

Renminbi internationalisation and China's financial development¹

For now, effective capital controls allow the Chinese authorities to retain regulated deposit and lending rates, quantitative credit guidance and bond market rationing. Relaxation of the capital controls would put these policies at risk. Reserve requirements can be extended to bank inflows from the offshore market, but only at a price.

JEL classification: E4, E5, F3, G1, O16, P2.

A currency is internationalised when market participants – residents and non-residents alike – conveniently use it to trade, to invest, to borrow and to invoice in it outside the currency's home country ("offshore"). The Chinese renminbi has just begun the process of becoming an international currency.

Economists have long considered the international use of a currency as a market outcome that is subject to inertia as a result of network externalities ("I use it because others use it"). Against this, Eichengreen and Flandreau (2010) find that it took the dollar just 15 years to overtake sterling in official reserves after the Federal Reserve Act promoted the US dollar's challenge to sterling in global trade and finance. Frankel (2011) argues that a "tiny elite" promoted the dollar at the Federal Reserve's founding and that German and Japanese industrialists resisted international use of the Deutsche mark and yen in the 1970s and 1980s.²

However one interprets the dollar's ascent, there is no precedent for the managed availability of the renminbi offshore. In the late 1950s, US officials were taken unawares by the spontaneous rise of London's eurodollar market as UK banks sought to avoid sterling exchange controls, US banks sought to avoid US regulation and central banks sought to invest at higher yields (Schenk (1998), McCauley (2005)).

¹ The views expressed are those of the author and not necessarily those of the BIS. The author thanks Woon Khien Chia, Tim Condon, Dong He, Daniel Hui, Thomas Liu, Andy Lui, Guonan Ma, Sebastian Mallaby, Miranda Tam, Olin Wethington and Haibin Zhu for helpful discussions and Agne Subelyte and Emese Kuruc for research assistance. A longer version is at <http://www.cfr.org/thinktank/cgs/beijingpapers.html>.

² See Funke (1999, pp 246–8), Ito (2011) and Takagi (2011).

The Chinese authorities have begun to internationalise the renminbi *before* fully liberalising China's capital account. More broadly, the renminbi is crossing borders at a transitional stage in China's financial development. In the country's banking system, the net interest margin is still regulated, lending is still subject to quantitative guidance and foreign banks are still limited to playing a small role. Similarly, in the corporate bond market, issuance is still rationed. Backed by capital controls, these reinforcing restrictions provide the authorities with direct leverage over credit growth and its allocation.

How does the managed internationalisation of the renminbi square with this transitional stage of financial development? Can the Chinese authorities continue to manage the internationalisation of the renminbi within the regime of capital controls, and this without depriving themselves of direct levers on credit? Or is internationalisation likely to take the levers out of their hands?

As long as capital controls remain effective, renminbi internationalisation leaves the levers intact. Relaxed capital controls would put at risk bond market rationing, regulated deposit and lending rates, and quantitative credit guidance. Reserve requirements can be extended to inflows from offshore, but at a price.

This special feature first sketches the role of offshore markets in the multi-track strategy for China's financial development. The next section shows that offshore markets in renminbi are growing within a regime of capital controls. The following section traces the flow of funds from onshore to offshore and vice versa. The penultimate section contrasts the existing renminbi offshore markets with offshore markets in major currencies in order to highlight future challenges facing Chinese policymakers. The last section concludes.

The three-track strategy of financial development

A generation ago, China gradually shifted from central planning to a socialist market economy. But instead of a big bang, as in Poland, price controls remained in place over the medium term for certain quantities of goods, and flexible market pricing applied to output beyond those quantities. In the transition, market prices served as shadow prices for the set quantities.

By analogy, the authorities have continued to set maximum deposit rates in the Chinese banking system, to exercise window guidance on loan growth and to ration access to bond markets. This is the first track. At the same time, the authorities have allowed market-set money and bond yields to signal the scarcity of funds. This is the second track. Banks heed these signals when they negotiate liberalised loan spreads with customers. Thus, over time, the two tracks can converge (He and Wang (2011)).

The offshore markets can serve as a third track. Renminbi accumulate offshore when Hong Kong SAR residents buy limited amounts of renminbi against dollars or when renminbi payments for China's imports exceed renminbi receipts for China's exports. Using these offshore renminbi, banks and underwriters build offshore foreign exchange, money and bond markets. So far, the authorities have permitted relatively narrow channels from (third-track) offshore markets to the (second-track) currency, money and bond markets in China. As a result, offshore price signals differ from those onshore.

Offshore market prices can help guide pricing by Chinese banks

That said, the Chinese authorities do not delude themselves that the third track can be permanently isolated from the second and first tracks. Instead, offshore prices can complement the domestic market-determined yields in sending signals to the still regulated banking system. The third track thus helps to expand the ambit of flexible prices. If the offshore markets put pressure on the pace of development of the domestic money and bond markets, within limits this would be welcome.

Internationalisation within capital controls

Offshore prices differ from onshore prices in ...

Renminbi are accumulating outside the mainland via carefully drilled holes in China's capital controls. However, currency, bond and equity markets show that these controls nonetheless continue to bind.³

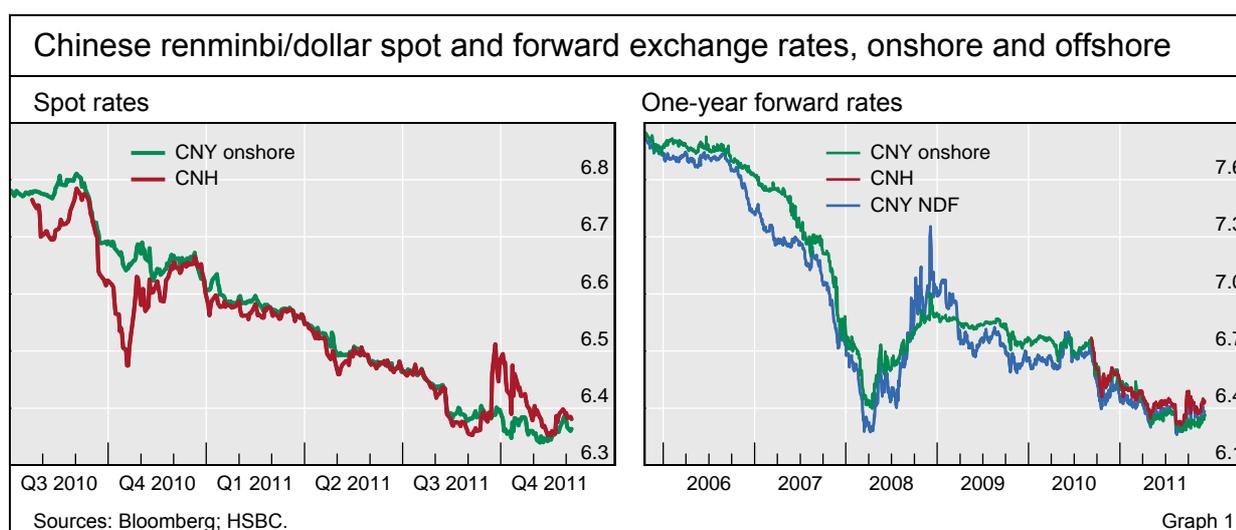
Exchange rates

... spot foreign exchange ...

