

The Case for Stabilizing China's Exchange Rate: Setting the Stage for Fiscal Expansion

Ronald McKinnon, Gunther Schnabl*

Abstract

China's financial conundrum arises from two sources. First, its large saving (trade) surplus results in a currency mismatch because it is an immature creditor that cannot lend in its own currency. Instead, foreign currency claims (largely US dollars) build up within domestic financial institutions. Second, economists, both American and Chinese, mistakenly attribute the surpluses to an undervalued RMB. To placate the USA, the result was a gradual and predictable appreciation of the RMB against the dollar of 6 percent or more per year from July 2005 to July 2008. Together with the fall in US interest rates since mid-2007, this one-way bet in the foreign exchanges markets not only attracted hot money inflows but inhibited private capital outflows from financing China's huge trade surplus. Therefore, the People's Bank of China had to intervene heavily to prevent the RMB from ratcheting upwards, and so became the country's sole international financial intermediary as official exchange reserves exploded. Because of the currency mismatch, floating the RMB is neither feasible nor desirable, and a higher RMB would not reduce China's trade surplus. Instead, monetary control and normal private-sector finance for the trade surplus require a return to a credibly fixed nominal RMB/USD rate similar to that which existed between 1995 and 2004. However, for any newly reset RMB/USD rate to be credible as a monetary anchor, foreign "China bashing" to get the RMB up must end. Then the stage would be set for fiscal expansion to both stimulate the economy and reduce its trade surplus.

Key words: China bashing, China's exchange rate, currency mismatch, fiscal expansion

JEL codes: E62, F31, F32, F42

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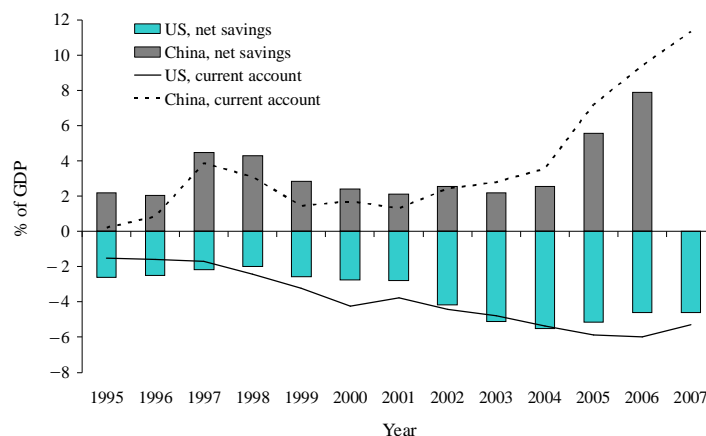
I. Introduction

China's trade surplus (net saving surplus) has spiraled up rapidly since 2000, resulting in its overall current account surplus reaching US\$359bn by 2007, which is equivalent to approximately 10 percent of GDP. This covers almost half of the much larger US current account deficit of US\$750bn (6.1 percent of GDP in 2007), and if recent trends continue it will soon cover more than half. Of course, this trade imbalance can only be corrected in the longer term if China's net saving (i.e. saving minus investment as shown in Figure 1) falls, and the inverse occurs in the USA (the silver lining in the housing crisis?).

However, in the near term, China faces a financial conundrum. Because of political pressure from the USA, from 21 July 2005 to July 2008, the RMB's peg to the dollar crawled steadily upward at approximately 6 percent per year. (Since July 2008, this gradual appreciation has been suspended because of the dollar's unexpected strength in the foreign exchanges: having risen more than 25 percent against the euro, the pound, and other important currencies, save the Japanese yen, into December 2008. However, this suspension could well prove temporary if US political pressure returns.) Because of this one-way bet on RMB appreciation, private Chinese investors shun building up dollar assets. Therefore, since 2004, more than 100 percent of China's huge current account surplus has been financed by building up official exchange reserves.

Clearly, China with its ever-rising official exchange reserves contrasts sharply with other large surplus-saving countries such as Germany and Japan, whose current account surpluses are matched by private short-term and long-term capital outflows. Could foreign exchange restrictions be the problem? By 2007, China had virtually eliminated foreign

Figure 1. Saving–investment Balance and Current Account, China and USA



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exchange controls on capital outflows by industrial corporations and financial institutions, and individuals now have generous foreign exchange allowances for travelling abroad. Although now free to diversify by investing outside of the country, private (non-state) financial institutions and individuals refuse to do so. In contrast, China's State Administration of Foreign Exchange (SAFE) is still struggling, somewhat vainly, to restrict the deluge of "hot" money inflows.

What is behind this abnormality? Because all participants in the foreign exchange markets now expect that the RMB will continue appreciating against the dollar, they are reluctant to hold dollar assets. This reluctance is accentuated even more when US interest rates are abnormally low, as they now are with the US federal funds rate at below 1 percent.

Therefore, at this juncture in international finance we distinguish between two meanings of the concept of "global imbalance." The first is the great saving imbalances across countries that are reflected in the large trade (saving) deficit of the USA and large trade (saving) surpluses of China, Japan, Germany, oil exporters, and a host of smaller countries. The second is the further massive imbalance in financial intermediation for China's huge current account surplus with the USA. Instead of a normal outflow of private capital to finance China's trade surplus, China's central bank accumulates vast amounts of foreign exchange: much of which is invested in US treasury bonds.

Of the two types of global imbalance, saving–investment imbalances across countries are at once the best known and most intractable in the short run. Rebalancing by jointly reducing excess saving in large creditor countries while increasing net saving in the USA, without disturbing exchange rates, is certainly possible in the longer run (McKinnon, 2007a). On 10 November 2008, China announced the beginning of a fiscal expansion of more than half a trillion dollars. However, this welcome start in the rebalancing of net saving propensities is best accompanied by currency stabilization.

Consequently, we initially focus on the sub-problem of unbalanced international financial intermediation and loss of monetary control in China. Because of the one-way bet on RMB appreciation since 2004 and the extraordinary cuts in US interest rates in 2007–2008, the People's Bank of China (PBC) has had to intervene massively to buy dollars and inject base money into the economy. However, to better understand China's current monetary impasse, we first consider a brief history of China's foreign exchange policies since its market-oriented liberalization began in 1979.

II. Three Phases of the RMB/USD Exchange Rate

At the risk of oversimplifying, Figure 2 partitions the evolution of China's exchange rate regime into three phases: currency inconvertibility and exchange depreciation before 1994,

the fixed dollar exchange rate from 1995 to 21 July 2005, and the subsequent appreciation by a predictable upward crawl through July 2008.

1. Phase 1

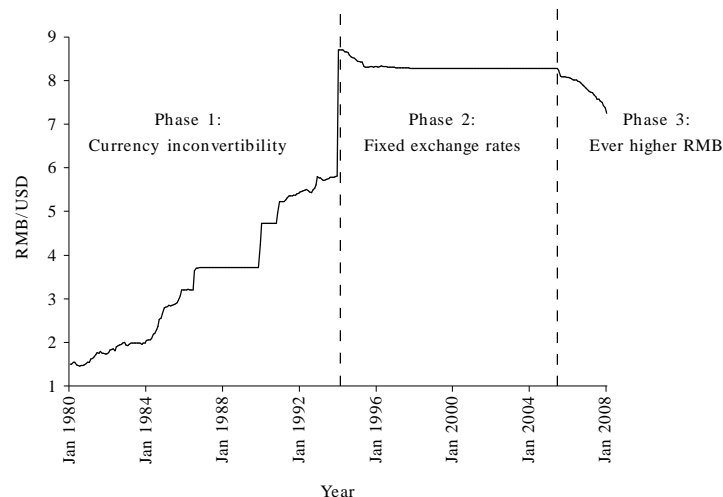
Before 1994, China's currency was inconvertible in the strong sense of the word. There were multiple exchange rates (an official rate and floating swap rates for new exports of manufactures in different parts of the country), exchange controls on both current and capital account transactions, and exports and imports had to be funneled through state trading companies. Going back into the 1980s, this so-called "airlock system" insulated domestic relative prices still influenced by central planning from those prevailing on world markets, except for a few fledgling Special Economic Zones on the east coast.

Therefore, without free arbitrage between domestic and foreign prices in Phase 1, how the official exchange rate was set was arbitrary. Figure 2 shows only the path of the official exchange rate from RMB1.5/USD back in 1979 and devalued in steps to RMB5.8/USD by the end of 1993. However, incentives for exporting or importing were not much affected, nor was the domestic price level. In addition, tight exchange controls prevented "hot" money flows. The official exchange rate was not economically very meaningful.

2. Phase 2

1994 was China's banner year for sweeping financial reforms both in domestic taxation and in the organization of foreign trade. The Chinese authorities abolished exchange controls on current account transactions (exporting, importing, interest and dividends) and unified

Figure 2. RMB/USD Exchange Rate, 1980–2008

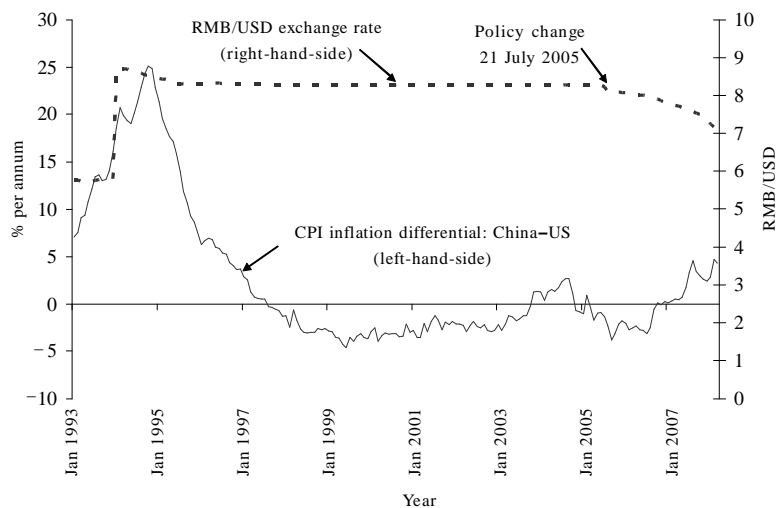


Source: IMF: International Financial Statistics 2008.

