

ADB Distinguished Lecture Renminbi Internationalization: Tempest in a Teapot?

BARRY EICHENGREEN*

Internationalization of the renminbi is a stated goal of the Chinese government, its brief flirtation with Special Drawing Rights and an Asian Currency Unit notwithstanding. Chinese officials understand that a dollar-centric international monetary and financial system is a mixed blessing. Doing cross-border business in their own currency confers convenience value and efficiency advantages on United States (US) banks and firms. It frees them from the costs of converting currencies and hedging exchange rate exposures, something that Chinese banks and firms will enjoy only when they are similarly able to conduct international transactions in their home currency. Relying on the dollar for international liquidity and reserves lays the People's Republic of China (PRC) open to the foibles of US policy, whose downside was made clear by the incipient liquidity shortage that followed the failure of Lehman Bros. in 2008. It exposes the PRC to the risk of capital losses on its foreign security holdings. Renminbi internationalization is part and parcel with Chinese leaders' efforts to rebalance their economy from investment to consumption, from exports to domestic absorption, and from manufacturing to services, including financial services. This explains why Chinese policy makers have set their sights on "basic capital account convertibility" within five years and on elevating Shanghai to first-class-financial-center status within ten, at which time the renminbi will be a leading international and reserve currency.¹

In earlier writings I staked out a relatively positive position on the prospects for renminbi internationalization.² Currency internationalization, appropriately implemented, is in the PRC's interest. Chinese officials have a carefully calibrated approach, beginning with authorization for domestic and foreign companies to settle their merchandise transactions in the currency, followed by permitting a limited but growing range of financial transactions to be conducted in it, and culminating in the use of the country's currency in a range of additional financial roles, not least as a form for countries to hold their reserves. This is not unlike the PRC's incremental

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¹Basic capital account convertibility is defined as a situation where many but not all restrictions on cross-border capital flows have been removed (Huang et al. 2011).

²For example, Eichengreen, Park, and Shin (2013).

and experimental approach to other reforms which involves “crossing the stream by feeling the stones beneath the water.” So far, so good.

That said, in this lecture I consciously take a more skeptical view and see how far I can push it. The PRC will encounter major challenges in the course of currency internationalization. Capital account decontrol, which is an unavoidable concomitant of currency internationalization, is a process fraught with dangers, as history generously reminds us. The more flexible exchange rate that should accompany further liberalization of the capital account will be resisted by powerful interests. Success should not be taken for granted.

What are the conditions for that success? An international currency that is widely used in private commercial and financial transactions and held by central banks and governments as reserves has three essential attributes: scale, stability, and liquidity. Scale means that there is a large installed base of international transactions between the country issuing the currency and the rest of the world. Stability means that its users have reason to be confident that its price will not fluctuate erratically and that it will hold its value. Liquidity means that significant quantities of assets denominated in that currency can be bought and sold without noticeably affecting its price. “Scale, stability, and liquidity” will be my mantra in this lecture. Of course, these are just proximate determinants of international currency status. We will need to explore the deeper determinants of these proximate conditions.

History offers precisely one example of a national unit that acquired the status of a first-class international and reserve currency in a period as short as ten years. That example is the US dollar, which went from not being used internationally in 1914 to being the dominant international currency in 1924.³ It will be useful therefore to consider how the dollar came to meet the conditions for international currency status in such a short time. This is not to imply that the renminbi will have to mechanically repeat its predecessor’s experience. Still, the precedent may be instructive.

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But first a brief review of what has been accomplished. The process of renminbi internationalization started in 2010, when select Chinese firms were authorized to use the currency in cross-border trade settlements. By 2012 authorization had been extended to all Chinese exporters. As of mid-2012 some ten per cent of the PRC’s total trade, principally with the country’s Asian neighbors, was denominated and settled in renminbi. The expansion of the PRC’s trade and increasing use of its currency in trade invoicing and settlement, in Asia in particular, means that other Asian currencies have shown a growing tendency to move together with the renminbi.⁴

³See Eichengreen (2011). This is of course not what the textbooks say, but then the textbooks are wrong.

⁴For evidence see Subramanian and Kessler (2012).