The renminbi's internationalisation has produced a second spot exchange rate for the renminbi, dubbed the CNH, for delivery of renminbi against dollars outside the mainland, largely in Hong Kong. And this spot renminbi exchange rate in Hong Kong differs from that in Shanghai (CNY), a clear sign of segmentation. From its inception on 11 July 2010 to November 2011, the premium on the Hong Kong CNH relative to the Shanghai fixing ranged between -1.9% and 2.6% and averaged 0.2% in absolute value (Graph 1, left-hand panel). In September and October 2011, with heightened risk in global equity markets ("risk off") and associated weakness in Asian currencies against the dollar, the renminbi traded substantially more cheaply in Hong Kong than in Shanghai. Global financial strains exposed the limits of arbitrage.

... forward foreign exchange...

With the introduction of a CNH forward in late 2010, three different markets trade forward rates for the renminbi (see box). For more than 10 years, a forward contract for difference, a so-called non-deliverable forward (NDF),

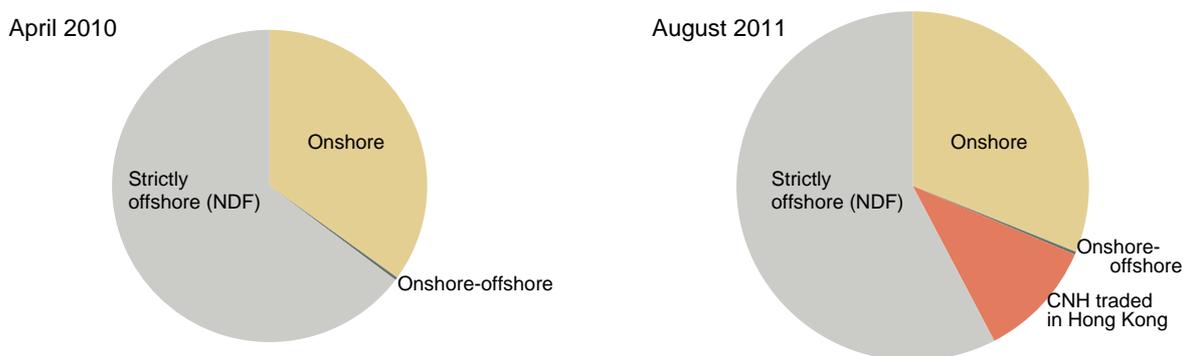


³ For money markets, see Ma et al (2004), Ho et al (2005), Ma and McCauley (2008a,b) and McCauley (2011).

The trifurcated renminbi foreign exchange markets: a transactions perspective

To complement the point made in the main text – that, in terms of pricing, the renminbi trades in a trifurcated market – this box gives a transactions perspective. According to the triennial central bank survey of April 2010, the largest share of trading in the renminbi was the \$23 billion per day virtual trading of the NDF outside China (Graph A, left-hand pie chart). The onshore deliverable market in April 2010 reported only \$10 billion (though this may have been an undercount). By centres, trading volume was about \$10 billion per day on the mainland and in Hong Kong SAR, with another \$7 billion per day in Singapore and London and \$3 billion per day in New York. Market estimates for August 2011 put trading offshore in the deliverable renminbi, CNH, at \$4 billion per day. If turnover on the mainland and that in non-deliverable forwards outside China are assumed to have continued at the April 2010 rate, then the trifurcation of activity would be as portrayed in the right-hand pie chart in Graph A.

Geography of currency trading: estimated distribution of renminbi turnover



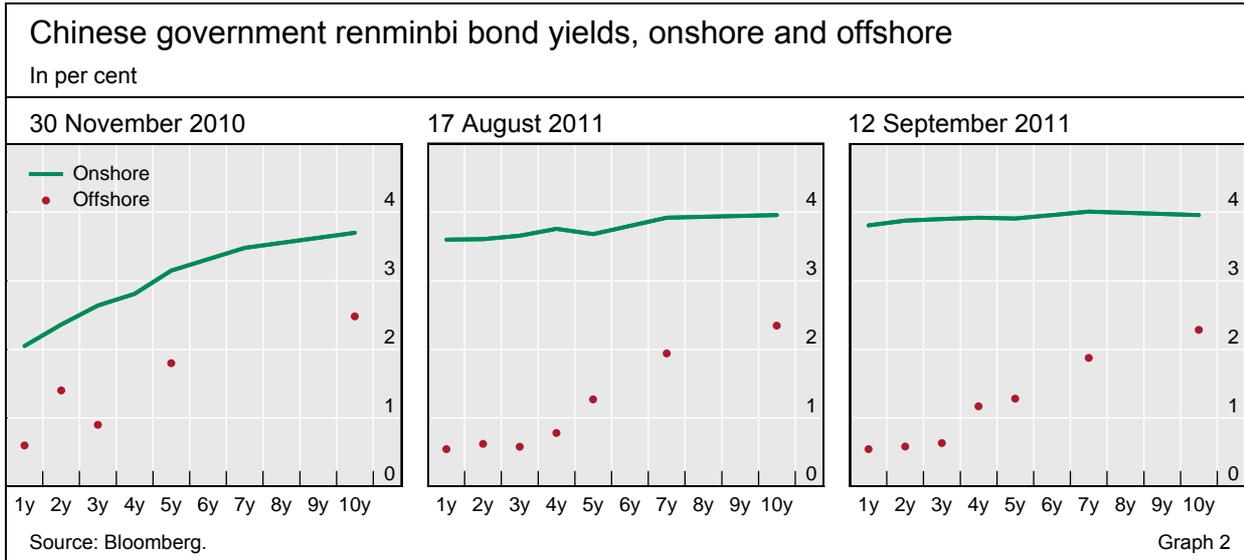
Sources: Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity; HSBC; author's estimates. Graph A