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Figure 3. RMB/USD Exchange and China-US Inflation Differential



Source: IMF: International Financial Statistics 2008.

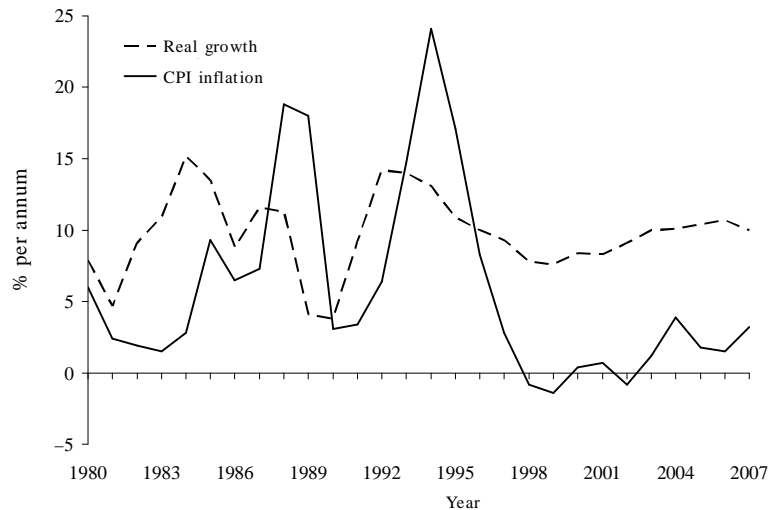
the exchange rate. Separate and more favorable exchange rates for manufactured exports were abolished. By 1996, China had formally satisfied the IMF's Article VIII on current account convertibility.

The new consolidated official rate was set at RMB8.7/USD in 1994, which was closer to the average of the previous swaps rates. True, this represented a substantial devaluation of the official rate from RMB5.8/USD, but the period 1993–1995 was a period of high inflation in China. Figure 3 shows that the nominal depreciation of the official rate was about the same order of magnitude of the excess of China's inflation over that prevailing in the USA (as much as 20 percent in 1994). With the currency unification, real depreciation, if any, was minimal.

By 1995, the nominal exchange rate had settled down to approximately RMB8.28/USD and was held there for 10 years: our Phase 2. The main motivation for so fixing the exchange rate was to anchor the domestic price level and to stabilize the rate of growth. Figure 3 shows inflation in China's CPI converging to that in the USA by 2004.

In the previous phase of currency inconvertibility going back to 1979 when liberalization began, China had suffered from a "roller coaster" ride in the rate of real output growth and in inflation rates: peaking out with the high inflation of 1993–1995 (Figure 4). With only an embryonic domestic capital market and with the progressive relaxation of central planning and direct price controls, the PBC had great trouble anchoring the overall price level through domestic means alone. Therefore, the unification of the exchange rate regime in 1994, and the move to full current account convertibility by 1996, presented an opportunity to adopt a more stable external nominal anchor. Figure 4 shows that, as the exchange rate remained

Figure 4. Real GDP Growth and Consumer Price Inflation, China, 1980–2007



Source: IMF: International Financial Statistics 2008.

fixed at RMB8.28/USD until 21 July 2005, cycles of inflation and real output growth in China were smoothed, while inflation came down to the US level.

Indeed, during the great Asian crisis of 1997–1998, sharp devaluations by neighboring economies, not only the well-known crisis five,¹ but also by Japan, Taiwan, and Singapore, imposed strong deflationary pressure on China. However, Premier Zhu Rongji wisely ignored advice to let the RMB become more “flexible” and depreciate in tandem. Instead, he held on to the fixed exchange rate anchor and engaged in a great multi-billion dollar fiscal expansion, largely infrastructure investments, over the following 4 years. In the crisis, China’s exchange rate and fiscal policies saved the East Asian economy from further imploding, and allowed the neighboring countries to recover more quickly. China’s policy of fixing the nominal RMB exchange rate at 8.28/USD, within a narrow band of ± 0.3 percent, gained credibility.

In Phase 2, the fixed exchange rate’s success as an anchor for China’s price level was as much a guideline for domestic monetary policy as an instrument. True, continual PBC purchases of foreign exchange, modest by today’s standards, were the main instrument for increasing the monetary base. However, before 2004 when the RMB was not expected to appreciate, these purchases generally amounted to less than 100 percent of the growth in base money (Table 1). Therefore, substantial sterilization operations were not necessary. In this fixed rate period, the rapid increase in the demand for base money from China’s very

¹ These five countries are: Indonesia, Korea, Malaysia, Philippines and Thailand.

Table 1. Foreign Reserve Holdings and Base Money of the PBC, 1990–2007

Year	Reserves (RMBbn)	Base money (RMBbn)	Reserves/ Base money(%)	Δ Reserves	Δ Base money	Δ Reserves/ Δ Base money(%)
1990	82.0	638.7	12.8	41.5	147.6	28.1
1995	667.0	2076.0	32.1	221.8	354.2	62.6
2000	1558.3	3649.2	42.7	72.5	287.2	25.3
2005	6344.0	6434.3	98.6	1648.0	548.7	300.3
2007	12217.1	9243.3	132.2	3639.8	1467.5	248.0

Sources: IMF: International Financial Statistics 2008, World Economic Outlook 2008; OECD: Main Economic Indicators 2008.

high GDP growth, coupled with an income elasticity of money demand greater than 1, more or less balanced the rapid increase in the supply of money.

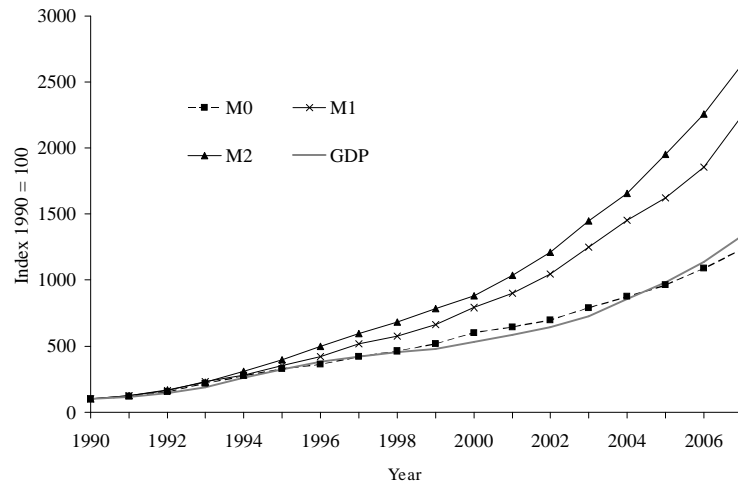
Moreover, this mechanism of monetary control was not just the exchange rate itself. To prevent overheating, there remained a panoply of supporting direct controls over bank credit, including reserve requirements, credit quotas, lending restrictions by sector, and so on. However, for controlling inflation, the RMB's exchange rate against the dollar was the effective intermediate target.

Why didn't China rely more heavily on domestic financial indicators? With rapid financial transformation and very high saving, the velocity of money, whether based on M0, M1, or M2, was and is too unpredictable for any monetary aggregate to be useful as an intermediate target. In addition, the velocity of money, defined as GDP/M, becomes even more difficult to predict when nominal GDP itself is subject to large revisions. Indeed, nominal GDP was revised sharply upward in 2006. As Figure 5 shows, since 1990, monetary aggregates M1 and M2 grew faster than nominal GDP, with M2 growing twice as fast so as to approach 200 percent of nominal GDP in 2008. The high growth in M2 was largely a natural result of China's very high saving rate when bank deposits were the principal financial asset open to Chinese savers. Therefore, the authorities had, and still have, no firm idea of what the noninflationary rate of growth in M2 should be.

In contrast, the monetary base, M0 in Figure 5, grew in line with nominal GDP as if its velocity of circulation was stable. However, this is somewhat artificial because so much of M0 is involuntarily held by commercial banks because of high and changing reserve requirements. As these reserve requirements are cut in 2009 to counter the global downturn, the velocity of M0 could rise, but unpredictably so.

