriate policies, implement them, and stick to them until circumstances change.

Institutions with this capacity are likely to have the following characteristics. They combine insulation from capture with accountability to their principals. They facilitate the development of a social consensus on goals and instruments and an equitable sharing of the benefits from their implementation. They allow governments to make credible commitments but also provide escape clauses designed to allow those commitments to be modified or revoked in the event of fundamental changes in circumstance.

For Asia, late 20th and early 21st century globalization coincides with an important change in the sources of economic growth. For the last four decades, Asian countries have recorded rapid rates of growth by maintaining high rates of factor accumulation—capital accumulation in traded-goods sectors in particular—and by selling their products into world markets. Policies and the institutions through which they are made have been adapted to this growth model: they have promoted saving and investment, favored investment in traded goods sectors, and rewarded export performance. But as Asia's high-growth economies mature, the

source of their growth will progressively shift from factor accumulation to factor-productivity growth. This will require changes in policies and institutions. In addition, low-income Asian countries that wish to follow their high-income predecessors down the path of labor-intensive, export-oriented manufacturing using technologies imported via licensing will find their task complicated by globalization. Many more countries, both Asian countries like the PRC and India and competitors in other parts of the world, are attempting to implement the same strategy. Competition among them is intense. Selling the products of low-wage manufacturing industries into global markets will become increasingly cutthroat. And as more countries compete for foreign investment, the ability of countries to acquire technology via licensing will be correspondingly reduced. Sustaining growth in this setting will require telescoping the transition from accumulation- to innovation-based growth. In turn, this will require accelerating the evolution of policies and the renovation of policymaking institutions.

Capitalizing on globalization also means preventing its risks from disrupting growth and development and from engendering a backlash against open markets. This means tailoring policies to contain the heightened risk of crisis and the volatility created by the integration and liberalization of financial markets. It means creating a social safety net to support those who are left behind.

To imagine the prospects for Asia in the 21st century, it helps to step outside the region for a moment and consider Ireland. In the 1970s and the first half of the 1980s, Irish growth was disappointing (GDP growth averaged 3.7 percent between 1971 and 1986). The country was widely seen as the sick man of Europe, due to its slow growth, exploding debts, and chronic high unemployment. While per capita incomes, in purchasing power parity terms, were almost the same as in Asia's newly industrializing economies, there was every sign that Ireland was about to be left in the dust by the NIEs. The basis for its subsequent transformation is no secret. The government put in place sustainable macroeconomic and financial policies. It cut public spending, balanced the budget, and pared down the public debt ratio to the levels required by the Maastricht Treaty. It joined the EMS and EMU as a way of creating a bulwark against exchange rate and financial instability; it put the crisis problem behind it without resorting to controls or other devices that might have discouraged foreign investors. Tax incentives, a well-educated labor force, the reduction of labor-market rigidities, and a commitment to integrate with the European Union made Ireland an attractive platform for foreign investors seeking to establish production in Europe. Regional cooperation played a supporting role, with the Structural Funds of the European Union financing very considerable investment in and upgrading of the country's infrastructure.

Critically, the country's literate and numerate labor force, extensive university-industry cooperation, market-based financial system, and efficient infrastructure made it attractive for international companies to locate in Ireland not just assembly operations, as they did initially, but also R&D. The R&D expendi-

tures of foreign-owned firms, as a percentage of Irish GDP, have doubled since 1986 (Barry, Bradley, and O'Malley 1999). And given the nature of R&D spillovers, R&D by international firms did much to stimulate R&D by indigenous producers. As a result of these changes, Ireland is now the "tiger" of Europe, with growth accelerating since 1987 to 6.2 percent and in the second half of the 1990s reaching levels of 10 percent per annum. TFP growth, meanwhile has doubled from 2 percent per annum in the first period (where it accounted for slightly more than half of GDP growth, in other words, the postwar Japanese pattern) to 4 percent per annum (or nearly two thirds of GDP growth, the Continental European pattern).<sup>62</sup>

Ireland is not Asia. Its labor markets are different. Its financial markets are different. Its membership in the European Union sets it apart. But Ireland is an example of a country that was able to alter its policies and institutions to capitalize on globalization. It thus offers a vision of the challenges and opportunities facing Asia in the global economy of the 21st century.

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<sup>62</sup>Calculations are from Nugent (1998-9) for 1971-1986 and 1987-1997.

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