



China's Global Currency: Lever for Financial Reform

Arthur Kroeber



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Brookings-Tsinghua Center for Public Policy
Monograph Series Number 3
February 2013

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Introduction

Following the global financial crisis of 2008, China's authorities took a number of steps to internationalize the use of the Chinese currency, the renminbi. These included the establishment of currency swap lines with foreign central banks, encouragement of Chinese importers and exporters to settle their trade transactions in renminbi, and rapid expansion in the ability of corporations to hold renminbi deposits and issue renminbi bonds in the offshore renminbi market in Hong Kong.

These moves, combined with public statements of concern by Chinese officials about the long-term value of the central bank's large holdings of US Treasury securities, and the role of the US dollar's global dominance in contributing to the financial crisis, gave rise to widespread speculation that China hoped to position the renminbi as an alternative to the dollar, initially as a trading currency and eventually as a reserve currency.

This paper contends that, on the contrary, the purposes of the renminbi internationalization program are mainly tied to domestic development objectives, namely the gradual

opening of the capital account and liberalization of the domestic financial system. Secondary considerations include reducing costs and exchange-rate risks for Chinese exporters, and facilitating outward direct and portfolio investment flows. The potential for the currency to be used as a vehicle for international finance, or as a reserve asset, is severely constrained by Chinese government's reluctance to accept the fundamental changes in its economic growth model that such uses would entail, notably the loss of control over domestic capital allocation, the exchange rate, capital flows and its own borrowing costs.

This paper attempts to understand the renminbi internationalization program by addressing the following issues:

1. Definition of currency internationalization;
2. Specific steps taken since 2008 to internationalize the renminbi;
3. General rationale for renminbi internationalization;
4. Comparison with prior instances of currency internationalization, notably the US dollar after 1913, the development of the Eurodollar market in the 1960s and 70s; and the deutsche mark and yen in 1970-90;
5. Understanding the linkage between currency internationalization and domestic financial liberalization;
6. Prospects for and constraints on the renminbi as an international trading currency and reserve currency.

The author would like to express his appreciation to Mr. John L. Thornton for supporting this research project.

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Definition of Currency Internationalization

Popular discussions of renminbi internationalization have tended to conflate three quite distinct concepts: an internationalized currency, a reserve currency and the principal global reserve currency. It is useful at the outset to define these separate concepts. An internationalized currency is simply one that is extensively used by non-residents outside its home economy, for trade or investment transactions. It is possible for a currency to be quite internationalized without being a significant source of reserve assets. Prominent examples include the Australian and New Zealand dollars, which are commonly used by international portfolio investors because of the high yields on their corporate bonds. Yet neither currency accounts for a meaningful share of official reserves held by major central banks.¹

A reserve currency is one that is commonly used by central banks in their official reserve holdings. At any given time there are a number of reserve currencies, reflecting the fact that

¹ The New Zealand bond market is probably the world's most internationalized: only one-quarter of New Zealand dollar bonds are domestic issues in the domestic market; the comparable ratios for euro- and US dollar-denominated bonds are 50% and 75%. (He and McCauley, 2010, p. 17).

there are always several major economies with a sufficiently large position in global trade or investment flows to make it prudent for central banks to hold a portion of their reserves in those countries' currencies. Before World War I, the major reserve currencies were sterling, the French franc and the German mark. After World War II the main reserve currencies were the US dollar and sterling, joined by the deutsche mark and the Japanese yen in the 1970s and 80s as Germany and Japan grew in economic importance. Today the main reserve currencies are the US dollar, the euro, sterling, the yen and the Swiss franc.

The principal global reserve currency is the most commonly used currency for reserve assets. Typically, this currency accounts for somewhere between half and three-quarters of global reserves, although the share can fluctuate within an extremely wide range. Since the emergence of the modern globalized economy and monetary system in the late 19th century, there have been two principal reserve currencies: sterling, which dominated from the 1870s until somewhere between 1925 and 1945, depending on one's interpretation; and the US dollar, which first surpassed sterling as the biggest single reserve currency in the mid-1920s and cemented its position after World War II. Before World War I, sterling accounted for a bit less than half of reported global reserves and perhaps as much as two-thirds if unreported reserves are included. (Frankel 2011). Since World War II, the dollar's share of global reserve assets has fluctuated around a long run average of about 60%, with a high of over 75% and a low of around 45%. (Chinn, quoted in Frankel 2011).

Clearly, the renminbi today is a currency at a very early stage of internationalization (Gao and Yu 2012). Its use outside mainland China is marginal, its use by non-residents outside

China is virtually non-existent, and it does not satisfy even the most elementary prerequisites for becoming a reserve currency, since China’s capital account is subject to extensive controls. Our discussion will therefore focus on the incremental progress towards internationalization, and treatment of the more speculative question of the renminbi’s long-run potential as a reserve currency will be deferred until the final section of this paper.

What tools exist for objectively measuring the degree to which a currency has become internationalized? A helpful approach, pioneered by Kenen (1983) and later developed by Chinn and Frankel (2005) and Ito (2011), is to consider the three functions of money and then observe the extent to which these functions are reflected in a currency’s international use. Classically, money has three functions: a store of value, a medium of exchange in financial transactions, and as a unit of account for purposes of bookkeeping or the denomination of financial assets. We can therefore construct the following table:

Exhibit 1.		
Matrix of currency internationalization		
Money function	Use by foreign governments	Use by foreign private actors
Unit of account	Anchor for currency peg, or use as a weight in a currency basket	Denominating trade/financial transactions
Medium of exchange	Intervention in foreign exchange markets; circulation of currency abroad; central bank swaps	Invoicing and settling trade/financial transactions
Store of value	Official reserves	Investment
Source: Simplified from Chinn and Frankel 2007		

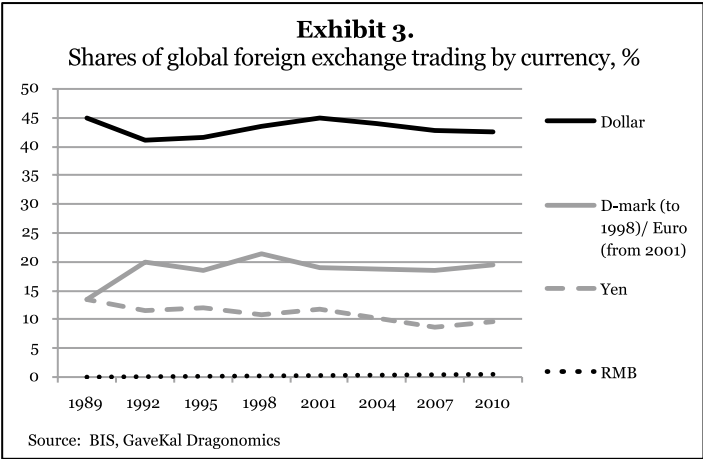
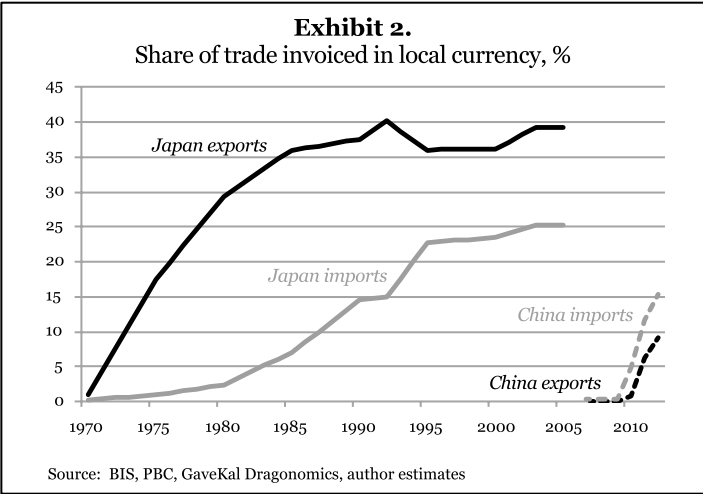
At present, the renminbi has virtually no international use as a store of value, whether as a component of official reserves or as a vehicle for foreign private investors. Its use as a medium of exchange, mainly for invoicing trade transactions, has grown rapidly since 2009 but remains modest: approximately 15% of China’s imports and 9% of its exports were invoiced in the local

currency in 2012; the export figure is well below that attained by Japan as long ago as 1975.

As a unit of account, the renminbi has little formal international role, but informally it has started to emerge as a regional “anchor currency” in Asia. If one analyzes the currencies of major Asian economies on the assumption that they are managed by their respective central banks against a basket containing the dollar, euro, yen and renminbi, the implied renminbi basket weight is 49% for the Singapore dollar, over 40% for the Malaysian ringgit and Indonesian rupiah, and over 30% for the Thai baht, Taiwan dollar and Indian rupee. (Ito 2011). This finding validates the common perception among market participants and policy makers that export-oriented Asian countries manage their currencies in order to ensure their exporters stay competitive with Chinese firms – resulting in a very loose peg to the renminbi. But one should not overstate this impact: the currencies of the region’s two biggest economies outside China – Japan and South Korea -- show no correlation with the renminbi.

A final point is that currency internationalization in its fullest sense implies that the currency is commonly used by non-residents for transactions among themselves, with no participation by a counterparty from the currency’s home country. The US dollar’s use as the main invoicing currency for international trade provides the classic example: a Brazilian importer and Korean exporter would likely denominate, invoice and settle their transaction in dollars. There is so far little evidence that the renminbi is used in this way. The international uses of the renminbi are largely confined to transactions in which at least one counterparty is Chinese: invoicing exports or imports from a Chinese exporter or importer; cross-border trade transactions along China’s

borders with southeast Asia, Mongolia and Russia; and bond issuance by Chinese firms in Hong Kong. The volume of renminbi bond issuance by non-Chinese entities is so far trivial, and there is no systematic evidence of the use of renminbi to settle transactions between non-residents outside of China.



Progress of Renminbi Internationalization

Since the beginnings of reform in the late 1970s, China kept its capital account mostly closed and maintained tight control over the exchange rate of the renminbi against the US dollar, initially through a series of staged devaluations from 1980 to 1995, then through a fixed peg against the US dollar from 1995 until July 2005 (a peg which was tightened following the Asian financial crisis in 1997), and since 2005 by a steady, managed appreciation against the US dollar at an average rate of 4.7% a year.² International use of the renminbi was minimal, being mainly confined to informal border trade transactions, and no facilities were provided enabling foreign banks to maintain renminbi accounts.