Even if the noninflationary "equilibrium" rate of growth for any one monetary aggregate is unknown in a rapidly changing financial environment, couldn't the Chinese monetary authorities target inflation more directly? The absence of a well-developed domestic bond market, and the presence of rigid interest rate pegs for bank deposits and loans, militated

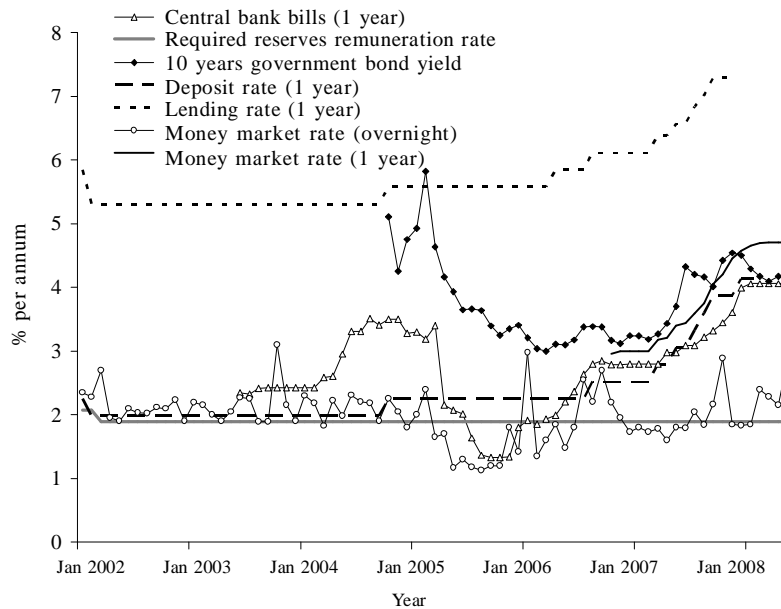
Figure 5. Money Supply and Nominal GDP, China, 1990–2007



Sources: OECD: Main Economic Indicators 2008; Ecwin Database 2008.

against using conventional open-market operations to fix some key internal interest rate (as per the Taylor Rule) to target inflation, as in the USA or the euro zone. The internal structure of interest rates was (is) too fragmented and is accompanied by differentiated direct credit controls in various lending categories (see Figure 6).

Figure 6. Fragmented Structure of Chinese Interest Rates, 2002–2008



Source: Datastream 2008.

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The “New Keynesian” Taylor Rule itself presumes that the authorities have fairly accurate information on the ebb and flow of excess capacity over the business cycle, which could not be the case in China’s era of extremely high, but somewhat unpredictable, real economic growth. Therefore, the fixed dollar exchange rate was the preferred intermediate monetary target for stabilizing the price level. In Japan’s similar era of extremely high real economic growth and financial change from 1949 to 1971, the domestic price level was safely anchored by pegging the yen at 360 to the dollar (McKinnon and Ohno, 1997).

To summarize Phase 2, the 10-year fix at RMB8.28/USD was seen as a way of implementing monetary policy, made possible by the currency unification in 1994 and the move to current account convertibility in 1994–1996. It was very successful in anchoring the domestic price level through 2004 (Figure 3) and smoothing fluctuations in real economic growth (Figure 4). Contrary to what is often alleged,² the fixed exchange rate was not a device to cunningly “undervalue” the RMB so as to create a mercantile advantage by artificially stimulating exports.

3. Phase 3

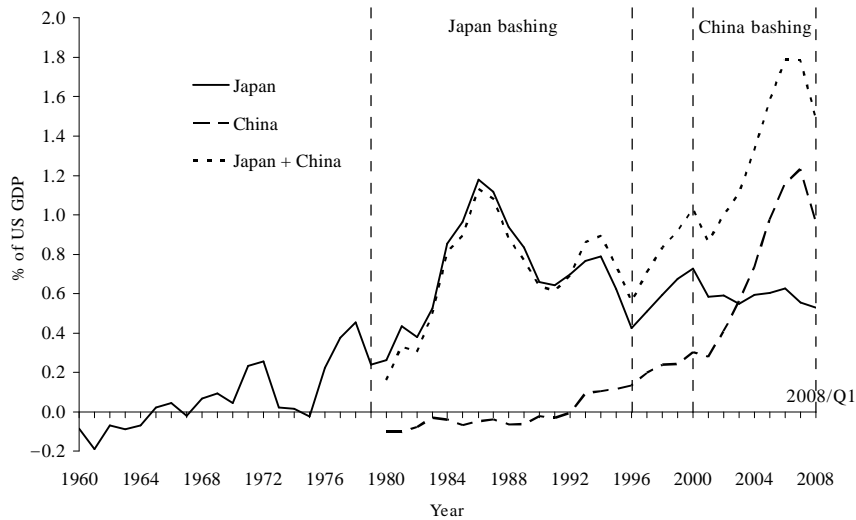
What then pushed China off its fixed rate anchor on 21 July 2005?

First, after 2003, unexpected net saving surpluses, coupled with large inflows of foreign direct investment, led to large balance of payments surpluses. Figure 1 shows the sudden spurt in China’s current account surplus from 2 percent of GDP in 2003 to more than 10 percent in 2007. The USA was the recipient of much of the surge in China’s manufactured exports. China’s bilateral trade surplus with the USA reached 1.1 percent of the USA’s GDP in 2004, twice as large as Japan’s (Figure 7). The loss of jobs in US manufacturing disturbed US politicians.

Second, China’s balance of payments surpluses were misinterpreted by economists and politicians as an exchange rate problem: that the RMB was artificially “undervalued” although the RMB/USD rate had been stable for almost 10 years. The more rapid build-up of official exchange reserves in 2003–2005 (Table 1 and Figure 8) was taken as *per se* evidence of unfair currency manipulation. Whence the US political pressure on China to begin appreciating the RMB: our Phase 3. Led by Senators Charles Schumer of New York and Leslie Graham of North Carolina, the US Government threatened to sanction China by imposing import tariffs unless it appreciated the RMB. This “China bashing” was, and is, effective. On 21 July 2005, China appreciated discretely by 2.1 percent, and subsequently has been appreciating by approximately 6 percent per year up to July 2008, with the disruptive

² See, for example, Dooley *et al.* (2004) misinterpreting China’s fixed exchange rate, and those of smaller Asian countries, as a deliberate attempt to undervalue their currencies.

Figure 7. Bilateral Trade Balances of Japan and China versus the USA



Source: IMF: Direction of Trade Statistics 2008, International Financial Statistics 2008.

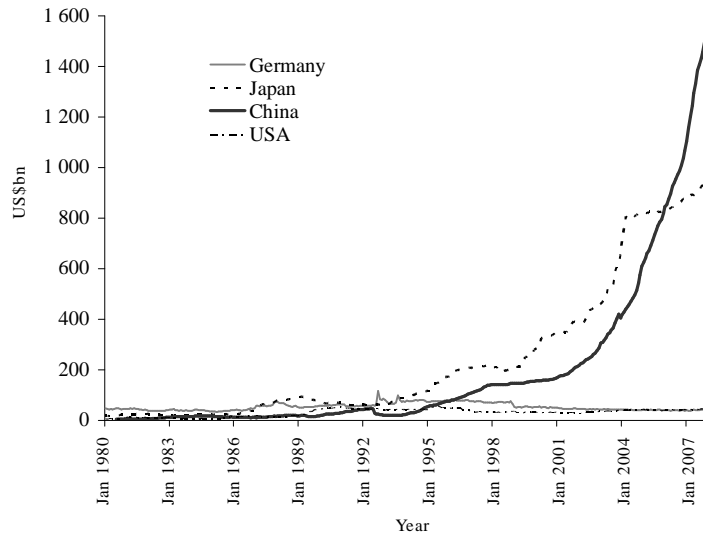
effects on international capital flows discussed above.³

In Japan's high growth era of the 1950s and 1960s under a fixed exchange rate, significant inflows of foreign direct investment had been prohibited and domestic saving and investment were in better balance. However, from the mid-1970s to the mid-1990s, Japan developed large current account (saving) surpluses: much of which showed up as a large bilateral trade surplus with the USA (Figure 7). The result was political "Japan bashing" by the USA to get the yen up from 1978 through 1995, which was ultimately economically disastrous for Japan, as we shall see. Figure 7 also shows that China's rapidly rising bilateral trade surplus with the USA had surpassed Japan's by 2000, with China bashing succeeding Japan bashing.

In 2007–2008, the expectation of further appreciation of the RMB coupled with the sharp fall in US interest rates to below the Chinese level (the US Federal Funds rate fell from 5.25 percent in August 2007 to below 1 percent in 2008) have become the crucial determinants of the huge accumulation of official exchange reserves in China (Table 1 and Figure 8). For 2007, Figure 9 shows that virtually the whole of China's huge balance of payments surplus, including its current account surplus, inflows of foreign direct investment, and other financial

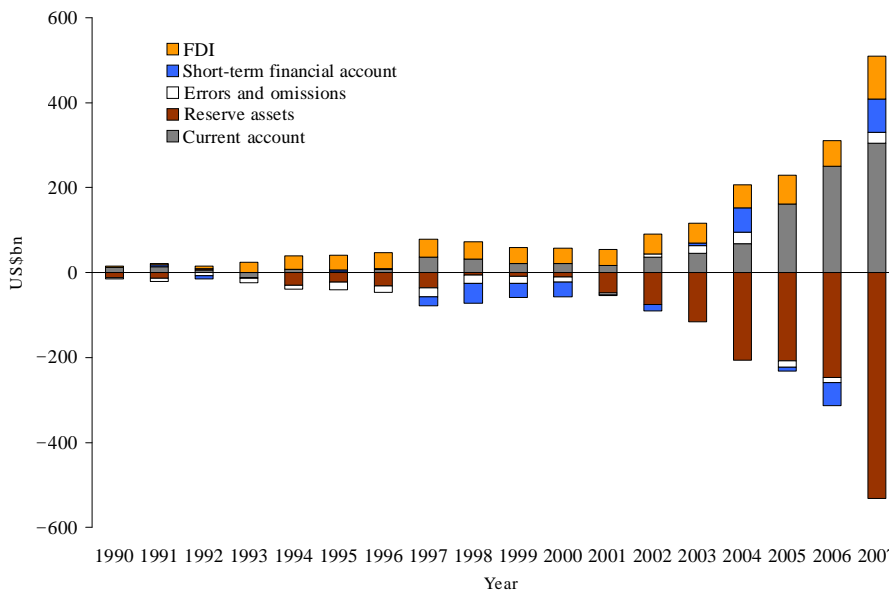
³ Another less obvious sanction has been to impose US anti-dumping restrictions more frequently on Chinese goods much beyond what China's large share in US imports would warrant. This arises out of the US Department of Commerce classifying China as a "non-market" economy, which makes it much easier for private anti-dumping suits to succeed legally (Roberts, 2008).