The People's Bank of China (PBoC), meanwhile, has negotiated bilateral agreements with the Philippines, the Republic of Korea, Japan, the United Arab Emirates, and Australia to swap renminbi for their respective national currencies.⁵ In September 2011, the Export–Import Bank of China and Interamerican Development Bank signed an agreement under which the PRC will provide \$200 million of credits to finance trade between Latin America and the PRC, part of which will be in renminbi. In December 2011, the PRC and Japan announced an agreement to promote bilateral trade settlement in their own currencies. This was followed in the spring of 2012 by the launching of direct trades in the renminbi/yen cross by the China Foreign Exchange Trade System. The PRC's State Administration of Foreign Exchange has encouraged trading of the associated cross-currency swap on the domestic market. In conjunction with that agreement, the Japan Bank for International Cooperation was promised authorization to sell renminbi-denominated bonds in the PRC, and the Bank of Japan signaled that it would add the renminbi to its reserve portfolio. In March of 2012, the China Development Bank signed a memorandum of understanding with its Brazilian, Russian, Indian, and South African counterparts to provide renminbi loans for purposes of financing bilateral trade. In August the PRC and Taipei, China signed a memorandum of understanding for cross-strait currency clearing.

Eligible offshore financial institutions have been permitted to invest renminbi funds in the PRC's domestic interbank bond market since 2010. Foreign firms wishing to invest in the PRC can issue renminbi-denominated bonds in Hong Kong, China and use the proceeds to finance operations on the mainland. Local nonfinancial firms have similarly been encouraged to place renminbi denominated bonds in Hong Kong, China. At the end of 2011, regulators first permitted offshore renminbi to be used to finance equity investment in the PRC. And in May 2012, the China National Development and Reform Commission announced new rules to encourage onshore nonfinancial corporations to tap the “dim sum” market. In June it released plans for banks in Hong Kong, China to lend renminbi directly to companies in Shenzhen, effectively transforming that city into a special economic zone in which quasi-full capital account convertibility prevails.⁶ In some circles, the decline in offshore renminbi deposits in Hong Kong, China in 2012 has been taken as indicating bumps in the road to renminbi internationalization. More likely it reflects the authorities' success in opening up additional financial channels for those funds to flow back to the Mainland.

While this is impressive progress, it is no guarantee of success, and it certainly is no guarantee of success in as short a period as ten years. The value of offshore renminbi-denominated assets that can be freely bought and sold remains small, and

⁵The PBoC has signed a number of additional bilateral swap agreements, but these entail a commitment to swap dollars, which it holds as reserves, for other countries' currencies in periods when dollar liquidity grows scarce.

⁶Most recently, renminbi settlements have been authorized in London.

the share of those assets that are AAA and therefore attractive to risk-averse central banks is smaller still. Aside from the Hong Kong Monetary Authority, none of the monetary authorities with which the PBoC has signed agreements has actually drawn on its swap lines. The central banks of Malaysia, Thailand, Brazil, Venezuela, Nigeria, and Chile (the latter as custodian of the country's sovereign wealth fund) hold a share of their reserves in renminbi, but the shares in question are small.

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The ambitious nature of the PRC's transition is underscored by the observation that, as noted, only one currency, the dollar, has moved from not being used at all in international transactions to being a leading international currency in as few as ten years. The dollar's position in 1913 was not unlike that of the renminbi in 2009. The dollar was not used at all as a source of trade credit. It was not used as a currency of denomination for international bonds.⁷ It accounted for a negligible share of the reserves of foreign central banks and governments.⁸

The leading international financial center of the pre-World War I period was of course London, and the leading international and reserve currency was the pound sterling.⁹ The predominance of London and sterling reflected Britain's status as the first industrial nation and the world's leading trader.¹⁰ At the middle of the 19th century this relatively small, windswept island off the northwest coast of the European continent was the largest economy in the world. Its 1850 aggregate gross domestic product (GDP) was 20 per cent larger than that of the US. Britain had the world's largest navy, which meant that the British Isles and consequently official and private investments were secure. With the development of mechanized textile production and then of a range of other industries, Britain became the world's foremost trading nation. Merchant banks sprang up to provide credit denominated in sterling to British merchants engaged in export–import business and, eventually, to their foreign counterparties. Insurance companies, investment trusts, and individual investors provided a ready market for sterling-denominated bonds issued by foreign governments and companies. A government characterized by checks and balances and a well-represented creditor class prevented arbitrary and capricious expropriation by the executive.¹¹ A credible monetary regime was backed by a central bank conscious of its role as lender and liquidity provider of last resort.

⁷International bonds means bonds issued by sovereigns and others for sale to foreigners.

⁸Only Cuba, occupied by the US in 1898 following Spain's defeat at American hands, and the Philippines, also occupied by the US at the end of the Spanish–American War, are known to have held reserves in that form.

⁹Important from the point of view of the present discussion is that sterling, while dominant, was not the only international and reserve currency, the French franc and German mark also playing consequential roles (Lindert 1969). I return to this below.