The first step towards enabling international use of the renminbi came in December 2003, when the Hong Kong Monetary Authority (HKMA), with authorization from the

² The capital account is not totally closed: according to the IMF as of 2007, 12 of 43 capital account categories were convertible or subject to minimum restrictions; 16 were partially liberalized and only 15 were fully non-convertible. However most capital transactions require approval by the State Administration of Foreign Exchange (IMF 2007). McCauley (2011) argues that discrepancies between offshore and onshore renminbi interest rates and equity prices prove that, despite this partial liberalization, Chinese capital controls are still binding.

People's Bank of China (PBC), announced that banks in Hong Kong could begin conducting renminbi business on a limited basis. In practice, the scope of business was limited to opening individual renminbi deposit accounts, and conducting individual remittances from those accounts. From the time such services actually started to be offered in February 2004 until July 2009, activity was modest. Individual renminbi deposits grew to just Rmb50 billion by the end of that period, at which point they constituted 1% of total bank deposits in Hong Kong and an even more minute 0.1% of the mainland renminbi deposit base. By April 2010, the renminbi figured in less than ½ of a percent of global foreign exchange transactions, less than the Polish zloty. Foreign companies that wished to hedge their renminbi exposures, or speculators wishing to profit from changes in the renminbi exchange rate, had to place their bets in the non-deliverable forward (NDF) market in Hong Kong, which offers forward contracts based on expected future values of the renminbi, but settled in US dollars.

Following the global financial crisis of 2008, renminbi internationalization was moved from the back policy burner to the front. The first steps were largely symbolic: starting with an agreement with South Korea in December 2008, PBC signed swap agreements with 17 other central banks, totaling Rmb1.4 trillion (US\$210 billion), most recently with Australia in March 2012. The purpose of such agreements is to enable importers in other countries to obtain renminbi to pay for yuan-invoiced Chinese exports, and secondarily to provide an emergency source of liquidity in the event that private channels of finance dry up. These agreements were clearly a response to the immediate impact on China of the global financial crisis, which was that banks greatly reduced their issuance of letters of credit, with the result that global trade

flows contracted sharply.³

The practical effect of these swap lines, however, has been modest. Few of them were signed with countries whose trade with China was substantial, and the total value of the swap lines was just 12% of the value of China's 2011 exports.⁴ (It was also substantially less than the US\$800bn in US dollar swap lines initiated by the Federal Reserve in the two years after the global financial crisis, underscoring the vastly greater importance of US monetary authorities in the global monetary system.) In any case, none of the swap lines was drawn down until December 2010, when the HKMA activated its line to relieve a temporary shortage in the suddenly booming renminbi market in Hong Kong.

Nonetheless, initiating the swap lines showed that the Chinese government was beginning to think seriously about increasing the international use of the renminbi. A second indication of intent came in March and April of 2009, when PBC published on its website a series of papers by PBC governor Zhou Xiaochuan arguing that the global financial crisis stemmed in large part from the impossible demands placed on the US Federal Reserve, whose monetary policy could never satisfy both the needs of the US economy and the needs of the rest of the world, for which the US dollar was

³ The reasons for banks restricting their trade finance were first, a desire to reduce the risk on their balance sheets, and second, a shortage of US dollars caused by the "flight to quality" after the financial crisis. In the immediate aftermath of the September crisis, financial institutions around the world moved as much of their spare cash as possible into the safest possible investment, namely US Treasury securities. The upsurge in demand for dollars to purchase Treasuries caused a shortage of dollars for other purposes, including trade finance.

⁴ As of May 2012, countries with renminbi swap agreements include Argentina, Australia, Belarus, Hong Kong, Iceland, Indonesia, Kazakhstan, Malaysia, Mongolia, New Zealand, Pakistan, Singapore, South Korea, Thailand, Turkey, United Arab Emirates and Uzbekistan.

the primary currency. Zhou suggested that, in the long run, one solution to this problem would be the establishment of a supra-national reserve currency, perhaps the “special drawing rights” of the International Monetary Fund. Zhou’s papers engendered speculation in the international financial media that China aimed to lobby for a reduction of the dollar’s global role, and push the renminbi as an alternative major reserve currency.

For reasons explained in more detail in the last section of this paper, these interpretations are highly improbable. Zhou’s economic arguments simply re-hashed concerns about the use of a national currency as the principal global reserve currency that had been expressed decades before by John Maynard Keynes at the 1944 Bretton Woods conference, and in the 1960s by Belgian economist Robert Triffin. The political motivations behind these papers appear to have been more limited and prosaic: Beijing was at the time asking the IMF to establish a “substitution account” which would enable China to shift the exchange-rate risk of its large US dollar holdings to the IMF, and Chinese officials may have hoped that expressing support for a larger IMF role in global reserve management might make the IMF more amenable to its request. In any event, the request was declined.⁵

Again, however, these papers signaled that Chinese policy makers were beginning to take international currency issues much more seriously, and shortly after their publication the internationalization of the renminbi began in earnest. There were two key moves, a year apart. First, in June 2009 PBC launched a pilot scheme under which Chinese importers in five cities were permitted to settle their import bills in renminbi via

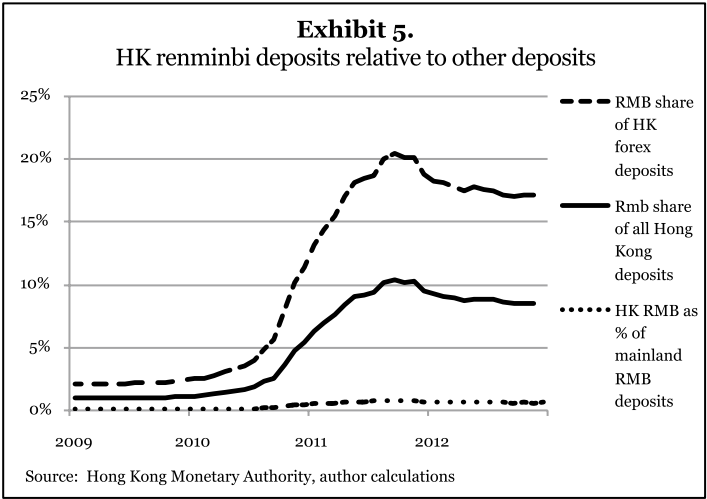
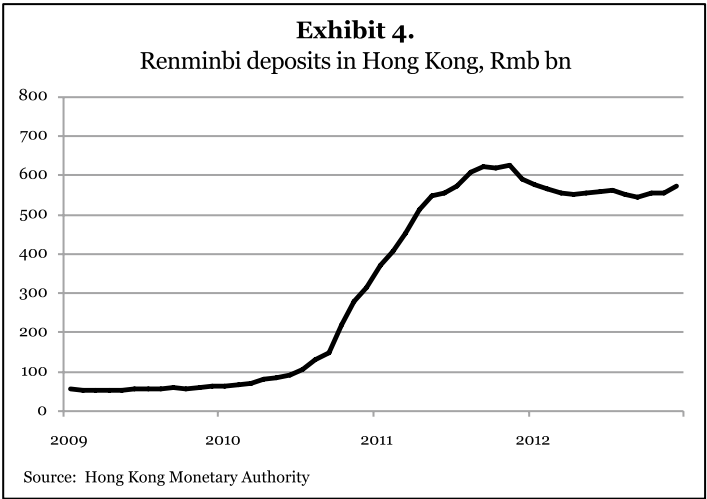
⁵ Interview with Washington-based financial journalist, March 2011.

banks in Hong Kong, which for the first time were permitted to open direct correspondent accounts with mainland banks, rather than conducting all their renminbi business via the authorized renminbi clearing bank Bank of China (Hong Kong), as they had done since 2004. Over the next 18 months the renminbi trade-settlement program was expanded to include all importers throughout China, and 67,000 designated exporters as well. In 2012 about 12% of China's total trade was settled in renminbi, mostly via Hong Kong.⁶

The second move, occurring in stages between February and July 2010, was the elimination of all restrictions on corporate renminbi deposit accounts and transactions. The new rules of the game were formalized in a July 2010 joint memorandum between PBC and HKMA, that essentially opened the door for companies – and crucially, non-bank financial institutions such as brokerages and insurance companies – to open renminbi deposit accounts and conduct any sort of renminbi business, including payments, loans, and bond underwriting and issuance. Later that month, the first offshore renminbi corporate bond was issued (by Hong Kong construction firm Hopewell Holdings), and this was followed in August by the first renminbi bond issuance by a non-Chinese company (McDonalds). A year after the joint memorandum, renminbi deposits in Hong Kong had risen six-fold to Rmb600 bn, with corporate deposits accounting for two-thirds of the total (up from less than 10% in July 2010). A total of 44 renminbi-denominated bonds were issued during the year, with a total value of Rmb64 billion. (Offshore renminbi is traded in

⁶ PBC publishes monthly data on the amount of goods and services trade invoiced in renminbi. It also publishes a figure for renminbi invoicing as a proportion of total trade, but confusingly the denominator in this ratio appears to be the total figure for merchandise trade only (excluding services). PBC also occasionally reports the individual renminbi share of exports and imports, but these figures are not released as part of a systematic time series.

currency markets under the designation CNH, to distinguish it from onshore renminbi, which is designated CNY. Offshore renminbi-denominated bonds are generally referred to by their nickname, “dim sum bonds.”)



Issues with the new offshore renminbi market in Hong Kong

The rapid growth of the offshore renminbi market in Hong Kong, from essentially a standing start, is impressive, but should be kept in perspective. Deposits grew rapidly until September 2011, when they peaked at Rmb622 billion; over the next six months they declined by 10% to Rmb554 billion and then remained essentially stagnant for the remainder of 2012. (Hong Kong bankers estimate that approximately Rmb290 billion of offshore renminbi deposits exist outside Hong Kong, mainly in London and Singapore.) There were two main reasons for this decline: the perception by market participants that the rate of renminbi appreciation was slowing sharply; and concerns by regulators in Beijing that the Hong Kong renminbi market was growing too fast. At their peak in September 2011, renminbi deposits accounted for 10% of the Hong Kong deposit base, and 20% of foreign currency deposits; by December 2012 those figures were down to 9% and 17% respectively. And Hong Kong's renminbi deposits were still a trivial 0.6% of the mainland deposit base.

