# Opening China's capital account amid ample dollar liquidity

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As China prepares for the challenging task of capital account liberalisation, its authorities have the advantage of years of experience with private holding of foreign currency assets. Despite capital controls, the Chinese economy has already been quite open to international capital movements in some respects. In particular, the widespread presence and marked expansion of foreign currency deposits in the Chinese banking system carry important implications for the country's gradual opening of its capital account.

This paper examines determinants of the demand for foreign currency deposits in Chinese banks, explores the changing relative importance of the Chinese surplus dollars stemming from both the banking and official sectors, traces their deployment overseas, and discusses possible policy implications for China's evolving capital account management.

Several findings emerge from our analysis. It is found that interest rate differentials, exchange rate concerns and the one-off effect of the liberalisation of part of China's stock market jointly account for almost half the variation in demand for foreign currency deposits. We also analyse the recent ups and downs of dollar loans booked by banks in China, and their implications for the foreign currency liquidity position of banks on the mainland. We argue that the same set of forces helps us understand the changing locus of surplus dollars in the Chinese banking and official sectors. Our study indicates that, over the past three years, surplus dollars of China's banking and official sectors were vented mainly into the international interbank markets and US debt markets. Going forward, the main challenge of China's capital account liberalisation is not so much whether to permit portfolio outflows as the choice of new channels for such already large outflows.

Table 1

Foreign currency bank deposits of non-banks in mainland China

End of period, in billions of US dollars

	1992	1995	1997	2000	2001
Total	60.7	69.7	83.5	145.6	154.5
In mainland China (onshore)	57.9	66.7 <sup>1</sup>	79.7 <sup>1</sup>	134.8	142.6
Locally owned banks Individuals Firms Others Foreign banks <sup>2</sup> Offshore <sup>3</sup>	56.1 9.4 26.7 20.1 1.8 2.8	63.6 <sup>1</sup> 15.9 <sup>1</sup> 29.3 <sup>1</sup> 18.4 <sup>1</sup> 3.1 2.9	75.2 <sup>1</sup> 29.2 <sup>1</sup> 33.7 <sup>1</sup> 12.3 <sup>1</sup> 4.5 3.8	128.3 73.0 46.0 9.3 6.5 10.9	134.9 81.6 45.3 8.0 7.8 11.9
Memo: In locally owned banks as a percentage of total renminbi deposits Foreign exchange reserves	12.3 19.4	8.7 73.6	6.9 140.0	8.6 165.6	7.8 212.2

<sup>&</sup>lt;sup>1</sup> Dollar deposits estimated using bank data from *Almanac of China's Banking and Finance*. <sup>2</sup> Onshore foreign currency deposits at foreign banks operating in mainland China are estimated as their total deposits, assuming that they are all foreign currency denominated. <sup>3</sup> Non-bank Chinese deposits at BIS reporting banks.

Sources: The People's Bank of China; Almanac of China's Banking and Finance; BIS; authors' own estimates.

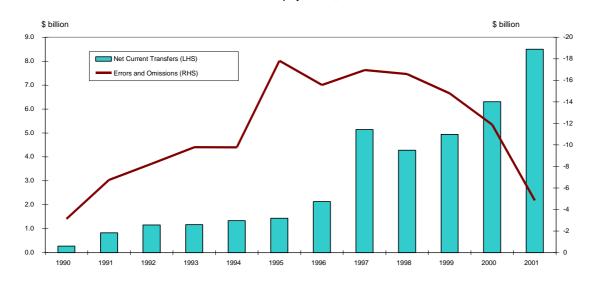
# 1. Growth of foreign currency deposits of Chinese non-banks

Most of the surplus dollars from the Chinese banking sector have come about as a result of the rapid growth in foreign currency deposits at banks in China (Table 1). Foreign currency deposits of non-banks resident in China have grown very rapidly, averaging some 10% per annum during the 1990s. These deposits have accumulated principally at Chinese banks on the mainland, as well as in banks offshore (including in Chinese banks' affiliates in Hong Kong SAR and elsewhere) and at foreign banks in mainland China, which until recently could serve only foreign firms and individuals. Increased individual deposits represent most of the recent growth. The focus of our paper is primarily on the foreign currency deposits at Chinese-owned banks in China.