has traded offshore. In this market, counterparties take a position on the domestic renminbi exchange rate fixing at some date in the future, but settlement involves dollars only. Then, in October 2005, after the unpegging of the renminbi from the dollar in July 2005, a deliverable forward began to trade onshore. From then until late 2010, the offshore NDF and the onshore forward traded at strikingly different rates (Graph 1, right-hand panel). In particular, the gap between the onshore forward and the offshore NDF rate ranged between -5% and 4% , and averaged 1% in absolute value. During this period, multinational firms arbitrated these two markets within the limits set by China's capital controls. From the start of forward CNH trading to August 2011, its price differed from its onshore counterpart and the NDF by no more than $\pm 2\%$. In this period, the gap between the onshore forward and the NDF narrowed from an average absolute value of 1% to 0.6% . Again, in September and October 2011, the forwards in Hong Kong depreciated relative to their Shanghai counterpart, resembling in sign if not extent the pattern observed after Lehman's failure in 2008.

Government bond yields

The natural experiment of the sale in Hong Kong of Chinese government bonds has produced fresh and strong evidence for the effective segmentation of the domestic and offshore markets. When the Chinese government first issued renminbi bonds in Hong Kong in 2007, it paid a higher yield than that demanded in domestic markets. However, with the subsequent build-up of

... Chinese government bonds ...



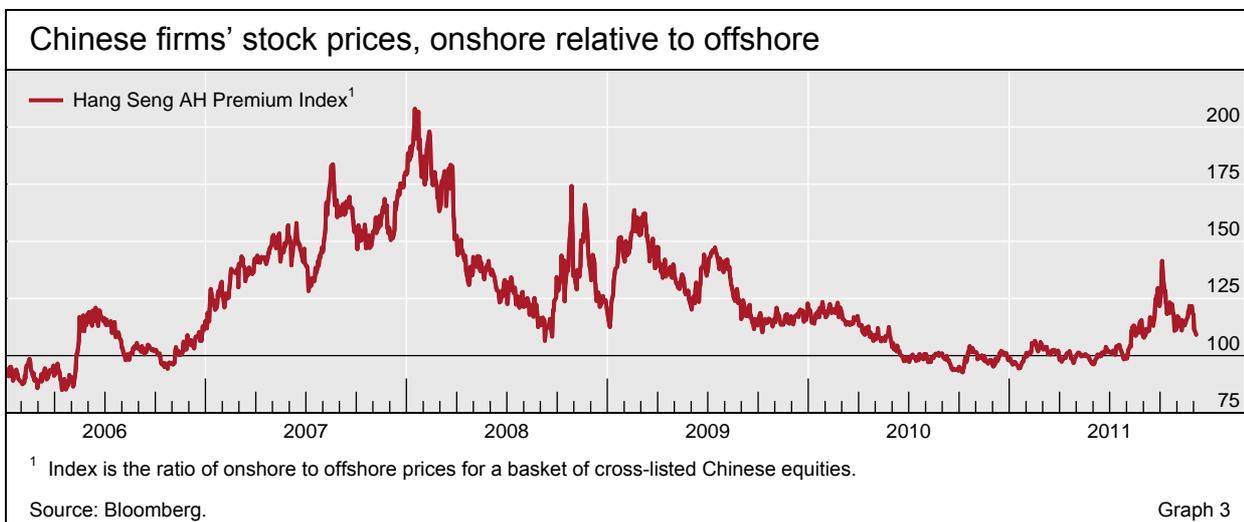
renminbi in Hong Kong, the Chinese government issued in November 2010 and August 2011 at yields below those offered onshore.

On 30 November 2010, the auction yield on all four maturities came in well below the domestic yield curve, saving the Chinese government an average of 144 basis points (Graph 2, left-hand panel). On 17 August 2011, the experiment provided similar results: the yields on all four maturities came in well below domestic yields, saving the government 258 basis points (Graph 2, centre panel). Such pricing continues in the secondary market (Graph 2, right-hand panel). Reflecting (and demonstrating) their lack of access to the mainland bond market, investors in Hong Kong pay a premium over what investors on the mainland pay for given renminbi obligations of the Chinese government.

Stock prices

... and Chinese equity prices

The differential in the prices of Chinese shares between the mainland and Hong Kong also points to the effectiveness of capital controls (Graph 3). The Chinese authorities have allowed many firms to list shares both on the



mainland (so-called A shares) and in Hong Kong (so-called H shares).⁴ The price of mainland-listed shares rose to twice the level of their Hong Kong-listed counterparts at the end of 2007. In the latter half of 2010 and the first half of 2011, shares in Hong Kong and the mainland traded at near parity. Recently, global risk aversion drove domestically traded shares to a premium.

The flow of funds between offshore and onshore

Although capital controls remain in place, measures that allow a degree of renminbi internationalisation have punched holes in them. Since 2003, Hong Kong residents have been permitted to buy renminbi up to a daily limit to obtain offshore renminbi deposits. The counterpart to offshore renminbi deposits was an increase in the net foreign currency assets of the Chinese banking system – in this case, higher official foreign reserves (Table 1, red arrows).

From 2007, the offshore sale of renminbi bonds has been permitted, providing an investment alternative to renminbi bank accounts. These bonds offered yields above those on bank deposits but below those on equivalent bonds sold on the mainland. If the renminbi proceeds are to be remitted to the mainland to finance assets there, the transaction must be approved by the State Administration of Foreign Exchange (SAFE), just as in the case of dollars that are to be exchanged for renminbi.