Similarly, the bond and money markets remain quite small in absolute terms. Total dim sum bond issuance in 2012 was Rmb116 bn, well up on the 2007-10 figures but still only about 5% of issuance on the mainland bond markets. Issuance also lags far behind that in the more established US, European and Japanese markets. Turnover on the CNH market, at about US\$4 billion a day, was still less than a quarter of turnover on the traditional non-deliverable renminbi forward market (McCauley 2011). ⁷ In short, the offshore renminbi

⁷ In the absence of the ability to trade the renminbi either on spot or forward markets outside of China, companies hedge their renminbi exposures, and speculators bet on renminbi movements, through the "non-deliverable forward" or NDF market in Hong Kong. NDF contracts are denominated in renminbi but settled in US dollars.

market in Hong Kong is still very early in its infancy, and will require several years of further development before it begins to pose a significant challenge to the far larger onshore markets.

Certain impediments to the development of the offshore renminbi market have become clear. These largely stem from the desire of the Chinese authorities to segregate offshore renminbi (CNH) from onshore renminbi (CNY). In effect, CNH is treated as a foreign currency: capital remittances of CNH to the mainland requires approval by the State Administration of Foreign Exchange (SAFE), in the same manner as would be the case for capital remittances of US dollars, euros or yen. In the early days of dim sum bond issuance, it was actually more difficult to gain SAFE approval for CNH remittances than for foreign currencies; waiting times were often two months or more, although they have subsequently come down.

Since there is little practical use for renminbi outside the mainland, the difficulty of gaining SAFE approval for moving CNH to the mainland is a disincentive to the issuance of renminbi bonds in Hong Kong. There are other such disincentives. So long as they expect the renminbi to appreciate, foreign corporates are reluctant to issue large volumes of renminbi-denominated debt, since it is likely that the real value of principal will increase over time. (Conversely, however, buyers of these bonds are plentiful when appreciation expectations are high and scarce when appreciation expectations fade, as in most of 2012. The contrary incentives of issuers and investors underscores that so long as the dim sum market is seen mainly as a vehicle for speculating on the value of the renminbi it is unlikely to gain significant size. True scale will emerge only when the motivations for holding renminbi assets and liabilities diversify.)

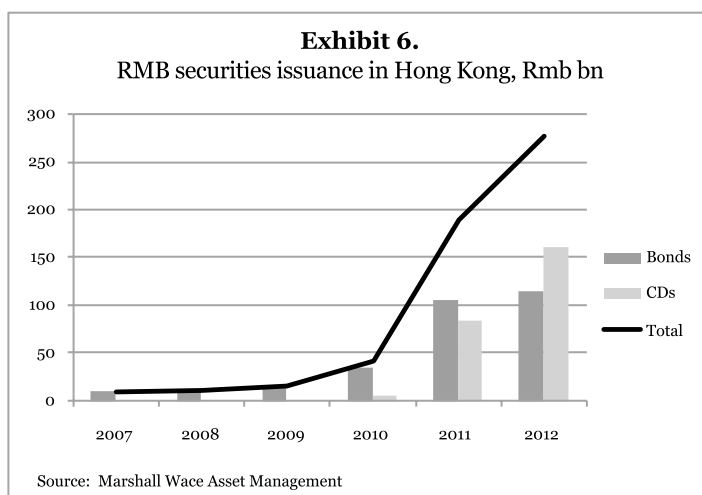
Large mainland corporates, who might be expected to form the basis of a robust offshore bond-market, have been notable by their absence. This is perhaps surprising, given the evidence that they could substantially reduce their funding costs by issuing in Hong Kong rather than on the mainland. (McCauley 2011). But in reality, large corporates, especially the state-owned ones, have little difficulty raising finance at attractive rates onshore, mainly through bank loans. They may find that the convenience of raising money at home, where no SAFE approval is required and loan terms may be kept in the shadows, outweighs the advantage of a slightly lower interest rate of a Hong Kong bond – especially since that lower interest rate is accompanied by the inconvenience of having to issue a bond prospectus that will survive the scrutiny of international investors. As one Hong Kong-based employee of a major Chinese SOE put it in an interview: “We can get all the renminbi we want in China. If we issue a bond in Hong Kong, it’s to raise dollars for international activities.”⁸ For much of its early life the dim sum bond market was essentially a high-yield market for Chinese property companies who found it difficult to finance themselves in any other way, due to restrictive government policies on the property sector in place since mid-2010.

In theory, the Ministry of Finance (MoF) could provide a major boost to the offshore market by shifting a large proportion of its treasury bond issuance to Hong Kong. MoF in fact has issued three tranches of treasury bonds in Hong Kong (in 2007, 2010 and 2011), and in its most recent sale paid an interest rate on average 258 basis points lower than the comparable mainland issue. But despite the evident pricing advantage of issuing in Hong Kong, MoF’s offshore issues are

⁸ Interview with a corporate strategy executive of a Hong Kong-listed Chinese state owned enterprise, 26 October 2010.

a tiny fraction of its total issuance, and not enough to make the offshore bond market rival the onshore one.

The consequence is a severe mismatch of liabilities and assets in the offshore market. Individuals and institutions have a strong incentive to accumulate renminbi deposits, since the market expectation (at least until very recently) was the renminbi could only appreciate. These deposits are liabilities for the banks that create them. But the weak incentives for bond issuance mean that banks find very little in the way of investible assets to balance against these liabilities: at the end of 2012, total offshore renminbi bonds outstanding (at around Rmb300 bn) were around one-third of estimated outstanding renminbi deposits in Hong Kong and other offshore markets. Banks therefore have little choice but to park most of their renminbi balances at the PBC Shenzhen branch, at rates lower than they pay their own depositors. As a result, at least in the first year, the offshore renminbi business was a money-losing one for most Hong Kong banks.⁹



⁹ Interview with foreign-currency strategist at an international bank in Hong Kong, 15 February, 2011.

The broad conclusions about the development offshore renminbi market are therefore as follows:

1. A decisive policy push in 2010-11 led to a rapid increase in both renminbi deposits and bond issuance in Hong Kong, but absolute volumes of both remain small.
2. The pace of renminbi deposit growth in Hong Kong slowed dramatically in late 2011 as investors began to calculate that the renminbi/dollar exchange rate was near fair value, so that sure-fire appreciation gains could no longer be counted on.
3. Substantial disincentives remain for high-quality corporate issuers, both mainland and foreign, to issue renminbi debt in Hong Kong.

We now turn to the question of Beijing's motivation for inaugurating the renminbi internationalization program.

Reasons for Renminbi Internationalization

Surprisingly, given the amount of international attention it has generated, China's currency internationalization program has been the subject of no formal policy document outlining broad aims and objectives. Official statements have been confined to notices specifying the technical changes that have enabled trade invoicing, creation of deposits, and bond issuance offshore in renminbi. Currency internationalization receives only glancing mention in the 12th Five Year Plan outline published in March 2011, in the context of the very general aim of increasing exchange rate flexibility and making the renminbi fully convertible over an unspecified (and presumably rather lengthy) time span. Public speeches and press interviews by government leaders, including the top officials of the PBC, have rarely touched upon the internationalization program and only in very vague and elliptical terms.

Deciphering the motivations for currency internationalization thus requires considerable inference and guesswork. Our contention is that, although officials undoubtedly have a variety of objectives, the single largest motivation is to use the offshore renminbi market as a mechanism for dismantling capital controls and accelerating the pace of domestic financial

liberalization—similar to the way in which premier Zhu Rongji used China's 2001 WTO accession as a mechanism to force domestic market reforms that otherwise would have been politically difficult to achieve. Contrary to some of the more breathless media reportage, Chinese officials have been fairly explicit in denying that establishment of the renminbi as a major international reserve currency, is a primary aim, or even a feasible goal, in the near term.

The sequence of reforms and the sparse public statements, mainly by PBC governor Zhou Xiaochuan, tend to support the interpretation that renminbi internationalization was first formulated in response to the 2008 global financial crisis, and therefore has stability and insurance functions. As noted above, the opening salvos were Zhou's series of essays in early 2009 attributing the crisis partly to the intrinsic instability of existing monetary arrangements, and the establishment of the first renminbi swap lines with foreign central banks. This implied that Beijing's primary concern was to insure against a repeat of this crisis, one of whose principal impacts on China was a drying-up of international US dollar liquidity and trade finance, which contributed in a 20% drop in China's exports. This inference is strengthened by the observation that the first concrete measure to encourage greater international use of the renminbi was through the trade invoicing program.

In January 2011 speech outlining goals for foreign exchange management under the 12th five year plan period (2011-2015) PBC deputy governor and head of the State Administration of Foreign Exchange Yi Gang avoided direct mention of renminbi internationalization, focusing instead on the need to provide more convenience for importers and exporters, and on controlling speculation and "unusual" capital movements (异常资本流动; Yi 2011). The ritualistic invocation of the need

to combat speculators and control short-term capital flows remains a standard feature of official statements on exchange-rate management. Earlier, in an July 2010 interview with Hu Shuli of “China Reform” magazine, Yi Gang specifically rejected the idea that making the renminbi a reserve currency was a principal goal of policy, and that conditions were “very far” from favoring the renminbi as a reserve currency.

The public record, therefore, while not very clear, favors the idea that the main goals of renminbi internationalization are to ensure liquidity of finance for Chinese exporters and importers, and to insulate the Chinese economy from financial shocks emanating from the increasingly precarious US dollar. But many market participants, including some that have had private conversations with senior PBC officials, believe that the true motivation, at least of the central bank, is to use the offshore renminbi market as a tool to accelerate the pace of domestic financial sector reform (of which PBC is the main bureaucratic advocate).

In a speech to the Caixin Summit in November 2010, Zhou made a cryptic reference to the desirability of creating a “pool” to absorb short-term capital flows, thereby preventing them from exerting too much influence on the domestic Chinese economy. This vaguely-defined “pool” concept became the subject of much perplexed commentary in the Chinese press, but a careful reading of Zhou’s speech is illuminating:

As for the impact on China, whether there will be more hot money inflows into China and what China’s response should be, many people have talked about it. I just want to add two points. First, under the current foreign exchange system, the capital account is still controlled. As a result, unusual capital can only flow in if it circumvents

our controls. In this latter case, we can take some management measures to prevent these circumventions. Second, an important measure is to sterilize these inflows. That is to say, if short-term speculative money flows in, we hope to put it in a pool, and so by this sterilization prevent it from entering the real economy. When this money wants to leave, we let it go from the pool. This will greatly reduce the impact of unusual capital flows on China's macro-economy.