It is difficult to say where all the dollar deposits have come from. One source has been remittances from overseas Chinese, which lie behind the reported net current transfers of over USD 8 billion in 2001 (Graph 1). The easing of restrictions on foreign travel by Chinese residents led to 12 million reported travellers in 2001, each entitled to convert domestic currency equivalent to USD 2,000 into foreign currency. Leakage in China's foreign exchange controls may partly explain the outflows implied by the substantial errors and omissions in China's balance of payments. And reasonably competitive interest rates on domestic dollar deposits have served to domesticate what might otherwise have been capital flight. China's foreign currency deposits amount to some 8% of its broad money, comparable to Taiwan (China) and Canada but higher than the United States and Japan.

Graph 1

Sources of foreign currency deposits for China's household sector
In China's balance of payments, billions of dollars



Sources: The People's Bank of China.

# 2. Explanations

Following the structure of an analysis of Taiwanese foreign currency deposits (Fung and McCauley (2001)), we consider four factors to explain the monthly variation of foreign currency deposits in Chinese banks on the mainland. The Appendix details the econometric work. To summarise the results, country risk and credit risk are rejected as explanations, while interest rate differentials and exchange rate expectations appear to play important roles. In addition, the partial liberalisation of the so-called B-share market, previously intended to be restricted to non-resident investors, explains a temporary drawdown in deposits in the first quarter of 2001. This general finding is remarkably consistent with the earlier works on China (Ma (1999)) and Taiwan, China (Fung and McCauley (2001)).

# **Country risk**

If Chinese depositors were acquiring dollars to avoid country risk, one would expect to see them placing foreign currency offshore, beyond the reach of domestic authorities. However, the available data do not indicate that they favoured offshore over onshore deposits. While offshore deposits have grown somewhat faster than total foreign currency deposits (Table 1), over 90% of such deposits remain in banks on the mainland, subject to Chinese law and policy. Country risk cannot, therefore, explain much of the measured build-up of foreign currency deposits.

## Credit risk

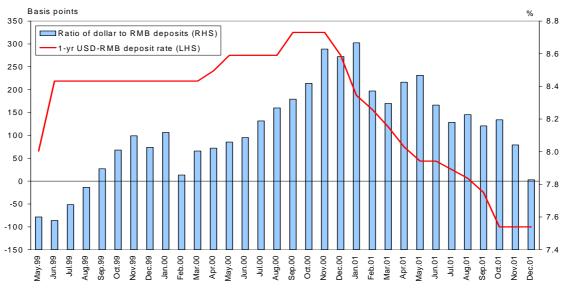
With open discussion of the high levels of non-performing loans in Chinese banks, Chinese depositors might have been expected to react to heightened perceptions of credit risk in the banking system by shifting deposits to better rated foreign banks in the form of foreign currency deposits. While foreign banks, under the terms of China's entry into the World Trade Organization (WTO), will be allowed to take deposits from households in China, they have, however, not generally enjoyed that right to date and deposits at foreign banks in China have remained small. In effect, the credit sensitivity of Chinese depositors largely remains to be tested. Meanwhile, credit risk cannot explain the build-up of foreign currency deposits by non-banks in China.