¹⁰Following the convention in the literature on the Industrial Revolution, I refer to Great Britain rather than the United Kingdom throughout.

¹¹See North and Weingast (1989) and Stasavage (2002, 2007).

The US, for its part, relied almost exclusively on London and sterling for international financial services. A US importer seeking to purchase, say, coffee beans from Brazil had to obtain a letter of credit to present to the Brazilian exporter.¹² The US importer would go to his bank, which would then contact its London correspondent, which would provide, for a fee, the sterling credit that was the only form of payment acceptable to the Brazilian exporter. The important point, to repeat, is that the dollar had no role as an international currency as late as 1914.

The situation is all the more striking when we observe that the US had long since achieved the scale needed to support an international currency. It surpassed Britain as the largest economy already in the 1870s.¹³ The process was the obverse of that driving the overtaking of the US by the PRC: as a labor-scarce, land-abundant economy, the US had higher real wages but a smaller population than Britain for much of the 19th century.¹⁴ Population growth through natural increase and, more importantly, mass migration then allowed the US to overtake Britain in absolute economic size. This is the opposite of what is happening today when the PRC has a population several times that of the US but a labor force that is about to stop growing and when convergence is therefore driven entirely by differential per capita income growth.¹⁵

A large population or even a large population with high incomes is no guarantee of success at exporting. For the first two-thirds of the 19th century, the US was mainly an exporter of agricultural commodities—wheat, tobacco, sugar, and rice—and an importer of manufactures, not least from Britain. Sustained success is not often achieved on this basis. Britain continued to surpass the US as an exporter for three and more decades after the US had overtaken it in terms of aggregate GDP. This began to change with US natural resource discoveries, specifically of iron ore in the Mesabi Range of Northeast Minnesota in the 1860s and 1870s, and the harnessing of those resources to industrial development, notably the iron and steel complex centered on the Great Lakes, starting in the 1880s.¹⁶ The PRC's task today is similar in that the country faces the continuing challenge of developing its economy and maintaining its export competitiveness. It is different in that the abundant factor of production to be harnessed is not natural resources but labor.¹⁷

¹²This example is more fully described in Eichengreen (2011).

¹³In 1872 to be precise, according to the Maddison database.

¹⁴As widely commented on by contemporaries and by the first generation of modern economic historians (e.g., Habakkuk 1962, Temin 1966). Maddison's figures suggest a higher per capita income in the UK than in the US until the turn of the century, although this likely reflects higher capital income per capita as opposed to higher real wages.

¹⁵Something to which I will return.

¹⁶See Wright (1990) and Irwin (2001).

¹⁷As Wright emphasizes, the US had not always been a natural resource abundant economy, in that the existence of extensive high-grade iron-ore deposits was not known prior to this period. The same can be said of petroleum (Yergin 1991). There is another parallel with today in the discovery of previously non-exploitable natural gas deposits now extractable via fracking in the US Midwest, which similarly promises to boost US international competitiveness.

Scale, US experience suggests, while necessary for international currency status, is not sufficient. The inability of the dollar to play a role analogous to that of sterling reflected the US failure to meet the other necessary conditions for currency internationalization. Specifically, it reflected the instability and illiquidity of markets in dollar-denominated assets. The US was notorious for financial instability, having suffered financial crises in 1873, 1884, 1893, and 1907. Otto Sprague, in a history of crises written for the National Banking Commission, lists in addition a number of “minor” financial crises and panics between these major panic episodes.¹⁸ In contrast to Britain, there was also substantial uncertainty about the US commitment to the gold standard and fears of devaluation in, *inter alia*, 1893 and 1896.

There were also complaints about the inadequate depth and liquidity of dollar markets. Interest rates spiked when demands for money and credit rose in the planting and crop-moving seasons. These seasonal liquidity problems created credit stringency that further heightened problems of financial instability (Kemmerer 1910). The country’s system of correspondent banking, in which country banks held balances in reserve cities and reserve city banks held balances in central reserve cities, failed to ensure adequate liquidity. Clearinghouse cooperation failed to provide an adequate response to crises.

This situation was then transformed starting in 1914. By 1924 more reserves were held in dollars than sterling.¹⁹ More trade credit was sourced in New York than London and denominated in dollars than sterling.²⁰ More international bonds were denominated in dollars than in sterling, leaving aside the special case of the British Commonwealth where politics trumped economics.²¹ This was a striking turnaround in just ten years.