Of course, this will cause another problem: as capital flows in and out, there will be opportunities for arbitrage and speculative profits due to interest rate differentials and exchange rate fluctuations. Everyone will be uncomfortable with all this money-making from capital flows. Concerning this problem, on the one hand, we should be clear about the importance of quantitative controls; but on the other hand, we must recognize that if there are arbitrage opportunities then there will always be arbitrage activity that it is almost impossible to prevent. I recall the situation in the late 1970s and early 1980s. In those days, thanks to price differentials between different cities, profiteers emerged who were criticized as "scalpers" (erdao fanzi), and who moved goods from one place to profit from these price differences. This indicates that if there is an arbitrage opportunity, it is very difficult to stop people from making money off it. Even though everyone finds this kind of activity detestable, in reality it is an economic opportunity, and it is part of the logic of a market economy that there should be this kind of activity. If you want to stop it you need to consider whether there is an effective way to do so. But you can't shut down all the trains just to stop the scalpers: in that case, the entire national economy would wind up paying a far higher cost

than the scalpers. So we must consider the costs carefully.

The situation is similar in global financial markets, for example in the much-discussed carry trade of the past several years. Because Japanese interest rates were very low, many people borrowed in yen to invest in the Australian and New Zealand dollars. Now who was doing this? If this was the action of big speculators or of governments, one could have found a way to stop it. But in the end it was discovered that large part of the carry trade was being done by Japanese housewives, and stopping this activity would have been very difficult. Therefore, for China, the most important thing is to maintain macro-economic balance, prevent risks, and sterilize what needs to be sterilized. Second, we should prevent speculative activity as much as possible, and reduce the channels by which arbitrage profits can be made. But it is impossible for us completely to eliminate arbitrage. (Zhou 2010).

This appears to be a delicately-worded advocacy of renminbi liberalization as a tool for domestic financial liberalization. Zhou first advocates the creation of an offshore pool of renminbi. Then he acknowledges that such a segregation of capital between onshore and offshore will inevitably invite arbitrage. He concludes by arguing that arbitrage is a natural feature of successful economies and can only be suppressed at the cost of damaging in the economy. Decoded, this means that once the offshore “pool” is created, one must accept the equalization of prices (that is to say interest and exchange rates) between the offshore and onshore markets. By definition, equalization of offshore and onshore money prices means the abolition of capital controls (McCauley 2011) and the liberalization of domestic interest rates. The abolition of

capital controls, in turn, necessitates greater participation of foreign institutions in China's financial markets, and hence greater competition for domestic financial actors. Interest rate liberalization and greater competition constitute financial liberalization tout court, and the creation of an offshore renminbi market is here presented as a key tool in this process.

The mechanics by which renminbi liberalization leads to domestic financial reform will be further discussed below in section 5. But analysts are now drawing this connection much more openly. As authors from the Bank for International Settlements point out, "full [renminbi] internationalization will ultimately require a thoroughly open capital account" (Cheung, Ma and McCauley 2010). Yu Yongding, a leading Chinese economic scholar and a former member of the PBC monetary policy committee, goes farther, asserting that "In truth, internationalization of the renminbi is capital account liberalization in disguise....the use of the renminbi as a trade settlement currency has stealthily forced open China's firewall of capital control. As a result, the fluctuation of short-term cross-border capital movements has become an important factor in determining the RMB exchange rate" (Yu 2012).

We do not suggest that the aim of reformers is abolish capital controls and liberalize domestic financial markets in a swift series of dramatic actions. For reasons of domestic politics as well as monetary prudence, capital account liberalization is best done in small steps over a long period of time. But it does seem likely that the renminbi internationalization program was designed by reformers to set China on an irreversible liberalization course, and to convert progress toward an open capital account from the empty talk which it had been for much of the previous decade to a concrete series of actions, however slowly implemented. The final question is this: if the

desire to dismantle capital controls and accelerate the pace of domestic financial reform is one of the main motivations behind the renminbi internationalization program, why are government officials so coy about saying so? Here we can only speculate. The most obvious explanation is that domestic opposition to financial sector reform—for instance from the large state-owned banks that would find their profits reduced in a more competitive environment—is substantial enough that reformers find it prudent to downplay the connection between the offshore currency market and its domestic consequences.

International Comparisons

The renminbi is the latest in several currencies to move from a purely domestic to a substantially internationalized currency in the last century. To fully understand the likely international trajectory of the renminbi it is useful to review previous instances of currency internationalization, notably:

- The emergence of the US dollar as a major trade and reserve currency between 1913 and 1925
- The large expansion of offshore US dollar activity via the Eurodollar market in the 1960s
- The emergence of the deutsche mark and yen as major trade and reserve currencies between 1970 and 1990

We first summarize the key features of each episode, and then examine the similarities and differences with the current internationalization of the renminbi.

US dollar, 1913-25

On the eve of World War I, the United States had already been the world's largest economy for forty years, and placed a close second to the UK in exports. Yet the dollar was not in widespread use internationally and was not used at all for central bank reserve assets. The main reason was that the

absence of a central bank before 1913 made it difficult for international investors to place much confidence in the dollar as a long-term store of value; the propensity of the US financial system to suffer severe panics was another reason to avoid dollar assets. Britain's historic control of trade finance (not to mention its naval control of major trade lanes) meant that sterling remained the currency of choice for trade transactions, much as the dollar is today. This imposed significant costs on US exporters, who paid correspondent banking fees to British banks.

The establishment of the Federal Reserve in 1913 changed this equation in two important ways. First, it increased investor confidence by creating an authority that could protect the value of the dollar in times of stress, and could reduce the likelihood or at any rate the impact of financial panics by acting as a lender of last resort. Second, the early leaders of the Federal Reserve set out on a deliberate strategy of increasing the international use of the dollar, by the creation of an active and liquid market in bankers' acceptances—the bills of exchange that American exporters used to realize their trade gains. The Federal Reserve's motives in this policy appear to have been twofold: a desire to reduce costs for exporters, and a desire for US financial institutions to capture a larger share of the lucrative trade finance business.

With the aid of World War I, which disrupted normal European trade and forced the major economies off the gold standard, the dollar internationalization policy bore fruit with amazing speed. By 1925, just a dozen years after the creation of the Federal Reserve, the dollar was a major international trading currency, and the dollar surpassed sterling as the principal currency for global reserve assets. The dollar lost some of this ground in the 1930s, as global trade flows

collapsed, and the pound enjoyed artificial support from the UK government's requirement that all British colonies hold their reserves in sterling. But after World War II the dollar decisively displaced sterling as the principal global trade and reserve currency (Eichengreen 2010, Frankel 2011).

The Eurodollar market, 1960s

As the dollar became the dominant currency for global trade, and as dollars poured into Europe to finance post-war reconstruction, large dollar balances emerged outside the United States. By the 1960s, some of the largest balances were held by oil-exporting nations—chiefly, Middle Eastern countries and the Soviet Union—which were reluctant to deposit these funds in the United States, for fear that their assets would be subject to seizure at a moment of political stress. In addition, withholding taxes on the interest income for dollar deposits in the US reduced the real after-tax return on deposits in the US. At the same time, US capital controls made it costly or impossible for foreign companies to raise US dollar finance in America and remit the funds for use abroad. The large demand for offshore dollar deposits, combined with a corresponding demand for offshore dollar sources of finance, led to the creation of the Eurodollar market in London, which had a sophisticated market infrastructure and where withholding tax was not levied. The Eurodollar market expanded rapidly and became a convenient funding source for highly-rated corporations and sovereigns, who could issue debt at rates lower than comparable US Treasury bonds. Meanwhile, thanks to the absence of withholding tax, depositors were rewarded with higher interest rates than was typical for US deposits in America.

It is important to note that although the US authorities did nothing actively to promote the Eurodollar market, the Federal

Reserve facilitated it by permitting unlimited dollar clearing to overseas banks settling offshore trade and investment transactions. In other words, even though capital controls impeded the flow of funds in and out of the United States for onshore transactions, the currency was fully convertible (at least for overseas banks) for offshore transactions. This is a crucial difference with today's renminbi (He and McCauley 2010).

Rise of the deutsche mark and yen, 1970-1990

The dollar remained easily the dominant global currency until several years after the breakdown of the Bretton Woods global monetary system in the early 1970s, which was precipitated by President Nixon's decision to end the dollar's convertibility to gold. Despite this debasement, (prompted by increasing concern over capital outflows from the US), and despite steadily rising inflation, the dollar's share of global reserves reached an all-time peak of 80% in 1977. After that, however, its share rapidly declined, to a post-war low of 45% by 1990. The slack was taken up by the deutsche mark and the yen, the currencies of the two major countries—Germany and Japan—whose share of global output and exports were rising the fastest. From very low levels in the early 1970s, the deutsche mark and yen's respective shares of global reserve holdings rose to peaks of 20% and 9% in 1990. Both currencies became widely used as the invoicing currencies for exports from their two nations.

These developments occurred despite the active opposition of the authorities in both countries. Both Germany and Japan were export-driven economies with bank-dominated financial sectors and relatively underdeveloped capital markets. Policy in both countries tended to be influenced by the perceived desire of exporters for a cheap currency. Increased

international use of a currency, by raising the demand for the currency beyond what is required for domestic use, will tend to drive up the currency's value. The central bank could intervene to suppress the rise of the domestic currency by buying dollars, but the result of such intervention would be increase the amount of the domestic currency in circulation (because the central bank must sell its domestic currency in order to buy the dollars). This in turn would drive up inflation unless the central bank undertook potentially costly "sterilization" operations, offsetting the increased money supply with sales of central-bank bills or increases in banks' required reserves.