#### Interest rate differentials

Chinese depositors could adjust the mix of foreign and local currency deposits in response to changing interest rate differentials. Given the anecdotal evidence that some 90% of foreign currency deposits are in US dollars, we focus on differentials between the onshore dollar deposit rate and the renminbi deposit rate. From mid-1999 to late 2000, the 12-month dollar/renminbi interest rate spread widened to as much as 300 basis points in favour of onshore dollar deposits, which spurred accumulation of foreign currency deposits relative to renminbi deposits (Graph 2). With the Federal Reserve's easing of US dollar rates in 2001, the situation reversed, with dollar/renminbi interest rate differentials turning decisively in favour of renminbi deposits. Chinese depositors apparently reacted by allowing the ratio of dollar to renminbi deposits to fall.

Graph 2

Foreign currency deposits and relative dollar deposit yields



Note: The onshore dollar deposit rate is for small deposits (USD 3 million or less). Sources: The People's Bank of China; Bank of China; authors' own estimates.

## **Exchange rate expectations**

Similarly, total expected returns on foreign currency deposits would rise in anticipation of renminbi weakness, which should encourage the holding of foreign currency deposits. Given the stability of the renminbi against the dollar, it may seem odd to speak of expectations of its movement. However, when neighbours' currencies weakened against the dollar, there was public discussion of the loss of competitiveness and the possibility of some response in the renminbi's exchange rate. Thus, we take as a proxy for exchange rate expectations (or fears, since the expectations were never justified in the sample period) a trade-weighted index of the main floating East Asian currencies (see the Appendix). When neighbours' currencies slip, Chinese depositors might then be expected to hold more foreign currency deposits. The index weakened against the dollar from mid-1999 to late 2000 before stabilising into 2001 (Graph 3). Consistent with our hypothesis, Chinese depositors did seem to adjust the currency denomination of their bank deposits. With the occasional weakness of the US dollar in 2002, Chinese residents seem to have eased their accumulation of foreign currency deposits.

January 1999 = 1.0 8.8 Ratio of dollar to RMB deposits (RHS) 8.6 1.6 Asian Currency Index (LHS) 8.4 8.2 1.2 8.0 0.8 Oct. 99 May.00 Jun.00 Jul.00 Sep.00 Oct. 00 Nov.00 Dec. 00 Feb.00 4ug.00 Feb.01 Mar.01 May.01 Jan.01 Apr.01 Jun.01 Jul.01 4ug.01

Graph 3

Foreign currency deposits and currency expectations

Note: A rise in the Asian currency index indicates an effective depreciation of the included Asian currencies against the US dollar

Sources: The People's Bank of China; Bank of China; CEIC; authors' own estimates.

# **B-share liberalisation**

In February 2001, the Chinese government announced a decision to allow Chinese individuals to invest their existing foreign currency deposits in the B-share market, which is traded in foreign currency. This market had a market capitalisation of less than USD 8 billion before the announcement (10% of household dollar deposits), of which it was widely believed that Chinese residents already owned more than half, despite the official prohibition. Given the wide ownership of foreign currency deposits and the relatively attractive valuations of the B-shares at that time, the newly empowered Chinese individual investors snapped them up (Graph 4). This policy shift was associated with a USD 2.5 billion drop in foreign currency deposits in February and March 2001. It appears that foreign investors took profits and exited the B-share market and that Chinese residents drew down dollar accounts to finance their purchases. However, over the medium term, the policy shift could increase Chinese demand for such deposits if investors anticipate that foreign currency holdings might tend to enjoy advantages in the course of further liberalisation.

Sep 1998 = 100Thousand 1600 800 1400 700 600 1200 B share investor accounts (LHS) 1000 B share market index (RHS) 500 800 400 600 300 400 200 100 200 Jun-99 Oct-99 Nov-99 Feb-00 Mar-00 Apr-00 May-00 Jul-00 Oct-00 Nov-00 Jan-00 Jun-00

Graph 4

The B-share market liberalisation factor

Note: The B-share index is a weighted index of Shanghai and Shenzhen's B-share market indices. Source: CEIC.