Figure 8. Foreign Reserves of China, Japan, Germany, and the USA, 1990–2007



Sources: IMF: International Financial Statistics 2008; People's Bank of China 2008: <http://www.pbc.gov.cn>.

Figure 9. Balance of Payments, China, 1990–2007



Sources: IMF: International Financial Statistics 2008, World Economic Outlook 2008; SAFE 2008: <http://www.safe.gov.cn>. 2007 approximated.

inflows (hot money?), was financed by the PBC intervening to build up official exchange reserves. In the absence of private capital outflows, China's central bank has become its

sole international financial intermediary.

The increased magnitude of the PBC's purchases of foreign exchange explain its loss of monetary control in 2005 to mid-2008. The scope for sterilizing the monetary effects of massive official exchange intervention was limited. As a result, China had turned from being a deflationary force in the world economy before 2005 into an inflationary one afterwards through mid-2008. However, after July 2008, an abrupt appreciation of the dollar against other major currencies caused the PBC to stop appreciating, and posed a deflationary threat to the world economy as well as to China, as is discussed in more detail in Section IV below.

III. Currency Mismatches in Immature Creditor Economies

An immature creditor country is one that cannot lend to foreigners in its own currency to finance its cumulating current account surpluses. Either its domestic financial markets are underdeveloped or the international capital markets have been pre-empted by major currencies from areas that do have highly developed financial markets. Today, the US dollar remains internationally dominant for short-term interbank transacting, but the euro has risen to be almost as important as the currency of denomination for new international bond issues, particularly on the European periphery, although the dollar still has the edge in Asia and Latin America. Aside from relatively illiquid foreign direct investment outflows, an immature creditor economy continually accumulates liquid claims on foreigners denominated in some internationally acceptable currency, such as the US dollar. However, the resulting currency mismatch makes securing portfolio equilibrium in domestic financial markets, and monetary management, more difficult.

In the world economy today, China is the prime example of an immature creditor because it cannot lend in RMB. However, this inability to lend in your own currency is also shared by the smaller East Asian creditor economies, such as Taiwan, Korea, Malaysia, and Singapore, and by oil-producing countries with large trade surpluses, such as the Gulf Coast states and Russia. In China's case, continuing interest rate restrictions on domestic bank deposits and loans, as well as high reserve requirements on domestic banks, ensure that the RMB will not be used much for international lending into the indefinite future.

Historically, large creditor countries have been able to lend in their own currencies because they have had open capital markets and have also provided the principal vehicle currency for the international monetary system: these are "mature" creditors. Britain in the 19th century lent in sterling (backed by gold) on a massive scale throughout the world. For 25 years after World War II, the USA had large current account surpluses that were financed

by making dollar loans to foreigners.

In the new millennium, Germany, at the center of the euro system, is a mature creditor because it finances its large current account surplus by lending heavily abroad in euros. German financial institutions face no currency risk for intermediating Germany's saving surplus internationally because its banks, insurance companies, pension funds, and so on, which are all funded in euros, build up euro claims on foreigners on the asset sides of their balance sheets. The upper panel of Figure 10 shows that since 2002, the private financial outflow from Germany has been greater than its large current account surplus: the surplus is "overfunded." However, even if banks in a mature creditor country face no currency risk, default risk in foreign lending remains, much as it does in domestic lending.

In contrast, in an immature creditor country like China, and like Japan before it, its private financial intermediaries face enormous currency risk, i.e. risk from (potential) exchange rate fluctuations and from buying dollar assets. If China's banks, insurance companies, and so forth, invest in (dollar) claims on foreigners on a scale commensurate with the country's huge saving surpluses, then, on their balance sheets, these dollar assets would loom ever larger relative to their domestic liabilities: bank deposits, annuity claims, and so on, denominated in RMB. Then, even putting aside the one-way bet on RMB appreciation (dollar depreciation), just random exchange rate fluctuations could wipe out the net worth of a well-capitalized bank.

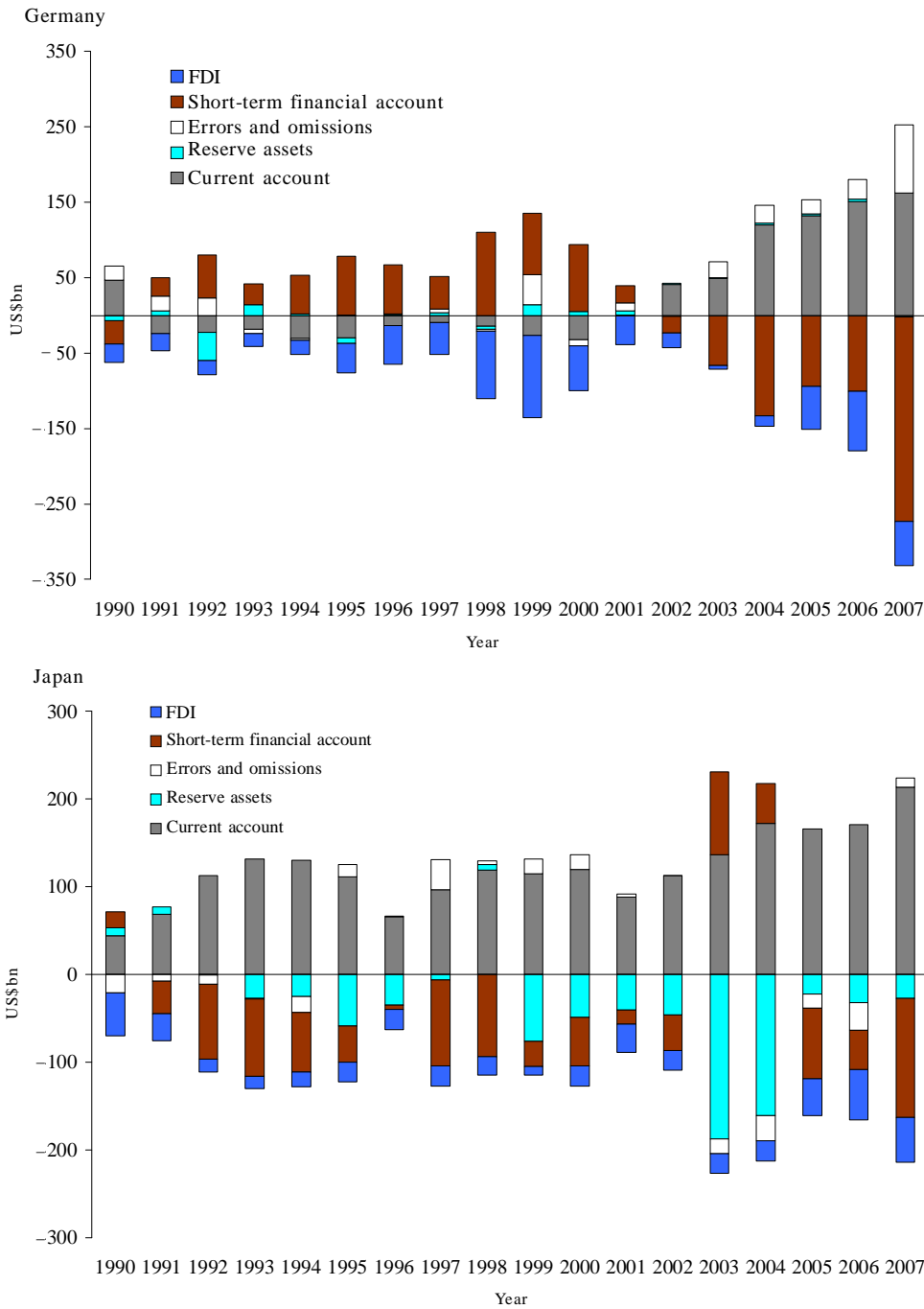
This currency mismatch is an additional reason for China being so anxious to keep its currency pegged to the dollar to lessen the currency risk facing (potential) domestic private holders of dollar assets. During Phase 2 of the credibly fixed RMB/USD rate from 1994 to 2004, private holdings of dollar assets became substantial relative to the (smaller) size of the economy, before falling sharply in Phase 3.

In Phase 3, with the predictable RMB upward crawl, the private sector shuns accumulating dollar assets. Therefore, the PBC has been accumulating official (dollar) reserves much more rapidly (than in Phase 2) to prevent large upward ratchets in the exchange rate. However, to clear international payments, Chinese banks making the foreign exchange market cannot avoid holding some working balances in dollars, as must importers and exporters, even though they face losses on exchange rate movements. Therefore, besides intervening to smooth high frequency (short-term) exchange fluctuations, the PBC further reduces the risks seen by banks by swapping dollars for RMB today, while agreeing to buy them back some months hence at a known forward rate.