On these considerations the Bundesbank and the Bank of Japan both resisted currency internationalization, and their governments did little to support it. But market forces overwhelmed central bank opposition: the German and Japanese economies were too strong, and their positions in global trade too large to prevent an explosion of international use. In Germany's case, the Bundesbank's own credibility undermined its opposition to wider deutsche mark use. Its well-established tradition of complete independence from government and of fighting inflation made the mark an irresistible alternative store of value to the dollar during the 1970s, when US inflation reached double digits, and in the 1980s, when expanding US fiscal and trade deficits caused many to fret about the dollar's longevity. By the late 1980s over 80% of German exports, and more than 50% of imports, were invoiced in deutsche marks, both significantly higher shares than the local-currency invoicing of Britain and France. And as noted above, by 1990 the deutsche mark had surged past sterling to become the world's second biggest reserve currency, accounting for fully one-fifth of global foreign exchange reserves. Germany subsequently endured an extended period of sub-trend economic growth as a consequence of the

reunification of East and West Germany in 1991, which entailed enormous fiscal costs and painful restructuring of the formerly Communist East. The deutsche mark's international role stabilized and in 1999 the currency was replaced by the euro, which by 2010 accounted for about 30% of global reserves.

The Bank of Japan did not have an anti-inflation track record comparable to the Bundesbank's, and it was recognized as far more subservient to the government's economic development policies. Furthermore, Japan's capital controls remained far more draconian than those of Germany. So the yen's take-off came later and was less dramatic than the deutsche mark's. But even by 1979, in the almost total absence of access by foreigners to Japanese capital markets, 25% of Japanese exports and 2% of imports were invoiced in yen.¹⁰ Responding to the need of US importers to hedge their yen positions, the Chicago Mercantile Exchange began to offer yen-dollar futures contracts as early as 1972 (Zhang and Chan 2010). Yen internationalization subsequently accelerated with a series of financial-market liberalizations beginning in 1979. In that year, foreign private companies were first authorized to issue yen-denominated "samurai bonds" in Tokyo (foreign sovereigns and international institutions had issued these bonds since 1970). In 1980 Japan substantially revised its foreign exchange

¹⁰ The extensive use of yen for invoicing by Japanese exporters at that early date suggests that while as a group exporters have an interest in an undervalued currency, individually they have an interest in reducing transaction costs by invoicing in their home currency. Thus while export lobby groups (including ministries of trade) can usually be expected to oppose currency internationalization on the grounds that it will make exporters less competitive, the separate actions of exporters may tend to promote internationalization, and hence currency appreciation. It is also worth noting that the relative use of yen to invoice exports and imports is exactly the reverse of the pattern in China today, where 15% of imports but only about 9% of exports were denominated in renminbi in 2011. This suggests that in 1979 the yen was far more easily obtainable offshore than the renminbi is today, since importers of Japanese goods were willing and able to pay yen-denominated invoices; whereas importers of Chinese goods today have virtually no way to obtain renminbi.

law; a “yen-dollar” agreement with the US followed in 1984 which further eroded capital controls; and a second revision to the foreign exchange law in 1986 permitted the establishment of offshore yen accounts, leading to a significant expansion in the euroyen market (Takagi 2012). After these reforms, which significantly reduced capital controls and gave foreigners increased (though still modest) access to domestic financial markets, the use of the yen as a trade and reserve currency increased markedly. By 1990, 38% of Japanese exports and 15% of imports were invoiced in yen; and the yen figured in about 14% of global foreign exchange trades and accounted for about 9% of global foreign exchange reserves, putting it third behind the dollar and deutsche mark.

Those figures proved the high-water mark of the yen’s international role. The bursting of Japan’s financial bubble in 1990 led to a decade of economic stagnation, one feature of which was the government’s steadfast refusal to open its financial markets further. As the country’s economic malaise dragged on, the yen became less and less important in global financial markets: by 2010 its share of global reserves had fallen to 3% and its share of global foreign exchange transactions to 9%. The share of exports and imports invoiced in yen topped out at around 40% and 25%, respectively, far below the figures achieved by the deutsche mark in the late 1980s. Tokyo, which seemed poised in the 1980s to join London and New York as one of the world’s biggest financial centers, became a backwater, and government efforts starting in the late 1990s to reinvigorate and internationalize Tokyo’s financial markets failed to bear fruit. The implications of Japan’s experience for the development of the renminbi as an international currency, and of Hong Kong or Shanghai as international financial centers, are significant and will be discussed in the next section.

Comparison of the renminbi to past currency internationalization episodes

The emerging contours of renminbi internationalization bear some resemblances to these past instances. Like the United States in 1913, China is an enormous, fast-growing, relatively open economy with a powerful comparative advantage in manufacturing and a leading position in global trade. And like the new-born Federal Reserve at that time, today's PBC appears to have a strong institutional interest in promoting the international use of its domestic currency. As with the Eurodollar market in the 1960s, the offshore renminbi bond market in Hong Kong offers the potential for highly-rated corporations to fund themselves at very low interest rates. Like Germany and Japan in the 1970s, China is rapidly gaining ground on the United States in both economic weight and in trade flows, and its currency is generally seen as likely to appreciate over time against the dollar. But also like Japan, China's economic growth model depends heavily on an undervalued exchange rate and domestic financial repression (which respectively promote exports and industrial/infrastructure investment), and on strong capital controls which are a necessary condition for the maintenance of these artificially low exchange and interest rates. In other words, China's situation today most closely resembles the situation of the major economy – Japan – that was least successful in internationalizing its currency.

The differences between China today and these past instances are, on the whole, more numerous and striking than the similarities. First and foremost, the internationalization of the dollar, deutsche mark and yen all occurred in the absence of significant capital controls in the host countries. As McCauley (2011) notes, China's experiment of "internationalizing within capital controls is without precedent." Because

renminbi cannot flow easily out of China to satisfy the demands of foreigners, the speed with which the currency can internationalize is constrained.

But there are other basic differences as well. China's position in the global economy, though large, is in fact far less significant than that of the US in 1913. China today is the world's second-biggest economy, about half the size of the US, with a per-capita income about one-eighth the US level. The US a century ago was by a wide margin the world's largest economy, and one of the richest on a per-capita basis. Moreover the US was a leader in global technological innovation, and while it was far from achieving the global political and military dominance it gained after World War II, it exercised effective regional hegemony in North and South America. China by contrast is a classic "catch-up" economy that still lies far from the global technological frontier; it exercises scant military or political influence outside its own borders, even in its own region (compared to the US whose influence in Asia still predominates); its companies have only just begun to invest internationally, and its financial institutions have yet to show they can function effectively outside the special conditions of their home market.

The conditions that led to the dollar's rapid ascent after 1913 differ dramatically from those of today. In addition to the factors noted above, the Federal Reserve on its creation was made substantially independent of the US government, and this independence enabled it to follow an aggressive currency internationalization strategy without reference to public opinion or the wider aims of the Federal government—a government which was in any case relatively weak, and whose role in economic management was marginal. In internationalizing the dollar, the Federal Reserve served the interests not only of big

American financial institutions—which were eager to increase their share of the global trade finance business and perfectly capable of doing so once the conditions were right—but also of American exporters, who were anxious to reduce their transaction costs and dependence on British banks. Finally, the dollar's ascent was undoubtedly speeded by the unprecedented catastrophe of World War I, which wrecked Europe's economies and drove their currencies off the gold standard.

The PBC today, by contrast, is a relatively weak agency within an extremely powerful government whose role in economic management is very intrusive and which over several decades has committed itself to a growth strategy dependent on manipulated exchange and interest rates and capital controls. PBC's ability to execute any strategy independent of the government's broader economic goals is close to nil. There is as yet no clear evidence that the renminbi internationalization program has strong support either from Chinese banks, who remain overwhelmingly focused on their domestic market, or by Chinese exporters. The global financial crisis of 2008, despite its exceptionally deep and long-lasting effects, was an event of incomparably smaller scale than World War I and has done little to fundamentally damage the United States' position as the world's dominant political, military, technological and economic power.

A comparison with the Eurodollar market is also instructive. This market was made possible by the fact that the US dollar was already in wide circulation outside the United States, and hence there was large-scale untapped demand both for offshore dollar deposit facilities, and for offshore dollar borrowing facilities that would enable companies to finance investments throughout the world. As a consequence of these factors and US withholding taxes and capital controls, the

Eurodollar market rapidly became very deep and very liquid, and offered borrowers lower interest rates, and depositors higher interest rates, than those obtainable in the US. Even with this compressed margin, Eurodollar business was quite profitable for European banks. The growth of the market was facilitated by the Federal Reserve's unlimited willingness to provide dollar clearing services for foreign banks.

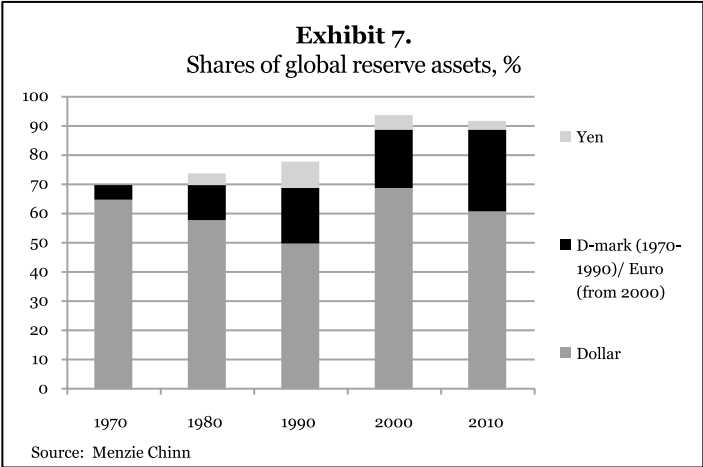
There is barely any resemblance between those conditions and the renminbi money and bond markets today. There is no pre-existing pool of renminbi outside China, so new renminbi deposits must be created *ex nihilo*. There is no huge demand for offshore renminbi borrowing facilities, since most highly-rated Chinese companies can get all the money they need at attractive rates from domestic banks, and foreign companies have no use for renminbi funding for any purpose other than investing in China; and in many cases large foreign companies already have operations in China that generate strong positive renminbi cash flows. Because of demand from investors who believe the renminbi will appreciate, renminbi deposit rates in Hong Kong are lower than those in the mainland; yet even so the renminbi business is often a money-losing proposition for Hong Kong banks, who cannot lend in renminbi, face a paucity of available renminbi bonds, and so have little choice but to park excess funds at even lower deposit rates at the PBC Shenzhen branch. Finally, the ability of foreign banks to clear renminbi transactions with the PBC remains very limited, with most transactions in Hong Kong requiring the use of the Bank of China as the PBC's designated clearing agent.