It is tempting to ascribe this shift to World War I (an event that will have no analog, hopefully, in coming years). Economically, the war and its aftermath were much more disruptive to Britain. Where the US economy grew by 25 per cent between 1914 and 1919, UK GDP fell slightly. Where the US economy then expanded by a further 21 per cent between 1919 and 1924, the UK economy shrank by 3 per cent.²²

While this growth differential is impressive, the US had already far surpassed Britain in absolute economic size, as noted. More important than comparative growth rates were institutional changes addressing the stability and liquidity problems that discouraged international use of the dollar. The Federal Reserve Act of 1913 allowed US banks to branch abroad for the first time and created a central bank to provide liquidity support to financial markets. A confluence of factors came together to support the creation of a central bank. There was concern over the seasonal stringency problem: the Federal Reserve (Fed) was charged with providing an “elastic currency”

¹⁸ See Sprague (1910).

¹⁹ Eichengreen and Flandreau (2009).

²⁰ Eichengreen and Flandreau (2012).

²¹ Chitu, Eichengreen, and Mehl (2012).

²² Again according to the Maddison database (all figures are in 1990 international Geary-Khamis dollars).

(in the words of the Act) whose supply varied over the course of the year. Interest rates were more stable across the seasons after 1914 than before, enhancing both market liquidity and financial stability.²³

In addition, there was dissatisfaction with the arbitrary way in which the private sector, under the leadership of J.P. Morgan, had dealt with the 1907 financial crisis. The Fed's record as lender of last resort would be far from unblemished, as it turned out. But the 1920s, at least, were crisis free. This stability was important for enhancing the attractions of the dollar as an international unit.

Finally there was unhappiness with US financial dependence on London and the desire to promote wider international use of the dollar.²⁴ US exporters were handicapped by having to pay two commissions, one to their local bank and a second to its London correspondent, in order to arrange letters of credit. One of the Federal Reserve's first actions was therefore to promote the development of a market in trade credits.²⁵ The Fed acted as buyer and liquidity provider of last resort to this market. For good parts of the 1920s it was the single largest purchaser of privately-originated trade credits. With market liquidity thus guaranteed, it became attractive for importers and exporters in other countries to similarly turn to New York for credit.

US experience thus shows that through concerted policy reform and institutional innovation, a large country can cultivate the reputation for financial stability and develop the liquid market needed to support internationalization of its currency in a period as short as ten years.

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So is it realistic to imagine that the PRC will be able, in its own way, to match this experience? That will depend on how successfully it meets the three conditions for achieving international currency status.

Consider first scale. The PRC already is a very large economy. It is the world's largest trading nation, though it looms less large in international financial transactions. According to the Organisation for Economic Co-operation and Development (OECD), which measures economic size in constant (year 2005) purchasing power parity dollars, the PRC will overtake the US in absolute economic size in the second half of the current decade.²⁶ By 2030 it will account for fully 28 per cent of global GDP, compared to just 18 per cent for the US.²⁷ The renminbi will have an even larger platform than the dollar, in other words.

I worry that these forecasts exaggerate the point. For one thing, comparisons of aggregate GDP at purchasing power parity exchange rates are not directly relevant

²³See for example Miron (1986).

²⁴This last motive, which is particularly relevant in the current context, is emphasized by Broz (1997).

²⁵These were "trade acceptances" in contemporary parlance.

²⁶In 2018, assuming 7.75% GDP growth in the PRC compared to 2.5 per cent in the US, 3 per cent inflation in the PRC compared to 1.5 per cent in the US, and 3 per cent annual renminbi appreciation.

²⁷Johansson et al. (2012), p. 23.

for international currency status. International transactions, which are what matter here, are appropriately valued at market exchange rates.²⁸ With transactions valued at market exchange rates, the Chinese economy will still be significantly smaller than the US for years to come. In 2015, the OECD's purchasing-power-parity overtaking point, the US economy will still be 80 per cent larger at market exchange rates.²⁹

The OECD assumes, moreover, that Chinese growth will continue to average 6.6 per cent per annum between 2011 and 2030, only slightly below the IMF's latest 7.8 per cent figure for 2012 and the growth rate of 8.4 per cent per annum that the Fund projects between now and 2015.³⁰ This would be impressive indeed. All fast growing economies slow down as they reach middle-income status. It is implausible that total factor productivity in the PRC will continue to grow between now and 2030 at anything approaching the six plus per cent annual rate achieved in the last ten years. The OECD acknowledges that productivity growth will fall in the next 50 years relative to the last ten; it just doesn't say when. Labor force growth in the PRC is already at a standstill, and that labor force will start to shrink in absolute terms before long, whereas that of the US will continue to grow, by 0.7 per cent annually between now and 2020 according to Bureau of Labor Statistics projections.