# 3. Foreign currency liquidity of Chinese banks

# Falling foreign currency loans

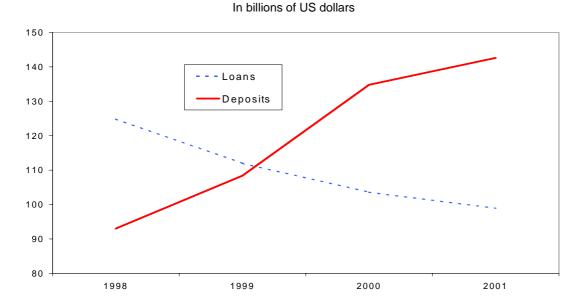
While Chinese non-banks have built up their onshore foreign currency deposits, Chinese firms have also been paying off their dollar debts until recently. Cumulatively, onshore dollar loans fell by more than USD 25 billion during 1999-2001. As a result, the Chinese foreign currency loan/deposit ratio fell from 130% to 70% in four years (Graph 5). It should be noted that the dollar loan/deposit ratio fell not only at Chinese banks but also at foreign banks operating in China.

Chinese firms seem to have paid off dollar loans for the same reasons that Chinese households and companies increased their holdings of dollar deposits. Falling renminbi lending rates relative to dollar rates induced Chinese companies to switch to local currency loans. Reinforcing this incentive, episodes of heightened perceptions of currency risk may also have encouraged Chinese firms to reduce exposure to dollar obligations. Similarly, fears of renminbi weakening appear to have prompted affiliates of foreign companies operating in China to seek local currency financing of their operations. Since mid-2001, dollar loans outstanding appear to have stabilised and might even have risen somewhat, consistent with the shift in interest differentials as well as the occasional weakness in the US dollar that moderated dollar deposit growth, as discussed earlier.

Rising dollar deposits, together with declining dollar loans, generated a foreign currency surplus of USD 75 billion in mainland banks in 1999-2001, a sum larger than the USD 67 billion increase in China's official foreign reserves in the same period. Taken together, the increase in foreign currency liquidity in China's banking system and higher official foreign exchange reserves exceeded USD 140 billion during 1999-2001. The Box discusses the investment of these foreign exchange funds abroad.

Graph 5

Foreign currency deposits and loans at banks in China



Sources: The People's Bank of China; authors' own estimates.

# Shifting banking and official dollar flows

The above analysis of the determinants of demand for foreign currency deposits also provides a basis for understanding the shifting sectoral composition of China's surplus dollars over time. To highlight the shift, one could divide the period between 1999 and September 2002 into two episodes: 1999-2000 and 2001 to September 2002. The build-up of the combined foreign currency liquidity of the banking and official sectors was some USD 80 billion in the first episode and USD 100 billion in the second. However, there was a decisive shift in the relative contribution of the banking and official sectors to this combined surplus foreign currency (Graph 6). In the first episode, the official and banking sectors accounted for one quarter and three quarters, respectively, of the combined surplus dollars. This relative contribution reversed in the second episode, with 85% stemming from the official sector and only 15% from the banking sector. In fact, the banking sector produced virtually no surplus dollars for the first three quarters of 2002. Apparently, between these two episodes, the build-up of the banking sector's foreign currency surplus eased while the accretion of the government's foreign exchange accelerated.

This marked shift in the banking and official flows is no accident and responded to the same set of factors underlying the movements in foreign currency deposits and loans at banks in China. As discussed earlier, the 11 successive interest rate cuts by the US Fed during 2001 and the occasional weakness in the US dollar in 2002 helped slow down the build-up of foreign currency surpluses in the Chinese banking system. Given China's strong basic balance of payments and the position of the monetary authorities as the dollar buyer of last resort under China's exchange rate regime, changing relative returns and shifting currency expectations led the surplus foreign currency liquidity away from the banking system and into the official accounts in the form of higher foreign exchange reserves. The absence of more diversified channels for cross-border flows could only reinforce this trend. In effect, relatively low US dollar yields and prospects of a weaker dollar tend to shift foreign exchange risks onto China's central bank from the rest of the Chinese economy.