A final set of differences lies in the relationship between government policy and market forces. The Federal Reserve's aggressive policy of dollar internationalization after 1913 was perfectly aligned with market forces, as US exporters and

financiers both stood to profit, and international demand for dollars skyrocketed after the outbreak of World War I. In the 1970s and 80s, German and Japanese authorities both resisted internationalization at first, but market forces overcame their resistance. In Germany's case the capitulation to the market was almost complete, as the deutsche mark emerged as a major global trade and reserve currency, and ultimately formed the core of the euro, which by a wide margin has been the world's second currency over the past decade. Japan remained more ambivalent, kept its financial markets largely closed, and maintained a far more interventionist exchange-rate policy which aimed to ensure the competitiveness of Japanese exporters above all. As a result the yen's internationalization went into reverse after the 1990 economic crisis, leaving the export sector as the only dynamic bit of the economy and leading the government to put an undervalued exchange rate ahead of all other goals.

In all three of these instances market forces powerfully supported currency internationalization, while the policy stance was variously supportive, acquiescent or hostile. In the renminbi's case, it appears that the authorities are promoting currency internationalization in the face of market indifference. The only strong market force in favor of internationalization is the demand of foreign investors for renminbi assets, which is predicated almost entirely on the idea that the renminbi is sure to appreciate against the dollar. As the experience of Japan since 1990 shows, a perpetually strong currency is not a sufficient condition for currency internationalization. Moreover, there is a non-negligible risk that China's economic growth may weaken sharply, or that that current account surplus will shrink substantially, in coming years. In that case the desire of foreigners to hold renminbi assets could well evaporate.

A last observation is that it is probably an overstatement to say that “the Chinese authorities” in general are “actively promoting renminbi internationalization.” As indicated in section 3 above, the offshore renminbi program appears to be almost entirely a creation of the PBC; there is little evidence of active participation by other agencies, nor does currency liberalization appear to be a significant priority of the government as a whole, judging by recent government work reports and the 12th five year plan document published in early 2011. A more plausible interpretation is that reformers in the PBC, who are believed to favor the dismantling of capital controls and the reform of the financial sector, see the offshore renminbi market as a tool that they can use to achieve domestic policy objectives that would be difficult to realize by other means. In other words, currency internationalization is not so much a strategic aim of the whole government as it is a tactic by a particular agency in a battle for domestic market deregulation. We therefore now turn to a consideration of the potential linkages between currency liberalization and financial-sector deregulation.



Currency Internationalization and Domestic Financial Market Reform

We have suggested that an important purpose for the offshore renminbi market is as a catalyst for liberalization of the domestic financial markets. This raises the question of just what the mechanism for such an effect might be. The simple answer is that the creation of a full-fledged offshore renminbi market would create great pressure for the reduction or elimination of capital controls, and in the absence of capital controls it becomes very difficult for the government to manipulate the two key money prices, the exchange rate and the domestic interest rate. Having the exchange rate and interest rates set mainly by the market, rather than by government, is the essence of financial sector liberalization.

For a more detailed understanding, we must first review the mechanics of financial repression.¹¹ The anchor of monetary policy in China, as in many developing countries with relatively rudimentary financial systems, is an exchange-rate peg against the US dollar. From 1995 to 2005 the renminbi was fixed against the dollar at a rate of 8.28 to 1. Since July 2005

¹¹ This section largely follows Lardy (2012), which is the most comprehensive and lucid discussion of financial repression in China.

the renminbi has been in a crawling peg against the dollar, with an average annual appreciation of about 5%.¹² Since about 2000, and even after the introduction of the gradual appreciation against the dollar, the bias of policy has been to keep the real trade-weighted exchange rate undervalued relative to what it would be if determined solely by the market. By many estimates the renminbi was at a 25-30% discount to fair value in 2005-06, and despite significant appreciation may still be undervalued today, although the degree of current undervaluation, if any, is controversial. Again, persistent currency undervaluation is common among developing countries that wish to pursue an export-driven growth strategy.

The counterpart to the managed exchange rate is a system of domestic interest rates set by government fiat, at a deliberately low level that effectively taxes bank depositors (who receive a zero or negative real return) in order to provide subsidized credit to companies, which invest in industrial plant and infrastructure. In China, this interest-rate subsidy or financial repression tax has historically mainly benefited state-owned enterprises, which get a disproportionate share of bank loans but which are not notable exporters (the state sector as a whole runs a large and increasing trade deficit). These state firms dominate the construction of infrastructure and housing, and basic industries such as steel, petrochemicals and power generation. The exchange-rate subsidy, meanwhile, has mainly benefited the private and foreign companies that dominate China's export trade.

That said, one effect of the financial repression tax is that by making capital cheap, it creates incentives for companies

¹² The crawling peg was converted back into a fixed one from mid-2008 until early 2010, as a response to the global financial crisis. But this was clearly a temporary response to an extraordinary situation, not a change of the fundamental policy.

to invest in capital-intensive manufacturing rather than in labor-intensive services. This exacerbates the impact of an undervalued exchange rate, which favors investment in tradable goods that can be exported over investment in non-tradables for domestic consumption. The combined effect of these two policies is to stimulate investment, manufacturing and exports, and to suppress consumption, services and imports, leading to a high investment/GDP ratio, a low consumption ratio, and a large trade surplus.

Broadly speaking, the Chinese growth model of using an undervalued exchange rate and financial repression to stimulate high levels of investment and exports follows the successful strategies employed by Japan, South Korea and to a lesser extent Taiwan after World War II. The attraction of this model is that it works extremely well: these three northeast Asian countries enjoyed the most dramatic convergence with rich-country income levels of any nations in the world since 1950, and South Korea and Taiwan are the only two nations to have moved all the way from low-income to high-income status since World War II (Batson 2011).

But as successful as it is, the financial repression model creates a tangle of side effects which if not eventually pruned back can severely impede economic growth. Investment and exports cannot grow faster than GDP indefinitely; at some point domestic consumption must take over as the principal contributor to GDP. Financial repression prevents this transition in three ways. First and most directly, households earn a lot less income from their bank deposits than they would if interest rates were set by the market. So household incomes tend to grow slower than GDP. Second, because the return on their saving is minimal, households need to save a larger share of their annual income in order to meet their long-range saving

goals for retirement and medical expenses. Finally and most subtly, cheap capital creates incentives for investing in capital-intensive manufacturing, rather than labor-intensive services. In this capital-intensive pattern of development, productivity tends to rise faster than wages, so the household income share of GDP (which is mainly a function of wages) falls. In sum, financial repression reduces the household consumption share of GDP by depressing interest and wage income, and by increasing households' incentives to save.

Undoing financial repression is tricky, for a couple of reasons. First, the politically powerful beneficiaries of low interest rates (large state owned corporations) are naturally unwilling to give up their benefits. But it is also quite difficult to undo financial repression without freeing the exchange rate and dismantling capital controls. This is because the low exchange rate creates large trade surpluses and some capital inflows. Left to themselves these inflows would drive up the exchange rate, and to prevent this from happening the PBC intervenes massively in the foreign exchange market, buying dollars and selling renminbi, to keep the exchange rate at the desired level. To prevent the inflation that would otherwise arise from the resulting flood of renminbi, the central bank sterilizes, or removes renminbi from circulation, by forcing commercial banks to hold reserves, or to buy central bank bills, at extremely low interest rates. In return for forcing the banks to hold a large chunk of their balance sheet in these effectively zero-yielding assets, the central bank allows the banks to earn outsized returns on their loans, by keeping deposit rates artificially low. Capital controls promote the stability of the system by limiting capital inflows and thereby reducing the necessary scale of PBC intervention.

Allowing deposit rates to rise to market levels would upset

this system: with lower profits on their loans, banks would demand a higher rate on sterilization instruments, forcing the PBC to take large losses, allow inflation to rise substantially, or let the exchange rate float up to a more appropriate level. Eliminating capital controls would also break the system, since with free capital movements domestic depositors could evade the financial repression tax by moving their money to higher yielding assets in other countries.

Domestic reformers have long wanted to move in the direction of a more liberalized financial system, with the exchange rate and interest rates set more by market activity than by government fiat, on the belief that this would produce better capital allocation and more balanced and sustainable growth. But after several years of extensive financial market reforms culminating in the liberalization of loan interest rates in late 2004 and the shift from a fixed to a crawling peg for the renminbi in July 2005, progress toward a more liberal financial system slowed markedly (Walter and Howie 2010, Lardy 2012). On the widely-used Chinn-Ito index, China is one of the least financially open major economies in the world, and is no more open now than it was in 1993 (Prasad and Ye 2012).

In the absence of domestic reform momentum, the establishment of an offshore market can act as a catalyst by providing a controlled environment in which true prices for money can be set. Interest rates for renminbi debt securities in Hong Kong are set by market supply and demand, rather than by government fiat. Once the offshore market gets big and liquid enough, its prices can start to affect the prices of loans and debt securities onshore. This transmission cannot occur if the onshore and offshore markets are kept strictly segregated—i.e., if strict capital controls continue to bind, and renminbi funds created offshore are not permitted to make

their way back into the mainland. But the logic of reformers is likely that once the offshore market gets big enough, it will effectively be impossible to prevent offshore renminbi from entering the mainland, because there is little use for renminbi funds outside of mainland China. In other words, the offshore renminbi market—if it gets big enough—can be a mechanism by which capital controls are broken down, and the market takes over from government the job of setting interest rates, and by extension the exchange rate (McCauley 2011).

Risks of capital accounting opening and financial liberalization

Two sets of risks cloud this optimistic scenario. First, there is the problem of getting the offshore market big enough so that it can actually begin to affect prices in the much larger mainland market. In order for the market to grow, there must be powerful incentives for issuers of debt securities to issue in renminbi in Hong Kong. As discussed above, these incentives do not at present seem very strong. High-quality mainland corporate issuers, mainly big SOEs, have no need to fund themselves in Hong Kong since they can access plenty of capital in China from friendly banks. True, borrowing rates in Hong Kong may be substantially lower, but this lower price is offset by other factors: the difficulty of remitting funds back into the mainland, and the annoyance of meeting the more stringent credit rating and compliance requirements of a more transparent market. Multinationals face similar disincentives. If it really wanted to, the mainland government could vastly increase the depth of the Hong Kong market by making the Ministry of Finance consistently issue a substantial portion of its annual treasury bonds in Hong Kong. But as noted above in section 3, MoF issuance in Hong Kong has been minimal, despite attractive interest rates. There are several plausible explanations for MoF's reluctance to issue in Hong Kong,

including concerns about loss of control of its borrowing costs, and rivalry with the PBC.