1. Conflicted Virtue

The currency mismatch itself poses problems of risk management within an immature creditor country. However, this "natural" problem of managing the risk from the currency mismatch

Figure 10. Balance of Payments, Germany and Japan, 1980–2007



Sources: IMF: International Financial Statistics 2008; OECD: Main Economic Indicators 2008; Deutsche Bundesbank 2008: <http://www.bundesbank.de>; Japan Ministry of Finance: <http://www.mof.go.jp>. 2007 approximated.

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is greatly compounded if foreigners agitate to have the creditor country's currency appreciate, as with China bashing today. Incorrectly, they accuse the Chinese Government of manipulating the RMB/USD rate in order to undervalue the RMB and secure an unfair mercantile advantage. These complaints then lead to what we call the syndrome of *conflicted virtue* (McKinnon and Schnabl, 2004; McKinnon, 2005).

Countries that are "virtuous" by having a high saving rate (like China and Japan but unlike the USA) tend to run surpluses in the current account of their international balance of payments (i.e. lend to foreigners). However, because their domestic currencies are generally not used for international lending, these foreign claims are denominated largely in dollars. With the passage of time two things happen. First, as the stock of liquid dollar claims cumulates, domestic holders of dollar assets worry more about an appreciation of the domestic currency. Second, foreigners start complaining that the country's ongoing flow of trade surpluses is unfair, and threaten trade sanctions unless the currency is appreciated. Because of the destabilizing properties of open-ended currency appreciation, the virtuous country becomes conflicted. Whence conflicted virtue.

Somewhat strangely for a major industrial country, Japan is also an immature international creditor. Japan still runs large current account surpluses but does not lend much abroad in yen, although its overseas direct investment finances make up approximately one-quarter of its saving surplus (lower panel of Figure 10). Thus, domestic Japanese banks, but more its insurance companies, accumulate higher yield dollar assets, which they see to be riskier because the liabilities of Japanese financial institutions are mainly in yen. (The yield on yen assets is abnormally low because of Japan's liquidity trap.) With this internal currency mismatch, portfolio equilibrium in Japanese financial markets is precarious even though there is no longer any one-way bet that the yen will appreciate.

Nevertheless, any unexpected shock can still create a run from dollars into yen *within* Japan. This self-reinforcing process of runs into the domestic currency was experienced by Japan most prominently following the Plaza Agreement in 1985, and again in 2003 into 2004 when the US federal funds rate had been cut to just 1 percent. In the latter case, the Bank of Japan purchased over US\$330bn, mainly from private Japanese financial institutions, to prevent the yen from again ratcheting upwards in the foreign exchanges (McKinnon, 2007b). In the lower panel of Figure 10, this episode of an internal run into yen shows up clearly as the sharp build up in Japanese official reserve assets in 2003–2004.

Why should conflicted governments in immature creditor countries intervene to resist currency appreciation even though that might cause them to lose monetary control in the near term? First, as stressed by Dooley *et al.* (2004), a strong appreciation of the domestic currency in the short run crowds out exports, which are an important source of growth dynamics. Despite more than one decade of high growth, as shown in Figure 4, China's

GDP per capita remains low. Faltering growth is likely to cause political discontent and social unrest among migrant workers and the rural population.

Second, from the principle of purchasing power parity, the long-run effect of sustained nominal appreciation is to cause an eventual fall in the domestic price level relative to that prevailing in international markets. When the yen rose from 360 to the dollar in 1971 to peak out at 80 to the dollar in 1995, eventually the Japanese price level fell relative to the US price level and threw the Japanese economy into a deflationary slump in the 1990s replete with a near-zero interest liquidity trap (McKinnon and Ohno, 1997) from which it has yet to fully recover (McKinnon, 2007b).

2. Anticipatory Sterilization and Sovereign Wealth Funds

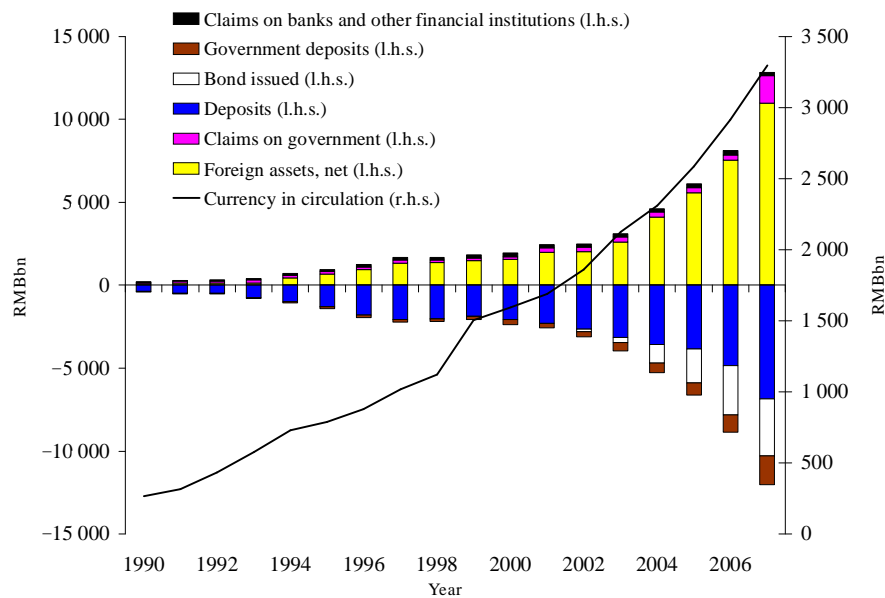
Green (2008) calculates that the total foreign exchange inflows into China in 2007 were US\$550bn, and considers why they are even higher than the published build up of official exchange reserves of US\$459bn. His reasons are many, including withdrawals from official reserves to support China's new sovereign wealth fund (China Investment Corporation), and lodging some of the dollar reserves with domestic commercial banks. Thus, Green claims that the increase in official reserves understated the volume of actual foreign exchange interventions by the PBC in 2007, perhaps going back to 2005. Whether one accepts Green's higher estimate or not, the flow of funds through the PBC was extraordinary. The currency denomination of the official foreign assets can be assumed to be mainly in dollars.

Because massive official intervention in the foreign exchanges leads to a parallel expansion in the domestic monetary base and potentially in bank lending, near-term monetary control over inflation in China has become difficult. To counteract this threat of inflation and overheating, starting in 2002, the PBC engaged in extensive sterilization operations.

To analyze the scope and types of sterilization, Figure 11 plots the most important items of the PBC balance sheet. In the upper panel, the asset side of the balance sheet is plotted with positive signs. It shows that liquidity has been created mainly by accumulating foreign exchange reserves. Also on the asset side, the substantial increase in claims on government in the year 2007 is a result of the creation of a sovereign wealth fund: the China Investment Corporation (CIC). For financing the CIC, 10-year RMB bonds were issued by the Chinese Government and swapped for US\$200bn from the PBC's foreign exchange reserves.⁴ Through this operation, foreign assets were removed from the PBC's balance sheet into an external overseas fund which invests these funds mainly in less liquid assets such as stakes in Morgan Stanley, Blackstone and Visa. In line with Green (2008), this

⁴ For more details see Chan (2007).

Figure 11. People's Bank of China Sterilization Operations



Sources: IMF: International Financial Statistics 2008; Peoples Bank of China 2008: <http://www.pbc.gov.cn>.

Note: l.h.s., left-hand side; r.h.s., right-hand side.

makes the stocks of official reserves, as reported in the central bank's balance sheet, look smaller.

However, this asset swap between the two agencies of China's government does not itself reduce the monetary base. Rather, it enables the CIC to invest in riskier foreign assets that potentially (but not so far in practice!) bear a higher yield than SAFE's more traditional holdings of liquid assets, such as US Treasury bonds. The formation of the CIC is a response to the absence (because of the one-way bet) of normal private capital outflows intermediated by Chinese banks, insurance companies and so forth. However, the CIC's purchase of foreign-currency assets does not offset the impact of the PBC's own purchases of dollars on increasing domestic base money, and is not "sterilization" in any immediate sense.

That said, using a sovereign wealth fund today could still forestall future foreign exchange crises. When there is continuing exchange rate uncertainty and an internal currency mismatch, having the CIC, as a government corporation, accumulate foreign-currency assets could be safer than if they were lodged in private financial intermediaries. In future foreign exchange crises, private financial institutions might again be tempted to liquidate their dollar assets in favor of RMB, a "hot" money flow that would again undermine the PBC's monetary control. In effect, having sovereign wealth funds undertake international financial intermediation instead of private financial institutions amounts to "anticipatory" sterilization;

that is, possible future hot money flows arising out of the currency mismatch are avoided.

3. The Singapore Solution

This type of anticipatory sterilization of foreign exchange intervention is reminiscent of Singapore. For more than 20 years, Singapore has had the world's most persistent, and very large, current account surpluses, now running approximately 20 percent of its GDP. However, the Singapore dollar is not used for international lending, and indeed the government discourages local banks from lending in Singapore dollars. Therefore, Singapore is also an immature creditor, and the Monetary Authority of Singapore manages the exchange rate against the US dollar with slow net appreciation, although much slower than China's was before July 2008. How then does Singapore cope with its internal currency mismatch to prevent runs into the Singapore dollar as foreign currency claims bulk ever larger?