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There were apparent changes in the definitions of government statistics on foreign currency deposits and loans over the course of 2002, and we have made minor but rough adjustments to the official data.

120% 100% 80% 60% 40%

2000

Graph 6

Change in reserves to change in the banking and official sectors' dollar liquidity

Source: The People's Bank of China; authors' own estimates.

1999

These developments in mainland China paralleled in a muted fashion those across the Taiwan Strait, suggesting possibly greater dollar shifts between the Chinese banking and official sectors in the years ahead. During the first nine months of 2002, a weaker US dollar slowed the growth but did not reduce the level of foreign currency deposits in China, whereas Taiwanese households and firms reacted to the occasional dollar weakness by actually decreasing their holding of foreign currency deposits, mainly since late 2001. Given the commitment of the Taiwanese monetary authorities to keep the New Taiwan dollar steady, withdrawals of foreign currency deposits at banks helped boost Taiwan's foreign exchange reserves. Thus, in the first three quarters of 2002, Taiwan's foreign exchange reserves jumped 28%, compared to an 18% rise in China's foreign exchange reserves over the same period.

2001

2002

Understanding the more pronounced swing in foreign currency liquidity between the Taiwanese banking and official sectors could be useful for China's policymakers. The greater shifts of dollar flows between the Taiwanese banking and official sectors probably reflected, among other things, the more relaxed regimes for both foreign exchange controls and the exchange rate. While a less stringent exchange control regime would most likely accentuate the movements in foreign currency liquidity between the banking and official sectors, a more flexible exchange rate system could strip the one-way option implicit in a tight peg system and thus present greater exchange risks for the private sector, moderating the fluctuations in dollar liquidity between these two sectors. These two factors tend to have opposite effects in shaping the private and official sector dollar liquidity dynamics, though, on balance, their net effect seems to be greater shifts between these two sectors.

# China's outflows and Hong Kong SAR

As the Box shows, the recent dollar surpluses of Chinese banks together with increases in official foreign exchange reserves have mostly flowed into BIS reporting banks and major global debt markets. Therefore, China has already experienced large portfolio outflows in recent years, though mainly through the limited channels of the banking and official sectors. The scale of this flow has given rise to discussion of policies to channel it in a manner that would benefit regional financial centres in Asia.

#### Box

# Overseas deployment of surplus dollars

Where does the surplus dollar liquidity of the banks on the mainland go? Publicly available data do not permit this question to be answered for China's banking system alone, but it can be answered for the official and banking sectors in aggregate. Taken together, Chinese data suggest that Chinese bank managers and official reserve managers needed to find uses for over USD 140 billion of the increase in foreign currency liquidity in China's banking system and higher official foreign exchange reserves during the period 1999-2001. We attempt to trace this sum and find that it flowed in large part into BIS reporting banks and US debt markets (see the table in this Box).

First, some USD 40 billion increased the net claims of Chinese banks and official monetary authorities on the international banking system (represented by the BIS reporting banks). Of this sum, USD 14 billion flowed through banks located in Hong Kong SAR, mostly in the form of repayments on interbank advances denominated in foreign currencies. Second, the bulk of China's surplus foreign currency liquidity flowed into US debt securities. The US Treasury reports that Chinese residents bought equal amounts of US Treasury and agency securities in 1999, but the balance tipped towards agencies in 2000 and 2001 (as well as the first three quarters of 2002). Moreover, 2001 actually saw significant investment in corporate securities for the first time. Finally, Chinese funds also flowed into other markets. But flows into German and Japanese securities, for instance, represented only a fraction of recorded uses of dollar liquidity in the same period.