Since 2009, it has been possible to invoice and settle imports and exports in renminbi, and the growth of Hong Kong holdings of renminbi has come to depend on the response of such trade to the gap between the CNH and CNY rates (Garber (2011), He (2011)). Offshore investment demand for renminbi makes the currency relatively expensive in Hong Kong, providing incentives for Chinese imports to be invoiced and settled in renminbi and Chinese exports to be invoiced in dollars. The resulting excess of renminbi-denominated imports over renminbi-denominated exports leads to a net *flow* of renminbi into Hong Kong, thereby increasing the *stock* of renminbi deposits there. By contrast, in late September and October 2011, offshore investment demand for renminbi fell as investors deleveraged amid rising risk aversion, and the renminbi became relatively cheap in Hong Kong. As a result, the stock of renminbi

Investment demand for renminbi offshore leads to outflows of renminbi through the trade channel

Renminbi consolidated banking balance sheet		
	Assets	Liabilities
Onshore	Net foreign currency assets (including official foreign reserves) ↑ CNY credit by onshore banks	Onshore CNY M2
Offshore	CNY credit by offshore banks ↑	Bank bonds held by non-banks Offshore CNY deposits ↑ ↑
Sources: He (2011); author's adaptation.		Table 1

⁴ See Peng et al (2007) and McCauley and Ma (2009) for evidence on the speed of convergence of the prices of cross-listed shares.

deposits in Hong Kong barely increased in September and actually shrank in October.

There is a debate over whether the stock of renminbi deposits and bonds in Hong Kong accurately measures the addition to the foreign exchange reserves of the People's Bank of China associated with accommodating offshore demand for renminbi (with a given exchange rate policy), or whether the addition is smaller than that. In either case, renminbi internationalisation has led to a rise in official foreign exchange reserves, increasing the government's long foreign exchange position and its associated valuation risks. Moreover, any reflux of renminbi to the mainland adds to the need for sterilisation by the central bank. In pursuing the managed internationalisation of the renminbi, the Chinese authorities must see medium-term benefits, because the short-term effects only add to current policy challenges.

A different and more balanced evolution of offshore renminbi banking could generate assets and liabilities offshore without adding to official foreign exchange reserves (Table 1, green arrows). Loans could be extended offshore to non-Chinese borrowers, and non-Chinese investors would be happy to hold corresponding offshore renminbi deposits. To some, this would be the ideal development, internationalising the renminbi without involving money and credit in China. However, reality is not likely to follow this path (Aliber (1980)). The next section examines existing offshore markets to sketch the challenges that the Chinese authorities will eventually face.

Prospective challenges of renminbi internationalisation

Looking forward, the development of the renminbi's offshore market can be expected to pose challenges to China's financial development. One of the consequences of this model is that hardly any credit is extended to Chinese borrowers across the mainland border (Borio, et al (2011)).⁵

Already, as noted, Chinese firms are selling renminbi bonds offshore and ready access to such funding could undermine the domestic rationing of bond market access and accelerate large Chinese firms' exit from the banking system. Eventually, banks will forge strong links between the offshore renminbi interbank market and its domestic counterpart, challenging monetary and credit control. In the longer term, firms in China will borrow from non-Chinese banks located outside the mainland, challenging not only monetary and credit control but also the predominance of Chinese-owned banks.

In what follows, I take up the issue of non-Chinese and Chinese obligors selling renminbi bonds offshore, the forging of strong interbank links between the renminbi market on the mainland and offshore, and direct borrowing by Chinese firms from banks located outside the mainland. In each case, I draw

⁵ As noted in Borio et al (2011), foreign currency credit to Chinese borrowers is larger than cross-border credit owing to foreign currency loans extended by banks in China. According to the People's Bank of China's Financial Statistics for October 2011, foreign currency loans reached \$530 billion, a year-on-year increase of 24.4%.

on the evidence of existing offshore markets to infer the possible trajectories and implications of renminbi internationalisation.

Offshore bond market development

If it follows the precedent of offshore markets in other major currencies, the renminbi offshore bond market will diversify away from Chinese nationals as issuers. So far, the overwhelming majority of issuers of renminbi bonds in Hong Kong have plans to use the proceeds on the mainland. Since offshore bonds yield less than onshore bonds, which themselves are generally cheaper than bank loans, there is much latent supply of offshore bonds. The constraint is not the bond issuance in Hong Kong per se, but rather the remittance of the renminbi proceeds to the mainland – for which SAFE approval is required, just as it is for the inward remittance of dollars.

The offshore renminbi bond market ...

This dominance of the offshore market by borrowers of domestic origin (mainland banks and firms or their offshore subsidiaries) is a very unusual trait (Graph 4). Whereas 80% of renminbi issuers are of Chinese nationality,⁶ only 30–60% of issuers in other offshore markets are nationals of the currency's country of issue. For non-financial issuers, however, the offshore renminbi bond market is less out of line with the international experience.

... is currently dominated by issuers of Chinese nationality ...

The dearth of non-Chinese renminbi bond issuers allows unusually weak credits to issue offshore bonds. While the median rating of renminbi bonds sold in Hong Kong is A, some 7% by number and 17% by value carried sub-investment grade ratings at the time of issue. In contrast to the high quality of issuers in other offshore markets (McCauley (2010)), the unsatisfied demand for offshore renminbi bonds lets weak credits issue bonds.

A major deterrent to the borrowing of renminbi by firms and governments outside China, even at low interest rates, is the potential exposure to a currency that is widely anticipated to appreciate. If they perceived a two-way risk in the exchange rate, obligors outside China might be more willing to take on renminbi liabilities and to hold them without hedging them. And, indeed, the recent weakness of the CNH suggests that this perception of a one-way risk could change quickly.