By mandating large compulsory contributions to a defined-contribution domestic pension fund, the Provident Fund (PF), the Singapore Government nationalizes the large flow of domestic household saving. The PF then invests large sums in Singapore dollars in two huge sovereign wealth funds: the Government of Singapore Investment Corporation (US\$330bn) and the Temasek Holdings (US\$159bn). Because both funds invest mainly in US dollar denominated assets (such as stakes in Merrill Lynch, the Bank of China and the Union Bank of Switzerland), Singapore's government, as represented by its two sovereign wealth funds, bears the exchange risk from the currency mismatch should the Singapore dollar appreciate. By investing in overseas assets under government control, Singapore was (is) not vulnerable to a run into its domestic currency, despite having had a huge current account surplus for more than 20 years.

Is this "Singapore solution" to the currency mismatch feasible for China?⁵ Not really. Private savings are much more decentralized in China, and largely outside of pension funds. Households and firms make their own decisions as to where to hold their liquid assets in a wide variety of banks and, occasionally, in insurance companies. These financial intermediaries then decide whether or not to invest in foreign-currency assets. Fledgling Chinese pension arrangements are more decentralized at the municipal and enterprise level and foreign investment is not so much under the tight control of the central government as in Singapore. Therefore, it would be impractical, and certainly undesirable, to nationalize China's huge flow of private saving just to make government-controlled investments overseas. Foreigners might well fear that huge Chinese sovereign wealth funds would not be market oriented and might take over substantial portions of their economies. In contrast, the city state of Singapore is so small in absolute size that foreigners ignore this threat.

⁵ For further discussion of this Singapore solution, see McKinnon (2005).

Therefore, currency mismatches are intrinsic in immature creditor economies, such as China or Japan. Putting the Singapore solution of nationalizing most of the domestic flow of private saving aside, the best an immature creditor government can do is to construct a monetary-cum-exchange rate regime that minimizes exchange risk. Only then would “normal” private sector intermediation for financing the current account surplus be feasible, as we shall discuss below.

4. Sterilization and Its Limits: The Chinese Case

Without exchange rate stability encouraging private capital outflows, however, China has had virtually no choice but to finance its huge current account surplus by building up official exchange reserves, while trying to sterilize the immediate impact on the domestic monetary base. How well has it coped?

The liability side of the PBC's balance sheet in Figure 11 shows, with negative signs, sterilization instruments. To mop up the surge of liquidity from the accumulation of official exchange reserves, in 2004, the PBC began issuing central bank bonds. As long as these sales occur at market rates, the monetary tightening will tend to drive interest rates upward. However, higher interest rates attract more (hot) money inflows that force further official foreign exchange interventions. The degree of reserve accumulation becomes a positive function of the domestic interest rate.

The PBC was not able to fully sterilize the monetary effects of reserve accumulation via bond sales. The small size and limited liquidity of the Chinese capital market did not allow issuing an unlimited amount of central bank bills (without substantial hikes in interest rates). In addition, the central bank tended to hold the interest rate on central bank bills below the market rates (Figure 6) to minimize the sterilization costs.⁶ The sterilization costs originating in central bank bill sales further grew when interest rates started to rise after 2005.

Since 2005, therefore, an increasing proportion of the rapidly accumulating official foreign exchange reserves was sterilized by requiring commercial banks to hold ever-larger deposits with the PBC (Figure 11). These required reserves were remunerated at a substantially lower rate than the central bank bills.⁷ For instance, in April 2008 the interest rate on 1-year central bank bills was roughly 4 percent while required reserves were remunerated at 1.9 percent. The required reserve ratio increased from 6 percent in August 2003 to 17.5 percent in June 2008. In addition, by requiring the commercial banks to hold

⁶ In a repressed financial system, the central bank can “force” commercial banks to hold low interest rate central bank bonds. By doing this, the central bank shifts sterilization costs to the banking sector.

⁷ In Figure 11, “deposits” include both required and excess commercial bank reserves. However, the former greatly exceed the latter.

some of their additional reserves in dollars, the PBC could mop up dollars from Chinese capital markets before they were exchanged into domestic currency.

Requiring commercial bank reserves to be held in dollars reduces the need for outright official foreign exchange intervention, but also shifts the sterilization costs to the banking sector because the remuneration rate on required reserves is low. The central bank becomes “immune” from revaluation losses because the declining RMB value of the dollar bonds on the asset side of the balance sheet is matched by the declining RMB value of commercial bank reserves on the liability side. More of the revaluation losses are born by the commercial banks, resulting in a wider spread between their deposit and loan rates of interest.

If sterilization costs and revaluation losses are shifted to the commercial banks, the lending activities of the commercial banks are restricted in two ways. First, claims on the nonbank private sector are replaced by claims on the central bank. Lending to the private nonbank sector shrinks, as reflected by rising lending rates of interest. Second, insofar as revaluation losses reduce the equity of the commercial banks, lending to the nonbank private sector declines further. Because these sterilization operations reduce investment activities in Chinese enterprises, they incidentally further increase China’s net saving surplus. Perversely, the restrictive monetary policy measures taken by the PBC in response to both the need for sterilization and the rising inflationary pressure have, since 2006, contributed to a larger current account surplus.

After 2003, the fast growth of assets and liabilities on the PBC’s balance sheet, as shown in Figure 11, shows both the tremendous speed of foreign exchange accumulation and the determined sterilization attempts. Nevertheless, in 2007, the PBC was only able to partially sterilize the monetary effects of reserve accumulation, to approximately 70 percent. Given international capital mobility, the ever tightening of the domestic money supply induces an upward shift in domestic interest rates that triggers additional hot money inflows. This effect is even stronger, when, as during 2007 and 2008, interest rates in the USA decline sharply.

Because of fast reserve accumulation and limited sterilization, currency in circulation, which is one measure of monetary expansion in the Chinese economy, expanded fast, as indicated by the bold black line in Figure 11. The annual growth rate of currency in circulation rose from approximately 5 percent in 2000 up to 46 percent in 2007. On average, currency in circulation rose by 30 percent per year since the turn of the millennium. Going back to Figure 5, broad money (M2) also expanded significantly faster than output, although nobody knows what the “true” noninflationary growth in the demand for any monetary aggregate might be.

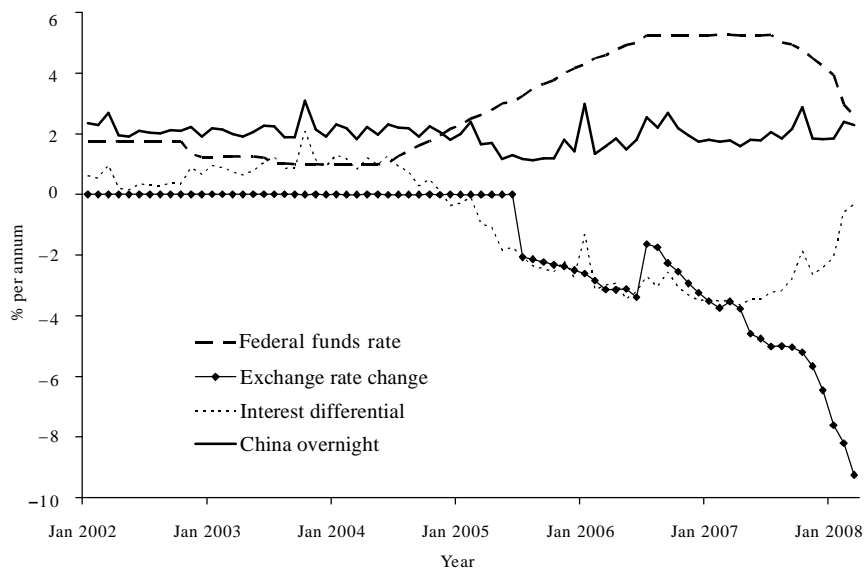
5. Open Interest Parity and Monetary Control

Can interest rate movements in China compensate for an ever-higher RMB in securing domestic portfolio balance? Figure 12 shows the shifting relationship between movements in the RMB/USD exchange rate and the interest differential between dollar and RMB assets from 2002 to 2008. We use annualized overnight money market rates that, by and large, are determined by market forces in both the USA and China. These are plotted against year-over-year RMB/USD exchange rate changes. Before mid-2004, there was no sustained movement in the interest differential because the RMB/USD was expected to remain stable, as per our Phase 2.

However, by mid-2004, China bashing induced Chinese interest rates to begin falling relative to US interest rates as if the market was anticipating the modest revaluations that did actually begin on 21 July 2005. The interest differential became negative in early 2005 and, by the end of 2006, Chinese interest rates were as much as 4 percent less than US interest rates (Chinese rates fell a little as US rates rose). Figure 12 shows that, in 2005–2006, the interest differential just matched the percentage appreciations in the RMB/USD rate, as if the principle of *open interest parity* (OIP) held:

$$\text{OIP (2005–06): } i_{Ch} = i_{US} + E(De), \text{ where } E(De) < 0, e = \text{RMB/USD}. \quad (1)$$

Figure 12. Short-term Interest Differentials versus Percentage Changes in the RMB/USD Exchange Rate: China, 2002–2008



Source: Ecwin Database 2008.

Up to January 2007, the gradual appreciation of the RMB against the dollar reflected roughly the interest rate differential between the two countries, as per the principle of open or uncovered interest parity. As long as private holdings of dollar assets within China were significant and the rate of predictable appreciation of the RMB was modest, a rough portfolio equilibrium between RMB and dollar assets was maintained. Dollar holders within China were not penalized by the moderate appreciation because they received a higher interest rate.