If the PRC succeeds in growing at 6.6 per cent per annum between now and 2030, its achievement would be unprecedented. (Unprecedented is not impossible but it is, well, unprecedented.) In previous work with Donghyun Park and Kwanho Shin undertaken in part for this institution (Eichengreen, Park, and Shin 2012), we found that fast growing economies typically slowed down significantly – on average by $3\frac{1}{2}$ per cent per annum in per capita terms – at a level of per capita GDP at purchasing power parity (this now being the relevant metric, since we are talking about overall economic growth) significantly lower than that which the PRC is projected to achieve by 2030 according to the OECD. We considered only countries with per capita GDPs of \$10,000 or higher, since we were concerned to focus on the so-called middle-income trap. We found that growth slowdowns are more likely in fast growing economies, suggesting an element of mean reversion. This, obviously, sounds like the PRC. We found that slowdowns are more likely in countries with high old age dependency ratios, where a substantial and rising share of savings must go toward health care and other social services for the elderly. Again, this sounds like the PRC. We found that slowdowns are more likely in countries with exceptionally high rates of capital formation, which presumably have difficulty in sustaining high returns on investment. Once again, this sounds like the PRC. Finally, we found that slowdowns are more likely in countries with undervalued exchange

²⁸Purchasing power parity adjustments apply to nontraded goods, which are not relevant in the present context.

²⁹Based on comparisons of gross domestic product at current prices in the IMF's World Economic Outlook data base.

³⁰The most recent *Asian Development Outlook* at the time of writing (dated October 2012) revises Chinese growth in 2012 down from 7.4 to 6.5 per cent. The Conference Board in its November 2012 forecasts sees the PRC growing by 6.9 per cent in 2013 and then 5.5 per cent in 2014-18 and 3.9 per cent in 2019-25.

rates, which presumably have the least incentive to move up the technology ladder away from low-value-added, unskilled-labor-intensive assembly operations. This too sounds like the PRC, at least until recently.

We have now updated our results.³¹ Our new analysis extends the sample period from 2007 through 2010, enabling us to detect and analyze some additional, relatively recent slowdown episodes. In addition, we can use the most recent release of the Penn World Tables (version 7.1) which evens out some kinks in its predecessor.

Most of our earlier results continue to hold. In particular, slowdowns are large: they now average 3.6 per cent between successive seven year periods. We still find that slowdowns are more likely in fast growing economies, in countries with exceptionally high investment rates, and in countries with undervalued exchange rates. But we also find some important differences. We now consider slowdowns in Austria and Mexico in 1960 and 1980, respectively, which we didn't analyze before because these countries had per capita incomes below \$10,000 according to PWT6.3 but have per capita incomes above that threshold according to PWT7.1. Where PWT7.1 evens out previously erratic growth rates, a few slowdowns drop out, and where it shows greater volatility than its predecessor we pick up a few additional cases.

As a result, we find more instances of multiple slowdowns in the same countries. Examples of the latter now include Austria (1960 and 1974), Hungary (1977 and 2003), Greece (the 1970s and 2003), Japan (the early 1970s and early 1990s), Norway (1976 and 1997–1998), Portugal (1973–1974 and 1990–1992), Puerto Rico (1970–1972, 1988–1991, and 2000–2003), Singapore (post-1981 and post-1993), Spain (mid-1970s and 2001), and the UK (1988–1989 and 2002–2003). This substantial list suggests that two-step slowdowns are not uncommon.

Consistent with this, we now find two modes in the distribution of slowdowns, one at a per capita GDP of approximately \$11,000 and another at a per capita GDP of approximately \$15,000. The mode around \$15,000 is familiar; it showed up in our previous paper. In contrast, the mode at \$11,000 is new, reflecting data revisions and the post-2007 extension described above. The PRC's 2010 GDP in 2005 constant PPP prices was \$10,708, according to PWT7.1; extrapolating using IMF WEO growth rates makes this \$12,721 in 2012.³² The PRC, in other words, has just passed through the first of our slowdown thresholds and is approaching the second. These patterns should not be interpreted mechanically. There is considerable variation around the averages. But these regularities, for what they are worth, are suggestive.

Extending the data set to include additional explanatory variables, we were able to identify some further correlates of slowdowns. Slowdowns are less likely in economies with a relatively high share of the population with some secondary

³¹In Eichengreen, Park, and Shin (2013).