The shift along the risk spectrum related to the US debt securities can be interpreted as showing a greater appetite for return and acceptance of risk, but was also consistent with changing relative supplies of different debts. On the whole, however, Chinese residents continued to choose high-quality and liquid US securities. While 90% of Chinese net purchases of US debt securities over the last three years flowed into Treasury and agency bonds, the rest of the world allocated only a third of such purchases to these safe bonds. This behaviour may reflect the institutions responsible for foreign investments in China compared to the rest of the world, where insurance companies and investment funds play a larger role.

# China's foreign currency liquidity flows

Changes, in billions of US dollars

	1999	2000	2001	<b>2002</b> <sup>1</sup>	1999-2001
Sources <sup>2</sup>	38.0	45.7	58.8	45.5	142.4
Foreign exchange reserves Deposits in onshore banks <sup>3</sup> Less loans of onshore banks <sup>3</sup>	9.7 15.4 12.9	10.9 26.4 8.4	46.6 7.9 4.3	46.0 5.5 –5.9	67.2 49.6 25.6
Uses <sup>2</sup>	24.9	55.3	44.9		125.0
Net claims on BIS reporting banks	9.7	34.1	-4.2	13.0	39.6
of which: on banks in Hong Kong	3.8	14.4	-4.2	5.3	14.1
Net purchases of US debt securities	15.1	20.5	44.1	32.8	79.7
Treasury bonds and notes Agency bonds Corporate bonds Money market instruments	8.2 8.3 0.5 –2.0	-4.0 18.8 0.8 4.8	19.1 26.0 6.7 -7.7	1.6 17.1 4.7 9.4	23.3 53.1 8.0 -4.9
Net purchases of German securities Net purchases of Japanese securities	1.5 -1.4	1.7 -1.0	1.3 3.7		4.5 1.3

<sup>&</sup>lt;sup>1</sup> Sources cover the first three quarters of 2002, while uses cover the first seven months of 2002. The definitions of Chinese official data appeared to have changed in the course of 2002. <sup>2</sup> Sources do not include the corporate and non-deposit finance sectors; uses are also incomplete. <sup>3</sup> At both domestic and foreign banks. Onshore loans fell, thus adding to sources.

Sources: The People's Bank of China; Deutsche Bundesbank; Hong Kong Monetary Authority; Bank of Japan; US Treasury; BIS; authors' estimates.

To strengthen Hong Kong SAR's role as a financial centre without sacrificing returns on China's investment of surplus dollars, Governor Dai Xianglong of The People's Bank of China proposed in February 2002 to funnel foreign exchange into Hong Kong's financial markets. Banks in Hong Kong have seen only about 10% of this flow of some USD 140 billion in 1999-2001. Thus, there is much scope for the Chinese authorities to increase the flow of dollar liquidity to Hong Kong if they wish to do so. One proposal would be to choose Hong Kong banks as the recipients of such flows. To the extent that Hong Kong banks serve entrepôt functions, in effect re-exporting the inflows to the rest of the global banking system, increasing this flow might not have much of an impact on Hong Kong's own financial markets. For example, Hong Kong's loans outstanding, whether denominated in foreign or local currencies, have contracted noticeably in recent years.

An alternative approach would be to channel the surplus dollars currently invested by Chinese banks into investments in Hong Kong-listed shares (possibly initially those of China-related firms) through authorised funds (in the form of "qualified domestic institutional investors"). A policy of this kind could bring new investors to Hong Kong's stock market, adding liquidity, and alter the risk profile of China's offshore investments. More generally, one of the main challenges of China's capital account liberalisation is not so much whether to allow portfolio outflows but how to successfully manage their taking more diversified and efficient channels (Icard (2003)).

# 4. Conclusion

China's households and firms have made significant deposits of foreign currency in Chinese banks over the past decade. Whatever the source of the funds, the government has chosen to attract onshore foreign currency deposits, partly by keeping onshore dollar deposit rates broadly in line with overseas markets. That this policy was important is suggested by our finding that interest rate differentials seem to affect the monthly variation in the fraction of foreign currency bank deposits. Perhaps more surprisingly, our proxy for currency expectations also helps explain increments in the share of foreign currency deposits, notwithstanding the steadiness of the renminbi against the US dollar. The official coupling of the opening of the B-share market and foreign currency deposits immediately drained away some deposits, but over the medium term it may suggest that further head starts may be given to holders of these accounts, thereby potentially increasing demand for them.