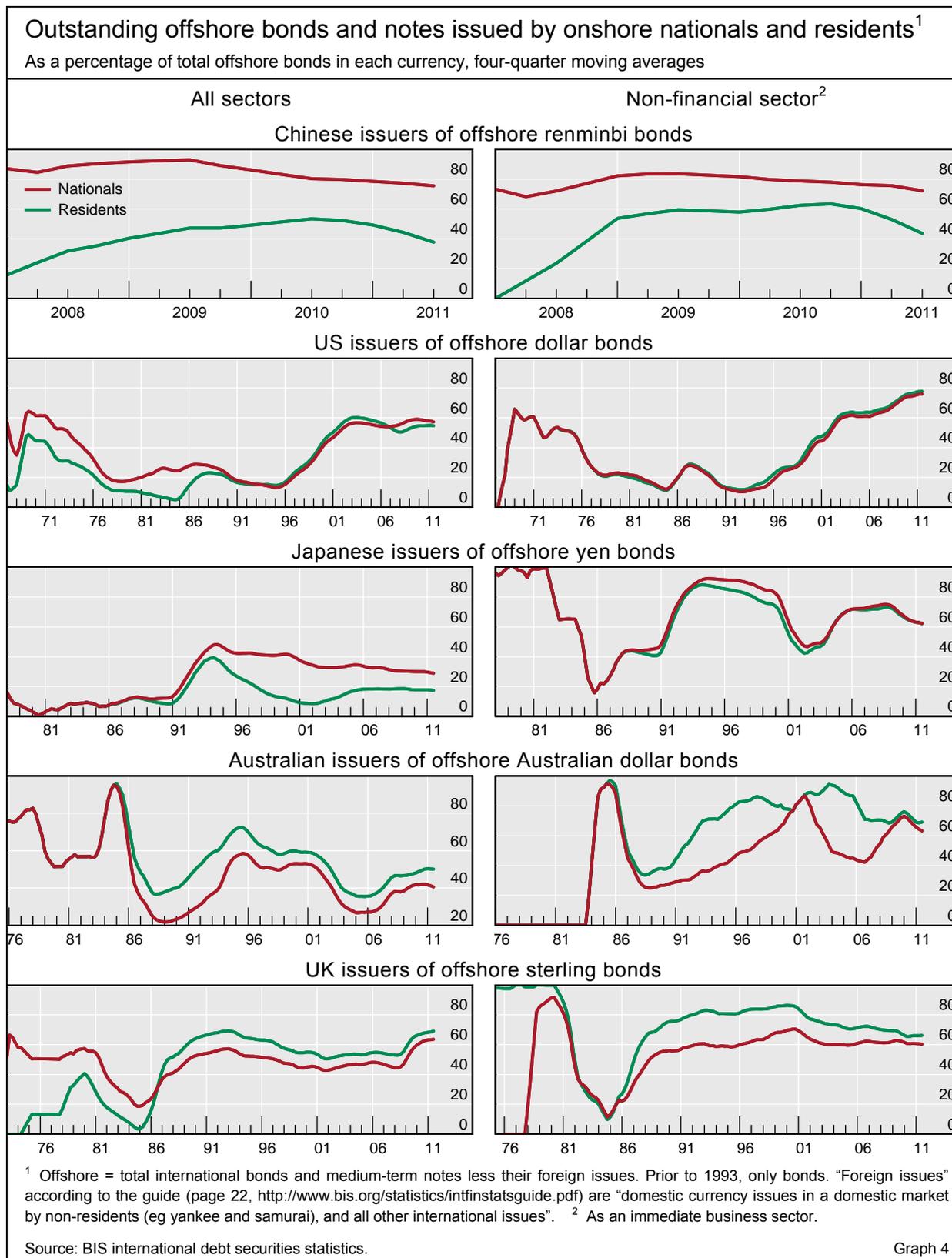
... but will eventually attract obligors from outside China to share China's foreign exchange risk ...

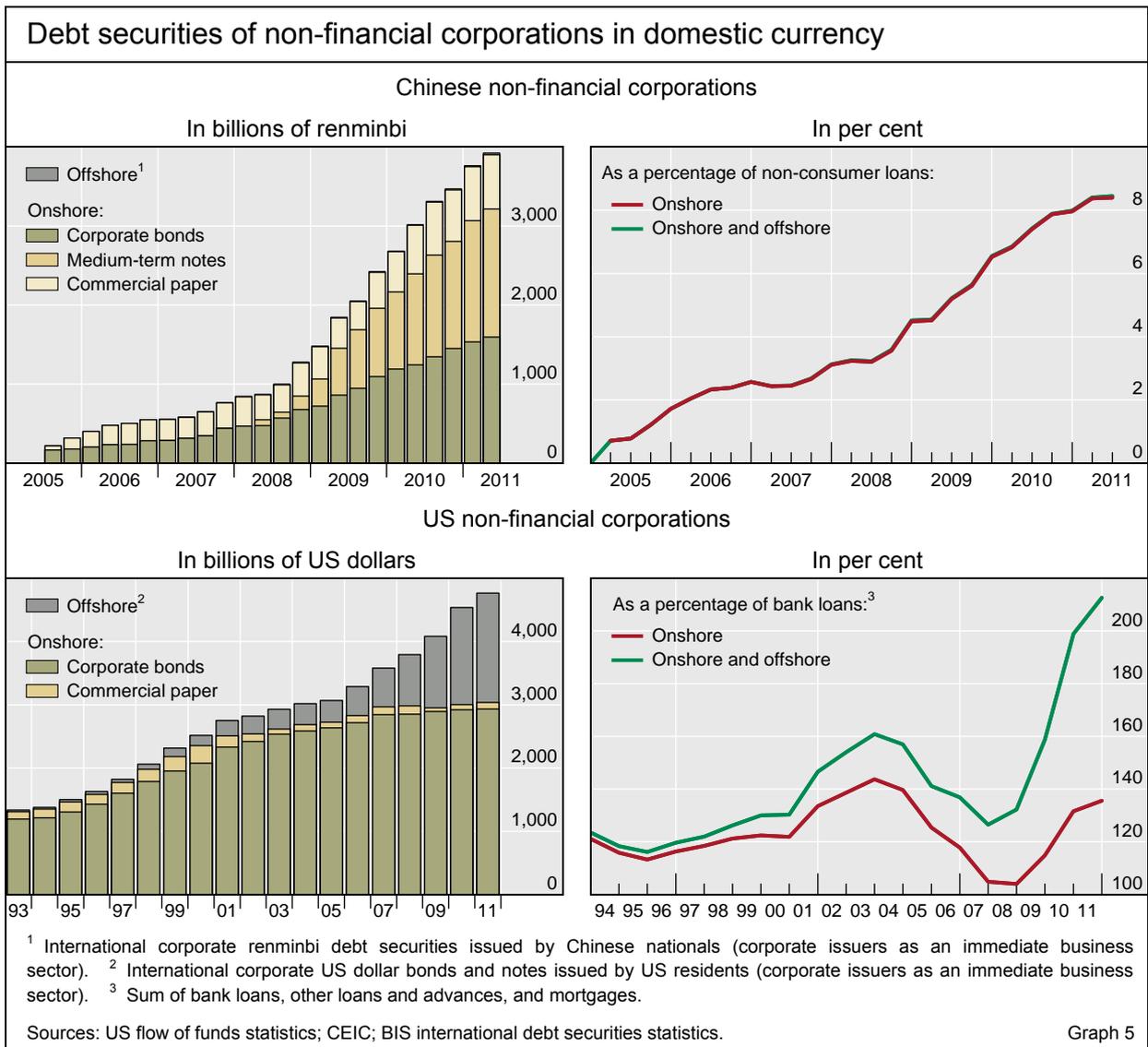
One of the payoffs to China of renminbi internationalisation would be the sharing of exchange risk – the short renminbi, long foreign currency risk – that is currently held by Chinese investors in general, and the government in particular (Cheung et al (2011)). This ultimately requires that firms and governments in the rest of the world take on renminbi obligations and leave them unhedged (except through trade flows). For the international use of the renminbi to succeed as a tool for international risk diversification, offshore issuance of renminbi bonds needs more non-Chinese issuers.