³²PWT7.1 also reports a second estimate of Chinese GDP in 2010, a slightly higher \$11,698, which only reinforces the point. The PRC still exceeds the \$11,000 mode when the ADB's somewhat lower estimate of 2012 growth is used.

and university education and in countries with a relatively high share of high-tech exports. This suggests that a country's ability to move up the technological ladder into the production and export of more sophisticated goods is important for avoiding the middle-income trap.³³ It suggests that achieving the economic scale required to support a first-class international currency will be easier if renminbi internationalization is viewed not as a self-standing goal but as part of an integrated process of rebalancing Chinese exports away from processing trade operations and toward more skilled-labor-intensive products and processes.

None of this is to question that the PRC will eventually overtake the US in terms of absolute economic size, only that the transition may take longer. In any case, historical experience suggests that scale is the easiest of the three preconditions for an aspiring international currency issuer to achieve and that it is a necessary but not a sufficient condition for international currency status.

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Stability, US and other experience suggests, may be a harder condition to meet. Stability has multiple dimensions, including financial, economic, price, and political. Political stability gives confidence that policy will be stable and predictable, which private and official investors value when contemplating use of a foreign unit. In contrast, a country wracked by financial crises, like the US before 1913, is unlikely to be an attractive repository for the foreign balances of private and official investors. Economic instability is similarly a handicap for national monetary units aspiring to international and reserve currency status. The dollar lost many of the international gains of the 1920s in the Depression of the 1930s. Japan's efforts to elevate the yen to international and reserve currency status faded with the country's economic crisis and lost decade. Inflation is corrosive to the appetite of investors for nominally-denominated debt instruments and more generally to willingness to do international business in a currency. Before World War I the German mark had played a role as one of the three leading international currencies, behind only the pound sterling.³⁴ It never recovered this position following the hyperinflation of the 1920s.

What does this imply for the PRC? Maintaining financial stability will require further reform of the banking system. The experience of other Asian countries is ample reminder of the risks to stability created by policy lending. When economic activity has weakened, Chinese policy makers have regularly turned to the banking system to fund local governments and state-owned enterprises and ramp up investment. This has contributed to a nonperforming loan problem requiring repeated recapitalization of the banks. Abandoning policy lending and putting the banks on a commercial footing where there is no doubt about their hard budget constraints will

³³As emphasized by Zhuang, Vandenberg, and Huang (2012).

³⁴See footnote 9.

be important for instilling confidence among foreign investors. Fully deregulating deposit and lending rates would be useful steps in the same direction.³⁵

But another lesson of international experience is that even banks with hard budget constraints are fragile. Banks operate in information-impacted markets. Because they provide maturity transformation services, they are susceptible to self-fulfilling runs. Managers may take on excessive risk when they know that their banks are too big to fail. All this implies that steps to further strengthen bank regulation will be critical for financial stability and hence for successful currency internationalization.

As noted in my introduction, the capital account liberalization that is a concomitant of currency internationalization poses risks to financial stability. It increases the scope for large capital inflows that feed speculative bubbles.³⁶ Inflows can be followed by sudden stops and capital flight, causing financial markets and the currency to crash. Experience with such cycles has underscored the need for strong macro-prudential regulation in countries with relatively open capital accounts. To prevent inflows from encouraging financial excesses, countries on the receiving end should raise capital ratios, strengthen liquidity standards, and tighten collateral requirements. They should adjust fiscal policy to prevent inflows from feeding inflation and currency overvaluation. They should allow additional exchange rate volatility to discourage carry trades. In other words, accommodating a more open capital account will require comprehensive changes in the PRC's macroeconomic and regulatory regime.

Finally, creating the stable and predictable policy environment expected by private and official investors contemplating whether to allocate a significant share of their investment portfolios in renminbi may pose significant challenges for the Chinese political system. As I have observed elsewhere, the leading international and reserve currencies of the 19th and 20th centuries, sterling and the dollar, were the currencies of political democracies.³⁷ Britain and the US had contested elections and political systems that imposed checks and balances on the executive. The Dutch guilder, the leading international currency prior to sterling, was the currency of a republic that, while not exactly democratic, had a federal structure that limited the prerogatives and scope for opportunistic behavior by top leadership. If one goes back still further, Genoa, whose currency, the denaro, was widely used in international transactions, was first a self-governing commune and then a republic. Venice, whose

³⁵A problem in this connection is uncertainty about the level to which interest rates will converge when the PRC deregulates lending rates and opens the capital account, and what this will imply for banks and firms. The level of interbank interest rates in Hong Kong, China provides some information on this (Liu, Yeung, Zhou, and Lam 2012 and Maziad and Kang 2012). But lenders in Hong Kong, China are subject to various regulatory and political constraints. The PRC is therefore allowing Qatar and other offshore centers to similarly accumulate renminbi. The Qatar Monetary Authority then lends renminbi to Qatar commercial banks, which on-lend it to Qatari firms engaged in trade with the PRC. The PRC can thus observe the interest rate and draw inferences about post-liberalization interest rates onshore.