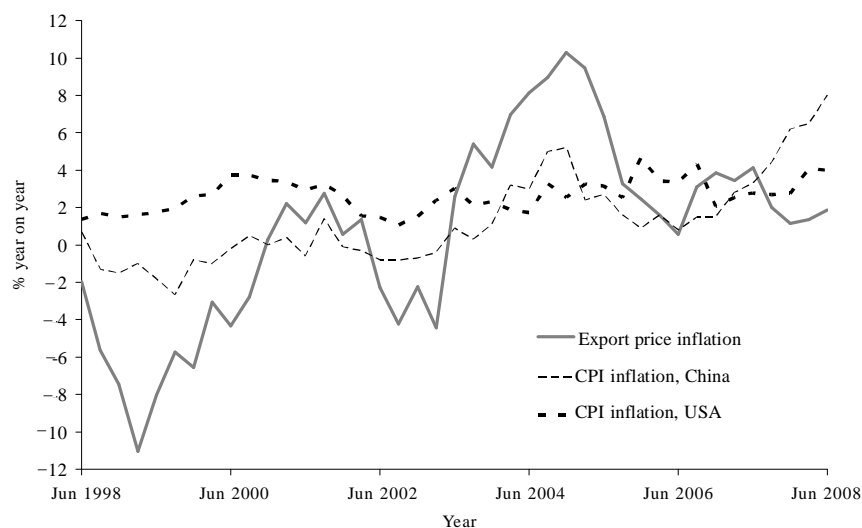
Our hypothesis, that the well-signaled appreciation of the RMB initially kept Chinese interest rates below US rates in 2005–2006 when US interest rates were increasing, can never be proved of course. However, the relatively low Chinese interest rates in this period eased the monetary control problem of the PBC: the incentives to bring hot money into the country were dampened, and there might even have been some very modest private capital outflows (Figure 9). Therefore, the sterilization problem confronted by the PBC was manageable.

Even if well established, however, open interest parity can still be undermined by macroeconomic shocks. In China's case, the rate of exchange appreciation increased above 3–4 percent, and, by early 2007, people began to expect 6–8 percent annual appreciation. In addition, the US short-term federal funds rate fell precipitately from 5.25 percent in August 2007 to just 2 percent by August 2008. Hence, interest rates on RMB assets could no longer be pushed below those on dollar assets to reflect expected exchange appreciation. To further aggravate the situation, the PBC began to increase some interest rates on RMB assets to “fight inflation” (Figure 6).

Thus, asset market equilibrium, as measured by uncovered interest parity, spun out of control. Chinese interest rates rose above US interest rates *despite* the expectation that the RMB would continue to appreciate. By August 2008 (at 1-year maturities), Chinese deposit rates had risen almost 2 percent above dollar LIBOR rates in London. Unsurprisingly, within China, private individuals and institutions have unloaded all their discretionary dollar assets in favor of RMB. The result is a “corner” solution: no internal private holdings of dollar assets unless subsidized by the government. Consequently, in 2007–2008, the covered interest arbitrage condition (1) fails:

$$\text{OIP Fails (2007–08): } i_{Ch} \gg i_{US} + E(De), \text{ where } E(De) < 0. \quad (2)$$

Hot money inflows from abroad into China accelerated. As shown in Figure 9, in 2007, short-term capital flows as well as errors and omissions (which can be interpreted as unrecorded hot money flows) turned from net outflows into inflows adding to the appreciation pressure. In the first half of 2008, this trend can be assumed to have been even stronger. The result was a loss of monetary control and an upsurge of inflationary pressure

Figure 13. Inflation, China and the USA, 1998–2008

Source: Ecwin Database 2008.

in 2007 through mid 2008.

Figure 13 shows that consumer price inflation in China increased in 2004 with low US interest rates, but then fell in 2005–2006 when US interest rates rose and so reduced capital inflows into China. However, after August 2007, when US interest rates started to decline again, the inflationary outlook for China and the world changed dramatically. Official reserve accumulation further accelerated, raw material and food prices soared, and monetary growth in China got out of control. By May 2008, Chinese consumer price inflation had climbed above 8 percent.

In 2007 into 2008, China changed from being a deflationary force on the world economy into an inflationary one. The combination of internal inflation and an appreciating RMB increased the dollar prices of Chinese manufactured goods shipped to the USA. The impact of China on world inflation was further amplified by its overheated economy's demand for industrial raw materials and primary food products. In contrast, before 2007 (slightly) falling dollar prices for goods imported from China helped to keep inflation in the USA and other industrial countries remarkably low, sometimes known as the "great moderation."

IV. The Great Reversal of the Dollar Carry Trade: July 2008 to ?

Before July 2008, the dollar had been fairly weak against most other currencies. It had fallen

from 1.135 euros at the end of the high-technology bubble in 2001 all the way to just 0.63 euros per dollar at the end of June 2008. The US Federal Reserve Bank had overreacted to the collapse of the high-technology bubble in 2001–2002 by keeping dollar interest rates too low for too long. This easy availability of cheap dollar credits, combined with loose financial regulation of banks and mortgage companies, first stoked the bubble in US house prices beginning in 2004, and then bubbles in various world commodity markets beginning in 2005–2006. This could be called the *dollar carry trade*.⁸ While projecting that the dollar would continue to decline, speculators around the world borrowed cheaply in dollars at short-term to buy higher-yield and less-liquid assets at longer term in foreign currencies (euros, pesos, RMB, won, and so forth), as well as going long in a wide variety of primary commodity futures, notably oil.

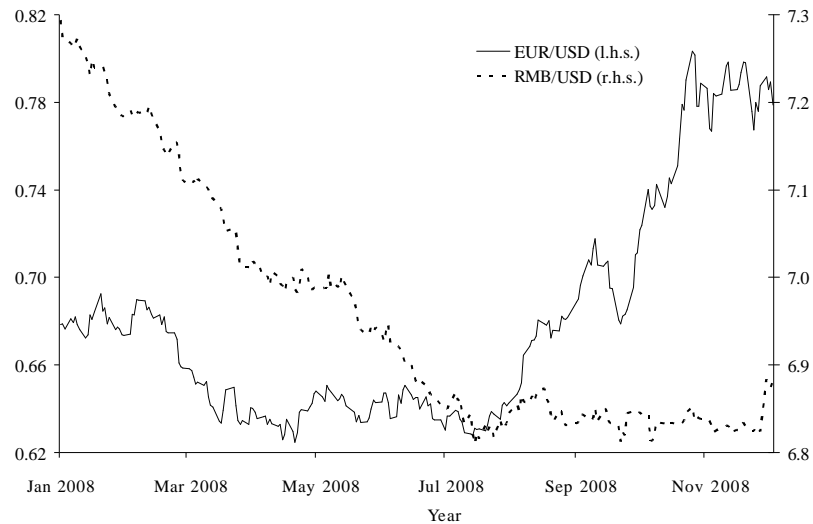
The crash of the gigantic US housing bubble from mid-2007 through 2008 created chaos in the financial markets and a credit crunch because of counterparty risk.⁹ With interbank markets in dollars freezing up by the summer of 2008, carry traders found that they could no longer renew or roll over their short-term dollar credits. Thus, they had to sell off their foreign-currency and primary-commodity assets to get back into dollars to repay their short-term debts. Beginning in July but going through November 2008, this abrupt termination of the carry trade caused the dollar to appreciate sharply against the euro (Figure 14), as well as against the Canadian dollar, sterling, and many emerging-market currencies. The Mexican and Chilean pesos, the Brazilian real, the Korean won, and so forth, all depreciated sharply against the dollar. Primary commodity prices slumped everywhere, with a collapse in the price of oil.

Because of the dollar's appreciation against so many other currencies, the PBC suspended the upward crawl of the RMB against the dollar (Figure 14) after July 2008. Hot money inflows into China subsided or reversed and domestic monetary control was

⁸ Most readers will already be familiar with the Japanese “carry trade.” In the liquidity trap, Japanese short-term interest rates have been stuck near zero since the mid-1990s. This has encouraged speculators to borrow short in yen and buy higher yield foreign currency assets, such as Australian and New Zealand government bonds with yields of 6 or 7 percent, and then hope that the yen does not appreciate. However, in the current credit crunch, in 2008, they could not renew their short-term borrowing in Tokyo. Therefore, they suddenly had to sell their foreign currency assets to get back into yen. In the last half of 2008, the yen appreciated even more sharply than the US dollar, whereas the Australian and New Zealand dollars crashed. The simultaneous unwinding of both the yen and dollar carry trades has been the prime source of recent instability in the foreign exchanges.

⁹ Counterparty risk prevails when private agents in the financial markets don't trust each other. Bank A will not lend to Bank B for fear that Bank B has so many bad assets on its balance sheet that it might not repay its loans. For a more complete description, see McKinnon (2008).

Figure 14. EUR/USD and RMB/USD Exchange Rates, 2008



Source: Ecwin Database 2008.

Note: l.h.s., left-hand side; r.h.s., right-hand side.

regained, with the RMB stabilized at approximately 6.85RMB/USD from July through November 2008. However, this “accidental” strengthening of the dollar in the second half of 2008 is likely to be temporary. Once speculators finish repaying their short-term dollar credits (or default!), the backflow of this hot money to the USA will cease and with it the upward pressure on the dollar in the foreign exchanges. Then, unless governments coalesce to maintain exchange stability, the dollar’s exchange rate might go in any direction.