⁶ Hitherto, firms in China have been able to sell offshore bonds in renminbi only through their offshore affiliates. Once non-financial firms are permitted to sell offshore bonds directly, the share of Chinese residents can be expected to rise towards that of Chinese nationals, much as the share of US residents rose after the repeal of the US withholding tax on bond interest (which had led to US firms selling eurodollar bonds through Netherlands Antilles financing subsidiaries).

... and, with eased capital controls, will compete with the onshore bond market ...

Returning to Chinese issuance of offshore renminbi bonds, a future regime allowing easy repatriation of renminbi to China would pose a challenge to domestic credit control. Required approval for the repatriation of the proceeds of renminbi offshore bonds keeps offshore issuance small in relation to the domestic bond market in China, which itself is small in relation to bank





debt (Graph 5). By contrast, not only is the international dollar bond market important to US firms, but also their bond debt greatly exceeds their outstanding bank and other loans.

Moreover, assuming more cross-border capital mobility in the future, offshore bond issuance could spur an accelerated liberalisation of the domestic bond market that could cost banks their best corporate borrowers in a few short years. In Japan, the liberalisation of the foreign exchange market in 1980 and 1984 and of the euroyen market in 1984 prompted heavy use of the offshore market from the mid-1980s (Hoshi and Kashyap (2001, pp 232–6)). This, in turn, spurred domestic bond market liberalisation. Losing their big corporate borrowers, the big Japanese banks reinvented themselves as lenders to small and medium-sized firms that had real estate collateral, with disastrous results.

... helping the best firms to repay bank loans

All this highlights how the development of the offshore renminbi market leaves the domestic rationing of bond market access vulnerable to easier cross-border flows of renminbi. Of course, a similar statement can be made about cross-border flows of dollars into China. Easy cross-border flows of dollars would lead to an explosion of dollar bond issuance. The development of

the offshore renminbi bond market implies that an easing of cross-border flows would give Chinese firms a choice between dollar and renminbi borrowing.

Interbank inflows

Currently, the offshore renminbi interbank market is segregated from its onshore counterpart ...

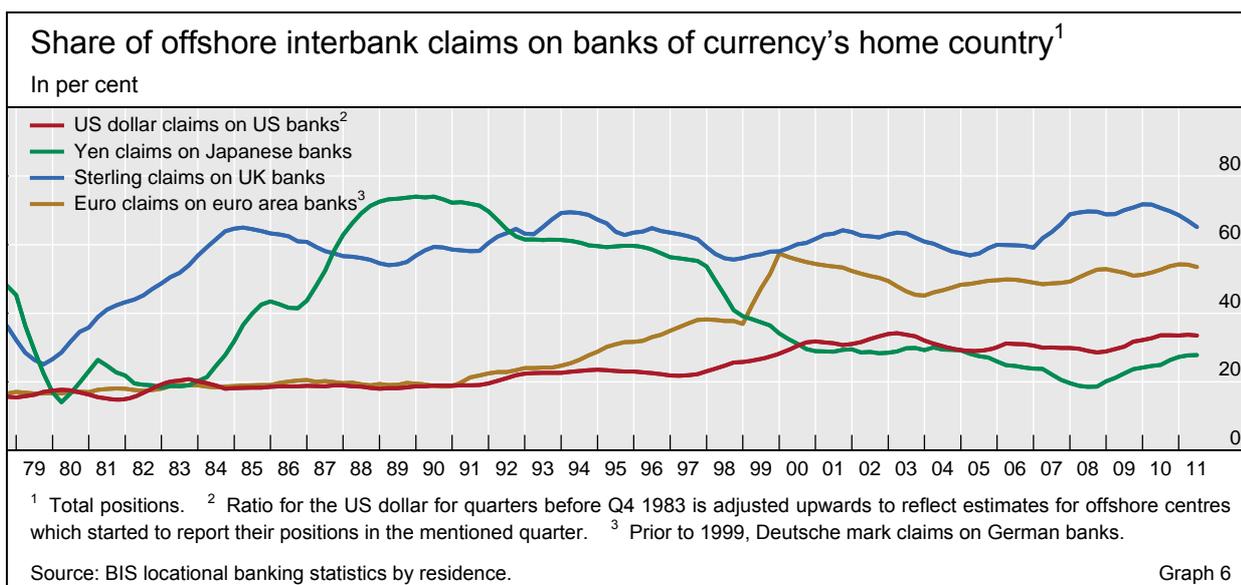
Offshore banking in the renminbi can be expected ultimately to be less isolated from banking markets on the mainland, and the eventual interactions may pose policy challenges. At present, renminbi in Hong Kong banks can flow back to the mainland only via limited channels. They can flow back through trade (as payment for exports from the mainland) or through capital account channels (as an authorised remittance by an issuer of a dim sum bond or as an authorised investment in the interbank market for Chinese government bonds). The existing, relatively small claims of offshore banks on Chinese banks and non-banks are denominated in dollars and other foreign currencies.

At some stage, one would expect cross-border markets to link banks outside the mainland to mainland banks and firms. The records of the global banking markets in dollar, euro, yen and sterling all make clear that offshore banks end up holding substantial exposures to the banks and non-banks of the currency's home country. And the growth and fluctuations of these stakes have posed policy challenges elsewhere to authorities used to working with regulated deposit rates, reserve requirements and domestic banks.

... but international experience suggests that offshore banks will eventually hold substantial claims on onshore banks ...

Experience elsewhere suggests that eventually banks outside the mainland will lend in renminbi directly to banks in China.⁷ For example, dollar claims on banks in the United States booked by banks located outside the United States have risen from less than a fifth to more than a third of overall dollar interbank claims booked outside the United States (Graph 6, red line).