A second caution is that inappropriate sequencing of capital account opening and financial reforms can lead to disastrous results.¹³ Unlike many developing economies, China does not face substantial risk of financial crisis triggered by panic among its foreign creditors. Its external balance sheet is extremely conservative, with foreign direct investment accounting for 63% of its gross external liabilities, and portfolio equity another 9%. Gross external debt is less than 10% of GDP, and net foreign assets at US\$1.8 trillion are more than enough to cover all of its external liabilities (Prasad and Ye 2012). The risks of capital account opening and financial reform therefore lie on the domestic side.

One worry is that premature opening of capital outflows would prompt Chinese depositors to flee the domestic banking system with its artificially low deposit rates in favor of higher-yielding investments abroad, triggering a liquidity crisis in the Chinese banking system. The conclusion is thus that significant liberalization of domestic interest rates should precede full liberalization of capital outflows. By giving domestic households a wider range of higher-yielding investment vehicles in the domestic market, the authorities can reduce the incentives for capital flight. It is noteworthy that in 2012, as the growth of offshore renminbi deposits and bond issuance slowed markedly, the pace of domestic interest rate liberalization quickened. Nearly 10% of Chinese banking system liabilities now take the form of higher-yielding “wealth-management products” (WMPs) which banks have

¹³ A full discussion of financial reform risks and sequencing issues, with particular reference to China, is in Prasad, Rumbaugh and Wang 2005 and Prasad and Rajan 2008.

issued through off-balance sheet vehicles, with tacit regulatory acquiescence, since 2010. And the PBC took the first small but crucial step to incorporate WMP innovations in the formal rate structure by raising of the long-standing ceiling on bank deposit rates in June. (Kroeber 2012, Poon 2012). This suggests that the balance of financial reform activity is shifting, appropriately, from the offshore to the onshore markets.

Another set of risks is illustrated by the example of Japan in the 1980s. The development of the offshore yen bond market with its low interest rates enticed the best corporate Japanese borrowers away from their traditional bank relationships. This caused, first, the liberalization of the domestic bond market, in order to bring Japanese corporate borrowing back on shore, and second, the effort by the banks to replace their loans to blue-chip companies with loans to small and medium sized enterprises, who mainly used real estate as collateral. This contributed to a massive real estate bubble followed by an epic financial collapse (McCauley 2011). China's situation is not exactly parallel, but an analogous risk exists in the highly leveraged investments of local governments and their associated companies in infrastructure and heavy industrial capacity, financed by loans secured mainly by land at arguably inflated values. Financial reforms that led to a sudden shift in the willingness of banks to roll over these loans (for instance because a higher-cost liability structure compelled them to seek higher-return assets) could result widespread corporate and local-government insolvency, and a permanent collapse in land values that could ripple with malign effect throughout the rest of the financial system.

Prospects for Renminbi as an International Trading and Reserve Currency

From a very low base, the renminbi's progress towards internationalization since 2009 has been fairly rapid. But as the preceding discussion makes clear, the conditions surrounding the renminbi's emergence are quite different from those surrounding the emergence of the dollar, the deutsche mark and yen in the previous century. Unlike the United States, Germany and Japan, China is trying to internationalize its currency in advance of eliminating capital controls—indeed, reformers appear to be using the renminbi internationalization program precisely in order to undermine capital controls. And whereas market forces were the primary driver of previous currency internationalizations—sometimes over the opposition of national monetary authorities—the renminbi's increased international use appears to be driven more by government policy than the demand of market participants.

In this final section, we attempt to make sense of these conflicting forces and assess the likely future trajectory of the internationalized renminbi. Here it is useful to return to a distinction we made in section 1, between three concepts that have often been confused in popular writings: international currency, reserve currency and principal global reserve

currency. On present trends it seems likely that the renminbi will become a significant invoicing currency for global trade in the next decade, and its share of global foreign exchange transactions is likely to become comparable to that of the pound, Swiss franc or yen, while falling well short of that of the dollar and euro. It is also likely to become a secondary reserve currency, but again is most unlikely to challenge the euro or dollar in the near term. The renminbi's chances of supplanting the dollar as the world's principal reserve currency are extremely remote.

To justify these judgments, we rely first on the argument by Frankel (2011) that three fundamental conditions are required for a nation's currency to internationalize:

- The size of the economy (as measured by trade or GDP);
- Confidence in the currency as a stable store of value; and
- The depth and openness of its financial markets.

China clearly satisfies the first criterion: its economy is now the world's second largest and will probably surpass the United States to become the biggest around 2020; it is already the world's biggest exporter and will soon surpass the US as the biggest importer. China's large position in the global economy, and in international trade and investment flows, virtually guarantee that the renminbi will become a significant trade invoicing currency.

On Frankel's second criterion, the emergence of the currency as a trusted store of value, the renminbi bears limited resemblance to the dollar of a century ago, a somewhat stronger resemblance to the yen of the 1970s, and very little resemblance to the post-World War II dollar and deutsche mark. The kinship with the yen is clear-cut: Japan in the decades after World II, and China in the decades after 1980,

were fast-growing East Asian “developmental states” that emphasized broad-based industrialization and export-led growth. The policy focus on exports meant there was a strong bias toward keeping the currency undervalued; on the other hand, sustained rapid productivity growth led most market participants to believe that the currency would undergo a long secular appreciation both on a real trade weighted basis and against the dollar. This meant that market participants had substantial incentives to buy and hold yen and renminbi assets as they became available.

The similarities to the dollar a century ago are slighter, but worth considering. Like China today, the United States on the eve of World War I was a country that had been a substantial force in the international economy and trade for many years, but whose currency punched below its weight internationally. International recognition of America’s economic might was tempered by suspicion of its financial markets, which were subject to frequent panics, and only with the establishment of the Federal Reserve to impose monetary and financial market discipline in 1913 did it begin to be possible to view the dollar as a safe store of value. The crisis of World War I rapidly enhanced the dollar’s standing, as European trade was disrupted and the major countries went off the gold standard to finance their war spending.

So too, China today is a very large and open economy whose currency plays a far smaller role in international transactions than one would expect. The status of the country and its currency was boosted by the massive global financial crisis of 2008, which severely weakened the US and European economies and ultimately led the Federal Reserve, the European Central Bank and the Bank of Japan to adopt anti-deflationary policies of “quantitative easing” which

many market participants interpret as currency debasement by another name. Alone of the major economies, China continued to enjoy robust growth, conducted a more or less normal monetary policy, and appeared to target a long-term appreciation of its currency. China's status as a relative safe haven in the recent crisis, and comparison the speed with which the previously negligible US dollar zoomed to global dominance after 1913, led Barry Eichengreen to suggest that the pace of renminbi internationalization could be just as rapid (Eichengreen 2011).

Yet such a judgment seems premature at best. Doubts over the renminbi's security as a store of value remain substantial and well-founded. Market polls consistently show that half or more of active international financial market traders believe that China is likely to undergo a severe financial crisis in the next few years. Unlike the United States in the 1910s and Germany and Japan in the 1970s—whose economic growth stories were widely accepted as permanent—China's growth model has many doubters. Many sectors of the economy are dominated by large state owned companies whose rate of return on capital is arguably quite low; maintaining fast economic growth probably requires the politically difficult task of restructuring or privatizing these enterprises (Dollar 2007). Since the late 1990s China has relied on a rate of domestic investment far higher than that attained by any previous country, including Japan and South Korea at the peak of their industrialization. Reliance on investment increased even more in the aftermath of the 2008 crisis, when the government used massive infrastructure spending to offset a collapse in export demand. The evidence is now overwhelming that China's investment-driven growth model cannot be sustained for very much longer; yet the development of policies that would aid the shift to a more sustainable reliance on domestic consumption has

been very weak (Lardy 2012). A recent analysis by a leading Chinese government think-tank concluded that, with the adoption of market and financial reforms, China can sustain real GDP growth of at least 7% a year for another decade; but without such reforms growth could fall to as low as 4% in a few years' time (Liu, Zhang Hou and Liu 2011).

And while the 2008 crisis was an unusually large financial panic that led to the biggest fall in global output since the Great Depression, it has so far had nowhere near the impact on the global order that World War I did. Though its prestige is severely tarnished, the United States' hegemony over global political and economic arrangements has not been severely damaged, its central role in global financial markets remains unchallenged, and its leadership in technology development remains unquestioned. One critical difference sums it up: during World War I the US dollar massively gained strength and credibility because it maintained the gold standard while other major currencies abandoned it. In the aftermath of the 2008 crisis, the renminbi retained its credibility by returning to a fixed peg against the dollar, which it had abandoned in 2005. The renewed peg to a declining dollar meant that in real trade-weighted terms the renminbi actually depreciated in 2009-10—a fact which helps explain why Chinese exports recovered so quickly after the crisis. Only in late 2010, with global financial stability no longer in question, did Beijing feel secure enough to exit the dollar peg once more and return the renminbi to its long-run trend of appreciation. The lesson of this episode is that China has yet to demonstrate that its currency offers a store of value independent of and reliably stronger than the dollar in times of uncertainty.

In this connection it is probably worth emphasizing the extent to which dollar weakness has been exaggerated in popular

accounts since the 2008 financial crisis. As noted above, since the mid-1920s the dollar's share of global reserves has fluctuated around a long run average of approximately 60%, and these fluctuations have often been enormous. In recent decades, the dollar share peaked at near 80% in the late 1970s, fell to a low of 45% in 1990, subsequently surged to above 70% in the late 1990s, and has gradually declined since. The dollar's present share of global reserves, at around 60%, approximates its long run average and lies far above the trough of 1990. It may be that the dollar's role as a reserve asset is in secular decline, but there is as yet no convincing evidence to support such a view.