³⁶These dangers are similarly emphasized by Yu (2012).

³⁷See Eichengreen (2013) for fuller development of this argument.

currency, the ducat, was also widely used in international transactions, was similarly a republic.

In a republic power rests with the citizens, who select representatives to take policy decisions. Those representatives of the citizenry, rather than a monarch with absolute powers, possess the ultimate decision-making authority. Because authority resides in more than one individual or body, there are limits to arbitrary action. To the extent that creditors are among the citizens so represented, investor protections are stronger.³⁸ A federal political structure is another source of checks on arbitrary and opportunistic behavior by the central executive. Democracy is often thought to be the ultimate source of checks and balances on executive authority.

An extreme version of the argument is that the PRC will have to complete the transition to political democracy before central banks and governments feel fully secure about holding a significant fraction of their reserves there. A less extreme version is that the country will have to strengthen the powers of the National People's Congress and the responsiveness to public opinion of the Politburo and its Standing Committee. It will have to give statutory and operational independence to the China Banking Regulatory Commission, the Securities Regulatory Commission, and the Insurance Regulatory Commission in order to foster confidence that regulatory decisions are taken with financial stability rather than political objectives in mind. It will similarly have to grant statutory and operational independence to the central bank.³⁹ It will want to strengthen nongovernmental organizations which monitor government performance. It will have to create an independent media to expose corruption and encourage "intra-party democracy" to air the ruling party's dirty laundry.⁴⁰ The question is whether this constitutes a slippery slope. It is whether with political liberalization, as with inflation, it is possible to be half pregnant.

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The third and final prerequisite for international and reserve currency status is market liquidity. Private and official investors need to be able to buy and sell assets denominated in a currency without moving prices against themselves or incurring unreasonable transactions costs. In part this is a matter of market depth: how large is the stock of domestic-currency-denominated bonds and related instruments relative to transactions? In part it is a matter of the efficiency of the clearing, settlement and trading platform—whether transactions are settled over the counter or through a real-time, gross-settlement, delivery-versus-payment system. In part it is a matter of whether the central bank stands ready to act as lender and liquidity provider of last resort when credit is scarce.

³⁸As emphasized by Stasavage (2002, 2007).

³⁹For an earlier discussion along these lines see Goodfriend and Prasad (2006).

⁴⁰All this is suggested by Li (2013).

Asia's experience in the last 15 years speaks to these questions. Asian countries, both nationally and at the regional level, have sought to develop larger and more liquid bond markets through the Asian Bond Market Initiative and Asian Bond Fund, both operated with ADB assistance. In Emerging East Asia, local-currency bond market capitalization rose to \$5.7 trillion as of end 2011 (8.4 per cent of total world capitalization), up from \$528 billion (or 2.1 per cent of the world total in 1996).⁴¹ In the PRC, bond market capitalization is \$4.5 trillion (5 per cent of the world total), up from \$62 billion (0.2 per cent of the world total) in 1996.

This is impressive progress. That said, these are still small numbers by the standards of America, Europe, and Japan. The US bond market is almost eight times as large as the PRC's. Japan's is almost four times as large. France and Germany's combined are almost twice as large. It is reasonable to expect that bond market capitalization will rise more quickly in the PRC than the advanced economies. While Chinese growth will slow, it will continue to outpace the advanced countries. And as financial development proceeds, capitalization will rise still faster, assuming financial setbacks are avoided.

The literature on bond market development, much of which was inspired by the Asian crisis, points to the facilitating conditions and constraints that the PRC will face as it moves down this path. McCauley and Remolona (2000), Mohanty (2002), and Eichengreen and Luengnaruemitchai (2006) all argue that growing a bond market is easier in large countries. Here the PRC has a leg up. At the same time, international comparisons suggest that countries with well-developed, competitive, well-capitalized banking systems have larger bond markets, both public and private, reflecting complementarities between banking and bond market development.⁴² And a variety of investigators point to poor regulatory quality, lack of transparency (failure of firms to follow internationally recognized accounting standards) and corruption as obstacles to bond market development.⁴³ Here the PRC has work to do.

The empirical literature on market liquidity focuses on the bond turnover ratio (the value of bonds traded annually relative to market capitalization) and bid-ask spreads. Turnover in the government bond market is much lower in the PRC than in the Republic of Korea, Malaysia, Singapore, Thailand, and even the Philippines; only Indonesia does worse.⁴⁴ Bid-ask spreads in the government bond market are

⁴¹ According to *Asian Bond Monitor* (September 2012).