The same driving forces behind rising dollar deposits in 1999-2000 might have arguably also led to repayments of dollar loans over the same period, and lately to shrinking surplus dollars of the banking sector. More generally, these factors account for the marked shifts in the relative importance of the banking and official sectors in the accumulation of the overall surplus dollars. US rate cuts and a weaker US dollar slowed the banking sector's build-up of foreign currency liquidity and, together with the government's commitment to currency stability, helped accelerate the accumulation of the official foreign exchange reserves in 2002.

Most of the combined surplus dollars of the banking and official sectors seemed to have flowed into BIS reporting banks and the US debt markets. However, the balance has been shifting more towards US agency bonds of late and even for the first time corporate debt instruments, perhaps reflecting greater appetite for return and acceptance of risk, as well as the changing relative market supply of financial products.

Looking forward, asynchronicity in the US and Chinese interest rate cycles would alter interest rate differentials, while any shift to a more flexible exchange rate system in China would add a new element to the formation of exchange rate expectations. Whatever variations in the demand for foreign currency deposits in China, they are serving as an early experiment in China's interest rate liberalisation. In addition, under the terms of China's WTO entry, Chinese and foreign banks will first compete for foreign currency deposits before competing directly in the renminbi business.

Finally, China's sizeable dollar deposits and large surplus foreign currency liquidity indicate a more internationalised banking system than conventionally thought. Already, China has experienced large portfolio outflows through the banking as well as the official sector. A natural extension of this trend could be to experiment with a more diversified pattern of portfolio outflows, as one possible step in China's gradualist programme of capital account liberalisation.

# Appendix: Some econometric evidence on determinants of Chinese foreign currency deposits

We rely on regression analysis to explain the monthly change in the ratio of onshore foreign currency deposits to renminbi deposits for a very limited sample from 1999:06 to 2001:12. We test three hypotheses posed by our analysis. First, the ratio would rise in response to wider differentials between onshore dollar deposit rates and local currency deposit rates. Second, the ratio would increase in anticipation of dollar appreciation vis-à-vis the renminbi. Finally, the recent B-share market liberalisation would drain foreign currency deposits from the system on impact. The estimated coefficients reported below are of the right sign and statistically significant. The empirical evidence lends support to the main arguments of our analysis. More interestingly, the magnitudes of our estimation results are broadly consistent with those obtained for the case of Taiwan, China (Fung and McCauley (2001)).

$$F_t = -0.065 + 0.041R_t + 0.382E_{t-1}$$

$$(-1.96) (2.59) (1.13)$$
(1)

 $\overline{R}^2 = 0.190$ ; DW = 2.175; LLF = 25.14

$$F_t = -0.042 + 0.083R_t + 0.558E_{t-1} - 0.002B_t$$

$$(-1.46) (2.83) (1.93) (-3.54)$$
(2)

 $R^2 = 0.426$ ; DW = 2.203; LLF = 31.04

#### where

 $F_t$  = the change in the ratio of onshore foreign currency deposits to renminbi deposits

 $R_t$  = the interest rate differential (onshore USD minus CNY 12-month rate)

 $E_{t,1}$  = the lagged percentage changes in the Asian currency index

 $B_t$  = the percentage change in the number of B-share investor accounts

Note: The "Asian currency index" is the trade-weighted index of the bilateral US dollar rates of seven floating Asian currencies: the Indonesian rupiah, Japanese yen, Korean won, Philippine peso, Singapore dollar, New Taiwan dollar and Thai baht. The trade weight is the 1999 total trade value in dollars.

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