Eurodollar inflows into the United States in 1969 are instructive. With inflation rising towards 5–6%, the Federal Reserve was in the process of



⁷ This section analyses the policy challenges arising in situations when money market yields are such that there are incentives for inward flows. Policy challenges can also arise when higher rates offshore lead to outflows. In that case, as noted in He and McCauley (2010), the authorities have been known to conduct operations in the offshore markets.

raising interest rates to 10%. As Treasury bill and other money market yields approached the (Regulation Q) ceilings on deposit rates, banks suffered a run-off of interest-sensitive certificates of deposit – so-called disintermediation. Previously, banks would have been forced to cut back on their lending. But the eurodollar market had advanced so much in a dozen years that big US banks could attract deposits there and thereby replace the lost funding at home.

At the time, Federal Open Market Committee (FOMC) members were surprised at how elastic a source of funds the offshore dollar market had become. President Hayes of the Federal Reserve Bank of New York worried in February about the consequences of a “drying up of the supply of Euro-dollars” (FOMC, 4 February 1969, p 44). However, at the 9 September meeting, FOMC members learned that New York banks had drawn on the eurodollar market since December for an amount equivalent to 6–7% of their assets.⁸ An inflow in eight months of a like share of the assets of the large Chinese commercial banks would be quite a sum.

As argued in He and McCauley (2010), policymakers can (and did) resort to reserve requirements on funding from the eurodollar market. These, however, could sharpen the incentives for direct cross-border lending to non-banks in renminbi.

Direct borrowing by Chinese firms from banks abroad

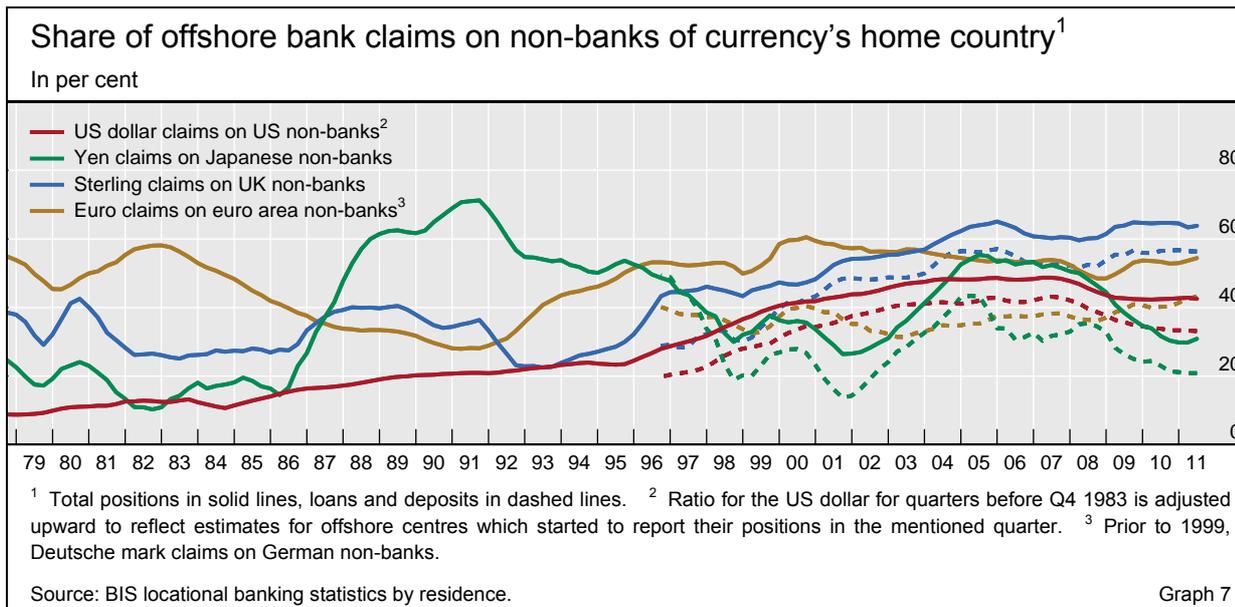
Eventually, banks offshore will extend renminbi credit directly to firms in China, bypassing domestic banks altogether and putting at risk some of the policy levers of the authorities. In particular, the offshore markets in dollar, euro, yen and sterling direct 20–40% of their credit to borrowers in the currency’s home country. Dollar claims on US residents that are booked by banks outside the United States started out as a small proportion of overall dollar claims booked offshore but rose over a generation to approach a half (Graph 7, red line). Precisely when the Bank of Japan sought to restrict domestic yen lending (Fukumoto et al (2010)), the proportion of offshore yen claims on Japanese residents jumped in the late 1980s from around 20% to 60% (Graph 7, green line). Eventually, a good part of the renminbi offshore assets can be expected to be claims on Chinese residents.

Such renminbi credit would pose manifold policy challenges. Offshore loans can be priced below minimum regulated loan rates, especially if they are funded with deposits that are not subject to reserve requirements. The authorities may encounter difficulties in measuring such credit, even with authorisation or registration requirements. If, as can be expected, non-Chinese banks do most of this direct cross-border lending, especially if they can evade reserve requirements or other regulation, the foreign bank share of bank credit

... at times posing challenges to monetary control

Offshore bank lending can pose policy challenges

⁸ Stephen Axelrod, Staff Director for the Division of Monetary Affairs, reported (FOMC, 9 September 1969, p 26): “In early December 1968, when outstanding CD’s of New York banks, for example, were at their peak of \$7½ billion, they represented 10 per cent of total assets of these banks. At present, these banks have only about \$2 billion of CD’s left; and these finance only about 2¼ per cent of total assets. It is interesting to note that the corresponding build-up in Euro-dollar borrowings has brought such liabilities of New York banks to a total now of over 10½ billion, representing a little more than 13½ percent of the total assets – a doubling since December.”



to Chinese residents (currently 2%) can be expected to rise. By allowing foreign banks to raise their market share in China, direct cross-border lending will also weaken window guidance as a tool for influencing credit growth.

Conclusions

The growing use of the renminbi beyond the Chinese mainland has a complex relationship with the country's capital controls. Cross-border flows themselves represent an exception to capital controls, and the build-up of renminbi deposits has further raised China's official foreign exchange reserves. Yet capital controls remain effective, and this allows the Chinese authorities to enforce ceilings on deposit rates and to guide bank lending quantities as well as to ration access to the bond market.