On the third of Frankel's criteria, depth and openness of financial markets, China's differences with its predecessors in currency internationalization become most stark. China's financial markets, though large in absolute terms because of the country's size, are not very liquid, and essentially closed to foreign investors. These conditions make China differ vastly from the United States at any point in its history, substantially from Germany in the 1970s, and even from Japan in the 1980s, which saw a substantial liberalization of its capital markets. In this respect, China is truly unprecedented: there has never been a case of a country pursuing a policy of currency internationalization while maintaining an effectively closed capital account.

The question marks surrounding the durability of the renminbi as a store of value, and over the openness and resilience of its financial markets, will probably not impede the use of the currency in trade transactions. And key state-controlled financial institutions, notably China Development Bank, have begun to issue international loans in renminbi, a practice that is likely to expand as China's international investments

increase. But the store of value and financial market limitations do impose some constraints on the renminbi as a reserve asset. For central banks to include a currency as a large component of their reserve holdings, they need surety that the value of that currency will remain broadly stable over a long period of time, and they must also have access to a large and liquid pool of debt securities denominated in that currency, in which they can park substantial balances with little risk. Depth and liquidity of the markets is crucial, since central banks need to be able to enter and exit their positions without having a large impact on prices.

Conclusion

The fundamental question facing Chinese policy makers is what kind of international currency they want, and how much control over their financial system and monetary policy they are willing to give up in order to achieve this goal. So far there is no clear-cut answer to this question. As our discussion in section 3 showed, the available evidence suggests that some policy makers are very interested in the potential of the offshore renminbi market to aid in the process of dismantling capital controls and reforming the domestic financial system. Secondary motives may be to provide a convenience for trading firms, and to establish a liquidity buffer or insurance policy in the event of another global financial panic. Positioning of the renminbi as a major global reserve currency does not appear to be on the list of important goals.

Ultimately, the degree and depth of a currency's internationalization depends on the openness, sophistication and depth of the host country's financial markets. If these markets are very deep, very open and very flexible, international investors will willingly participate in them on a large scale, and hold the necessary currency balances to do so. Yet the creation of such financial markets is extraordinarily difficult, and

carries with it many risks. At the simplest level, banks could be disintermediated and lose their predominant position in funding investment. This would mean the erosion of the government's ability to influence the allocation of capital to projects it deems developmentally important. As with Japan, government influence over capital allocation decisions is central to China's economic growth model.

A second question relates to the government's own borrowing costs. In a closed system such as China has now, the government is able to keep the interest rate on its government bonds low by imposing statutory liquidity requirements on banks that can only be met by buying government bonds. In a deregulated financial market this power would decline and the government would have to justify the continuation of its low borrowing costs by convincing the market that its fiscal and monetary policies were sound. This in turn would require considerably more transparency and accountability from a government that has been notoriously secretive, and resistant to any form of external accountability whether through market discipline in the economic sphere, or elections in the political one.

To some extent, therefore, financial and political reform are linked. It may be accidental, or it may be significant, that the dominant international currencies of the past two centuries (sterling and the US dollar) arose in the countries (the United Kingdom and the United States) with the most consistent and robust democratic institutions. Japan stands as an example of a country that despite enormous economic clout – its position in the world economy in the late 1980s was arguably more significant than China's today, because of its technological leadership across an array of industries – failed to open up its financial markets, in large measure because of fears of the

instability and loss of government control that such an opening would entail, and as a consequence saw its currency shrivel into relative insignificance. China is of course unique and its future unknowable, but at present it seems more likely to follow the Japanese model than the American.

Bibliography

Batson, Andrew 2011. “Is China Heading for the Middle-income Trap?” GaveKal Dragonomics research note, 6 September 2011.

Chen Xiaoli and Yin-Won Cheung 2011. “Renminbi Going Global,” Hong Kong Institute of Monetary Research Working Paper No. 08/11, March 2011.

Cheung, Yin-Wong, Guonan Ma and Robert N. McCauley 2010. “Renminbising China’s foreign assets,” Hong Kong Institute of Monetary Research Working Paper No. 16/2010, June 2010.

Chinn, Menzie and Jeffrey Frankel 2007. “Will the Euro Eventually Surpass the Dollar as Leading International Reserve Currency?” in *G7 Current Account Imbalances: Sustainability and Adjustment*, edited by Richard Clarida. Originally published as NBER Working Paper No. 11510, August 2005.

Dollar, David and Shang-jin Wei 2007. “Das (Wasted) Kapital: Firm Ownership and Investment Efficiency in China,” IMF Working Paper WP/07/9, January 2007.

Eichengreen, Barry 2010. *Exorbitant Privilege: The Rise and Fall of the Dollar and the Future of the International Monetary System*, Oxford University Press, 2010

Eichengreen, Barry 2011. “Why Dollar’s Reign Is Near an End,” Wall Street Journal, 1 March 2011.

Frankel, Jeffrey 2011. “Historical Precedents for the Internationalization of the RMB,” paper presented at a workshop organized by the Council on Foreign Relations and the China Development Research Foundation, 1 November 2011.

Gao Haihong and Yu Yongding 2012. “*Internationalisation of the renminbi*,” in *Currency internationalisation: lessons from the global financial crisis and prospects for the future in Asia and the Pacific*,” BIS Papers No. 61, January 2012.

He, Dong and Robert N. McCauley 2010. “Offshore markets for the domestic currency: monetary and financial stability issues,” BIS Working Papers No. 320, September 2010.

International Monetary fund, *Review of Exchange Arrangements, Restrictions and Controls*, 27 November 2007.

Ito, Takatoshi 2011. “The Internationalization of the RMB,” Council on Foreign Relations working paper, November 2011

Kenen, Peter B. 1983. *The Role of the Dollar as an International Currency*, Occasional Papers No. 13, Group of 30 (1983).

Kroeber, Arthur. 2012. “China Rate Cut Signals Reform,” GaveKal Dragonomics research note, 8 June 2012.

Lardy, Nicholas 2012. *Sustaining China's Growth After the Global Financial Crisis*, Peterson Institute, 2012

Liu Shijin, Zhang Junkuo, Hou Yongzhi, Liu Peilin 2011. “陷阱还是高墙：中国经济面临的真实挑战与战略选择（‘Middle-income trap’ vs ‘High-income Great Wall’: Real Challenges to and Strategies for China's Economy.’）比较(Comparative Studies) No. 54, 2011 issue 3. English translation available as “The China Diviner: The Trap and the Wall: The Structural Outlook for China's Economy,” Macquarie Bank research note, 14 September 2011.

McCauley, Robert N. 2011. “Internationalizing the Renminbi and China's Economic Development Model,” Council on Foreign Relations Working Paper, November 2011.

Poon, Joyce. 2012. A New Headache for Chinese Banks,” GaveKal Research note 23 February 2012.

Prasad, Eswar and Raghuram Rajan. 2008. “A Pragmatic Approach to Capital Account Liberalization,” *Journal of Economic Perspectives* 22, no 3.

Prasad, Eswar, Thomas Rumbaugh and Wang Qing. 2005. “Putting the Cart Before the Horse? Capital Account Liberalization and Exchange Rate Flexibility in China,” IMG Policy Discussion Paper.

Prasad, Eswar and Ye Lei 2012. *The Renminbi's Role in the Global Monetary System*, Brookings Institution, February 2012.

Takagi, Shinji 2012. “Internationalising the yen 1984-2003: unfinished agenda or mission impossible?” in *Currency*

internationalisation: lessons from the global financial crisis and prospects for the future in Asia and the Pacific,” BIS Papers No. 61, January 2012.

Walter, Carl and Fraser Howie 2010. *Red Capitalism: The Fragile Financial Foundation of China’s Extraordinary Rise*, John Wiley & Sons, 2010

Yi Gang 2010. 国家外汇局局长易纲谈人民币汇率制度的最佳选择 (“State Administration of Foreign Exchange vice-commissioner Yi Gang Discusses the Optimal Choices for the Renminbi Exchange Rate System”), 中国改革(China Reform), July 30, 2010. Available at:
<http://hk.jrj.com.cn/focus/renminbi/index.shtml>

Yi Gang 2011. 加快外汇管理理念和方式转变 深化外汇管理体制 改革, (“Accelerate the Transformation of the Principles and Methods of Foreign Exchange Management, Deepen Reforms of the Foreign Exchange Management System,” State Administration of Foreign Exchange, January 18, 2011. Available at:
http://www.safe.gov.cn/model_safe/news/new_detail.jsp?ID=900000000000000000,864&id=2

Yu Yongding 2012. “Liberalising China’s International Capital Movements,” East Asia Forum, 29 April 2012. Available at:
<http://www.eastasiaforum.org/2012/04/29/liberalising-chinas-international-capital-movements/>

Zhang Guangping and Thomas Chan 2010. *The Chinese Yuan: Internationalization and Financial Products in China*, John Wiley & Sons, 2010

Zhou Xiaochuan 2010. 周小川行长在财新峰会开幕式上的讲

话, (“PBC Governor Zhou Xiaochuan’s speech at the opening of the Caixin Summit”), 19 November 2010. Available at: http://www.pbc.gov.cn/publishgoutongjiaoliu/524/2010/20101119161635846466813/20101119161635846466813_.html

About the Author

Arthur R. Kroeber is a nonresident senior fellow at the Brookings-Tsinghua Center for Public Policy. Arthur R. Kroeber focuses on China's political economy and its engagement with global economic institutions. He is managing director of GaveKal Dragonomics, an independent global economic research firm, and editor of its journal *China Economic Quarterly*. Mr. Kroeber is based in Beijing, where he has lived since 2002.

Before joining Dragonomics, Kroeber worked for fifteen years as a financial journalist and economic analyst in China, Taiwan and India. He has written for *Foreign Policy*, *Economist*, *Far Eastern Economic Review*, *Fortune* and *Wired* and is a contributor to the opinion pages of *Financial Times*, *Wall Street Journal* and *Washington Post*. He is a member of the National Committee on United States-China Relations, the Fernand Braudel Institute of International Economics, and the board of the Research Center for Chinese Politics and Business at Indiana University.

Brookings-Tsinghua Center for Public Policy
Monograph Series Number 3
April 2013

School of Public Policy and Management
Tsinghua University
Beijing, China
Tel: +86-10-6279-7363
Fax: +86-10-6279-7659
E-mail: brookings@tsinghua.edu.cn
www.brookings-tsinghua.cn