⁴² This is another finding of Eichengreen and Luengnaruemitchai (2006). Bae (2012) reaches the same conclusion on the basis of his analysis of 43 countries in the period 1990–2009.

⁴³ Again see Eichengreen and Luengnaruemitchai (2006) and Bae (2012). In addition, these studies point to the absence of independent rating agencies to provide public information on corporate issues as an obstacle to bond market development. The PRC has at least one rating agency, Dagong Global Credit Rating, independent enough to controversially give the railway industry a higher rating than the government.

⁴⁴ As Bae (2012) notes, the PRC looks better in terms of corporate bond market turnover, but figures here are artificially inflated by regulatory incentives for Chinese banks to trade corporate bonds.

about 13 basis points in the PRC. In Hong Kong, China, in contrast, they are 5 basis points, in the Republic of Korea 2 basis points.

Working in the PRC's favor as it attempts to rectify this imbalance is the fact that market liquidity tends to be a positive function of country and market size.⁴⁵ Working against it is the fact that liquidity tends to be less in countries with capital controls.⁴⁶ Authors like Schinasi and Smith (1998) have shown that a large population of international investors is important for enhancing the liquidity of local currency bond markets.⁴⁷ Foreign investor participation is a route to the kind of large and diverse investor base conducive to trading, as opposed to a base dominated by buy-and-hold investors such as insurance companies, pension funds, and banks.⁴⁸ This observation points to a problem for the PRC, where commercial banks hold nearly 70 per cent of local currency bonds outstanding, insurance companies another ten per cent, and policy banks, the central bank and the finance ministry another 9 per cent, and where foreign investor participation is still limited. It also points to a chicken-and-egg problem: while attracting foreign investors is important for market liquidity, market liquidity is important for attracting foreign investors. This in turn points to the value of proactive steps to attract foreign investor participation, like those the Chinese authorities are currently taking, as a way of breaking out of this low-level-equilibrium trap.

In addition, it has been argued that the market liquidity in Asia generally and the PRC specifically has been limited by the underdevelopment of clearing, settlement, and trading systems (Trairatvorakul 2001, Mares 2002). Not only do efficient clearing and settlement limit transactions costs, but exchange-based trading is a source of information generation and dissemination that encourages turnover. That Chinese bonds tend to be traded on the interbank market rather than on an active secondary exchange is a problem from this point of view.

Finally, authors like Borio (2000) have emphasized the importance for market liquidity of an active lender of last resort. US experience offers both positive and negative examples: positive during and after World War I when the Fed provided liquidity to the market in trade acceptances, negative in the 1930s when it failed to do so adequately, and positively in 2008 when it provided dollar swaps to the European Central Bank, the Swiss National Bank, and four emerging markets (Mexico, Brazil, Singapore, and the Republic of Korea). This last episode importantly illustrates how a proactive lender of last resort can help to ensure adequate market liquidity and support a currency's international role in turbulent times. That the PRC has negotiated currency swap arrangements with a growing range of foreign central

⁴⁵See McCauley and Remolona (2000).

⁴⁶As shown by inter alia Bae (2012).

⁴⁷See also Mares (2002).

⁴⁸Tax policy can also be an issue; in the PRC corporate bond interest income is taxable whereas interest earned from government bonds is not.

banks sends a positive signal in this regard. When we see these swap agreements activated, we will know that they are of more than just symbolic value.

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The PRC is intent on renminbi internationalization, and there are good reasons for thinking it will succeed. The global economy runs on international liquidity, and the simple logic of convergence is enough to suggest that the US and the dollar cannot continue to provide it in adequate amounts forever. Convergence implies that emerging markets will continue to grow more rapidly than the US and that the US will come to represent a progressively smaller share of the global economy. Eventually the US will no longer possess the relative economic size and fiscal capacity to provide safe and liquid assets on the scale required by an expanding world economy engaged in a growing volume of international trade and payments. Other sources will have to supplement the available dollar liquidity. The PRC, soon to be the world's largest economy, is the obvious candidate. Thus, renminbi internationalization is not only in the PRC's interest; it is in the world's.

At the same time, the PRC is likely to encounter serious challenges in the course of this internationalization process. Economic growth will slow significantly, creating social strains. International transactions will not continue to increase at their recent pace. Economic, financial, and political stability will have to be maintained as the capital account is opened and financial markets develop. Regulatory quality and transparency will have to improve in order to enhance market liquidity. Completing this transition in ten years is a formidable task. Whether the PRC rises to the challenge will have profound consequences not just for the country but for the world.

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