This feature argues that established offshore markets provide significant credit to borrowers in the currency's home country. This is already the direction in which the offshore renminbi bond market is moving. (Indeed, its more balanced development requires greater numbers of non-Chinese borrowers.) At this stage, border controls on renminbi inflows limit the impact of the offshore renminbi bond market on domestic bond market rationing and, more generally, on the balance between bank credit and securities market credit.

For its part, offshore renminbi banking can be expected to evolve beyond the use of deposits outside the mainland to fund non-Chinese borrowers. Renminbi credit will at some stage flow into China through the interbank and direct cross-border lending channels, complicating monetary and credit control. Reserve requirements may well be extended to renminbi interbank inflows, but these may give an edge to foreign banks in lending directly to Chinese firms from offshore.

All in all, the internationalisation of the renminbi can provide a third track of pricing for currency, money and bond markets. This track will help to diminish the importance of regulated financial prices and, alongside its domestic counterpart, to inform their setting where flexibility is permitted. The

more that offshore renminbi are given a passport to enter the mainland freely, the more prices in the offshore market will matter. In the process of easing capital controls, a preferential passport for renminbi to enter the domestic economy could usefully lessen the risk of foreign currency borrowing.

References

Aliber, R (1980): "The integration of the offshore and domestic banking system", *Journal of Monetary Economics*, vol 6, no 4, October, pp 509–26.

Borio, C, R McCauley and P McGuire (2011): "[Global credit and domestic credit booms](#)", *BIS Quarterly Review*, September, pp 43–57.

Cheung, Y-W, G Ma and R McCauley (2011): "Why does China attempt to internationalise the renminbi?", in J Golley and L Song (eds), *China rising: global challenges and opportunities*, Australian National University Press and Social Sciences Research Press (China), pp 45–68.

Eichengreen, B and M Flandreau (2010): "[The Federal Reserve, the Bank of England and the rise of the dollar as an international currency, 1914–39](#)", *BIS Working Papers*, no 328, November.

Federal Open Market Committee (1969): *Memorandum of discussion*.

Frankel, J (2011): "Historical precedents for internationalization of the RMB", paper presented to a Council on Foreign Relations/China Development Research Foundation symposium, *The future of the international monetary system and the role of the renminbi*, Beijing, 1 November 2011.

Fukumoto, T, M Higashi, Y Inamura and T Kimura (2010): "Effectiveness of window guidance and financial environment", *Bank of Japan Review*, 2010 E 4, August.

Funke, G (1999): "The Bundesbank and the financial markets", in *Fifty years of the Deutsche mark*, Oxford University Press, pp 219–66.

Garber, P (2011): "What currently drives CNH market equilibrium?", paper presented to a Council on Foreign Relations/China Development Research Foundation symposium, *The future of the international monetary system and the role of the renminbi*, Beijing, 1 November 2011.

He, D (2011): "International use of the renminbi: developments and prospects", presentation to the Columbia-Tsinghua Conference on Exchange Rates and the New International Monetary System, Beijing, 28 June.

He, D and R McCauley (2010): "[Offshore markets for the domestic currency: monetary and financial stability issues](#)", *BIS Working Papers*, no 320, September, also forthcoming in Y-W Cheung and J de Haan (eds), *The evolving role of China in the global economy*, MIT Press.

He, D and H Wang (2011): “Dual-track interest rates and conduct of monetary policy in China”, *HKIMR Working Papers*, no 21/2011.

He, F (2011): “Rethinking RMB internationalization”, paper presented to a Council on Foreign Relations/China Development Research Foundation symposium, *The future of the international monetary system and the role of the renminbi*, Beijing, 1 November 2011.

Ho, C, G Ma and R McCauley (2005): “Trading Asian currencies”, *BIS Quarterly Review*, March, pp 49–58.

Hoshi, T and A Kashyap (2001): *Corporate financing and governance in Japan*, MIT Press.

Ito, T (2011): “The internationalization of the RMB: opportunities and pitfalls”, paper presented to a Council on Foreign Relations/China Development Research Foundation symposium, *The future of the international monetary system and the role of the renminbi*, Beijing, 1 November 2011.

Levy Yeyati, E, S Schmukler and N Horen (2009): “International financial integration through the law of one price: the role of liquidity and capital controls”, *Journal of Financial Intermediation*, vol 18, pp 432–63.

Ma, G, C Ho and R McCauley (2004): “The markets for non-deliverable forwards in Asia”, *BIS Quarterly Review*, June, pp 81–94. Summary translation in *Chinamoney* (website administered by the People’s Bank of China), December 2004, pp 4–8 (www.chinamoney.com.cn/content/online2002/english/ex/3804.htm).

Ma, G and R McCauley (2008a): “Do China’s capital controls still bind?”, in B Eichengreen, Y-C Park and C Wyplosz (eds), *China, Asia, and the new world economy*, Oxford University Press, pp 312–40.

——— (2008b): “The efficacy of China’s capital controls: evidence from price and flow data”, *Pacific Economic Review*, vol 13, no 1, February, pp 104–23.

McCauley, R (2005): “Distinguishing global dollar reserves from official holdings in the United States”, *BIS Quarterly Review*, September, pp 57–72.

——— (2010): “Internationalizing the Australian dollar”, in C Shu and W Peng (eds), *Currency internationalization: international experiences and implications for the renminbi*, Palgrave Macmillan, pp 56–77.

——— (2011): “Internationalizing the renminbi and China’s financial development model”, paper presented to a Council on Foreign Relations/China Development Research Foundation symposium, *The future of the international monetary system and the role of the renminbi*, Beijing, 1 November 2011.

McCauley, R and G Ma (2009): “Resisting financial globalisation in Asia”, in *Financial globalization and emerging market economies*, proceedings of an international symposium organised by the Bank of Thailand, Bangkok, 7–8 November 2008, pp 177–222.

Peng, W, H Miao and N Chow (2007): “Price convergence between dual-listed A and H shares”, Hong Kong Monetary Authority, *China Economic Issues*, no 6/07, July.

Schenk, C (1998): “The origins of the Eurodollar market in London”, *Explorations in Economic History*, vol 35, pp 221–38.

Takagi, S (2011): “Internationalization of the yen: unfinished business or mission impossible?”, in Y-W Cheung and G Ma (eds), *Asia and China in the world economy*, World Scientific Publishing.