Another consequence of the sudden pull back of the dollar carry trade after July 2008 was the sudden slump in world primary commodity prices. This posed a direct deflationary threat to China and other countries worldwide, but indirectly also curbed the demand for Chinese manufactured goods as primary product producers everywhere cut back their spending. By the last quarter of 2008, Chinese exports were actually declining in nominal terms at an annualized rate of approximately 15 percent, the first decline since liberalization began in 1979. However, nominal imports were declining even faster at the incredible rate of over 41 percent because China is a major importer of industrial raw materials and food grains whose dollar prices had fallen sharply. Because of this dramatic improvement in its terms of trade, China’s nominal trade surplus was increasing by more than 50 percent by the end of 2008.

V. Overcoming Three Misconceptions about Exchange Rate Stabilization

China can't end its exchange rate impasse on its own. With proper foreign cooperation, however, the monetary impasse from the one-way bet in the foreign exchange markets could be resolved rather quickly. Therefore, currency stabilization should *precede* measures to correct the saving–investment imbalance, which may take months or years to be effective both in China and abroad. Nevertheless, to be successful, the political economy of any international agreement likely requires both as a package deal. China bashing to get the RMB up can only be stopped if China proposes definite fiscal measures to reduce its future saving surpluses, possibly in conjunction with US efforts to reduce America's saving deficiency, and overly loose domestic monetary policy leading to a weak dollar.

Populist politics aside, what inhibits China and the USA (representing the interests of the industrial economies more generally) from agreeing on such a package deal that would be of such great mutual benefit? Strangely, the issue of exchange rate stabilization might be the most contentious. Three common misconceptions in economic theory on the role of the exchange rate inhibit any political agreement from stabilizing China's currency. Let us consider each in turn.

1. Misconception No. 1: The Exchange Rate Can Affect the Trade Balance

Many, if not most, economists believe that a country's net trade balance can be controlled by manipulating the level of its exchange rate. However, a current account surplus (dominated by a trade surplus) just reflects a surplus of saving over investment at home, and the converse abroad. Thus, how a discrete appreciation of a creditor country's currency will eliminate its saving surplus is neither obvious nor unambiguous. True, its goods would become more expensive to foreigners: the relative price effect. However, in an economy open to international capital flows, domestic investment would fall because appreciation makes the country a more expensive place in which to produce. Also, because China owns huge stocks of foreign currency claims (largely dollars), a negative wealth effect from having the dollar fall against the RMB would further reduce domestic expenditures: including for imports. This decline in imports offsets the dampening effect of higher foreign currency prices for exports so as to leave any change in the net trade balance small and ambiguous (Qiao, 2007).

To illustrate this exchange rate–trade balance misconception, it is instructive to revisit the consequences of Japan bashing to get the yen up more than three decades earlier

starting with the Nixon shock of August 1971. The yen rose episodically from 360 to the dollar in early 1971 to touch 80 to the dollar in April 1995. Despite this enormous cumulative appreciation, Japan's net trade surplus rose from being negligible in the 1960s to average approximately 2 percent of GDP in the 1970s, peaked out at approximately 5 percent in the late 1980s, and remains close to 4 percent of GDP in 2008, with the yen at 100 or so to the dollar. Massive currency fluctuations had no systematic impact on Japan's net trade (saving) balance.

However, the great nominal appreciations of the yen against the dollar, which Japan more or less welcomed during the worldwide inflation of the 1970s, eventually unhinged Japan's macroeconomy (McKinnon and Ohno, 1997). In the late 1980s, the syndrome of the ever-higher yen provoked bubbles in Japan's stock and land markets, along with a falling WPI. When the bubbles broke in 1990–1991, followed by a further sharp rise in the yen in 1994–1995, Japan was thrown into a deflationary slump: its infamous “lost decade” of 1992 to 2002. Foreign exchange risk created (and still sustains) a near zero interest liquidity trap that renders monetary policy virtually impotent for stimulating domestic spending (Goyal and McKinnon, 2003). Although Japan had a modest annual growth of 2–3 percent from 2002 to mid 2008, its deflationary hangover continued with stagnant money wages and no growth in consumption (McKinnon, 2007b).

2. Misconception No. 2: Ongoing Exchange Rate Appreciation Reduces Inflation

The second, but more subtle, misconception is that ongoing exchange appreciation can reduce domestic price inflation, or, at the very least, insulate the economy from international inflation. China used to get much gratuitous advice to appreciate faster to “fight inflation.” This admonition is certainly true in the long run, as Japan's unfortunate experience with eventual deflation from yen appreciation attests. However, for a country emerging from a fixed nominal exchange rate where domestic and foreign rates of price inflation had been more or less aligned, the near-term effect of a well-telegraphed transition to an appreciating currency can be highly inflationary, as with China's current monetary impasse. In the near-term transition, the inflationary impact from the loss of monetary control can overwhelm the deflationary impact of a higher level of the exchange rate.

Again, let us refer to Japan's earlier experience with this transition problem. Under the Bretton Woods system of fixed exchange rate parities, the yen had been successfully fixed at 360 to the dollar from 1949 to August 1971, so that price inflation in tradable goods (WPI) between the USA and Japan were similar. As early as 1970, however, market participants

began to project that the dollar might be depreciated. Hot money began to flow out of the USA into European countries as well as Japan (despite its capital controls). To prevent more precipitate appreciation, in 1971–1972 the Bank of Japan intervened heavily in the foreign exchange markets with a rapid build-up of foreign exchange reserves and surge in domestic money growth. By 1974, annualized WPI inflation in Japan became higher than in the USA: 31.3 percent versus “just” 18.9 percent in the USA. Only in the late 1970s did Japanese inflation fall below US inflation, the “long run” relative deflationary effect of a higher yen that most economists expect. However, the length and strength of the near-term inflationary transition was surprising. Before July 2008, China was still in the inflationary “near-term.”

Are there circumstances where China should acquiesce to continual RMB appreciation? Clearly, if the center country under the world dollar standard continually inflates too much, the PBC would have little choice but to acquiesce to a managed ongoing appreciation of the RMB against the dollar.

3. Misconception No. 3: Floating the Rate Would Equilibrate the Foreign Exchange Market

“Flexibility” is a nicer word than floating. Couldn’t the PBC simply withdraw from the foreign exchange market and let the exchange rate be determined by private market makers, much in the way that the euro’s value against the dollar is determined? No, because this proposed solution presumes that a determinate market exchange rate, which could balance the demand and supply of dollars in terms of RMB, would actually exist if the PBC were to exit the market. Unlike the Europe–USA situation, however, China faces an ongoing *currency mismatch* leading to the syndrome of *conflicted virtue* (McKinnon and Schnabl, 2004; McKinnon, 2005) that prevents private market makers from clearing the excess supply of dollars.

What causes the mismatch that undermines the case for floating? The RMB, like the currencies of other developing economies, is not used significantly for international borrowing or lending, but China couples this gap in its capital markets with an enormous saving (trade) surplus. Therefore, dollar, rather than RMB, claims on foreigners continually pile up within the economy. (The dollar is the “default” international money.) Natural private market makers, such as Chinese banks, or even insurance companies and pension funds, all have their liabilities to depositors, policy holders, and so forth, denominated in RMB. Thus, even if the RMB/USD rate fluctuated only randomly, Chinese financial institutions would be exposed to too much exchange risk (relative to their limited capital) to allow dollar assets continually to pile up on their balance sheets.

At some point, they would stop buying new dollar claims associated with the ongoing trade surplus. Consequently, a free float would result in an indefinite upward spiral of the RMB against the dollar, with no well-defined balance point where Chinese financial institutions become sufficiently willing buyers of dollar assets to stop their further depreciation.

This third misconception is linked to the first. A floating but appreciating RMB would not predictably reduce China's trade surplus, and dollars would continue to pour into the economy. However, if China was not an immature creditor country or foreign trade (net saving) was close to being balanced, then no substantial internal currency mismatch would exist and an uneasy float could be possible.¹⁰

However, the issue is somewhat broader. Suppose China did not have a chronic saving surplus, but its bond markets were still not well developed at different terms to maturity, and there were residual capital controls (as in most developing economies). Then forward markets for private hedging against currency risk becomes difficult to organize, and expensive. Therefore, if the government attempted to float the rate willy nilly, it would soon be drawn back to smooth exchange fluctuations (if only at higher frequencies) to reduce the risks seen by exporters and importers. This "fear of floating" is well documented by Reinhart (2000) and Calvo and Reinhart (2002).

VI. How Should China and the USA Respond to the Global Crisis?

Let us focus on just two facets of the great global crisis: the need for exchange rate stability, and the need for coordinated fiscal policies to expand aggregate demand.

In the current crisis, where exchange rates are not tied down, governments will be tempted to act mercantilistically: they may encourage or condone having their currencies depreciate to stimulate exports and mitigate the national rate of deflation. In the Great Depression of the 1930s these were known as beggar-thy-neighbor devaluations. To forestall this uncomfortable possibility, today's two largest trading countries, China and the USA, should take the lead in providing an oasis of exchange stability.

¹⁰ The nonfeasibility of a pure float applies symmetrically to a chronic debtor economy whose debts are denominated in foreign currencies, say dollars, that continue to pile up from ongoing trade deficits. Again, there is an internal currency mismatch where domestic foreign currency debtors are threatened with bankruptcy should the domestic currency depreciate, and the threat thereof could easily precipitate a run out of the domestic currency. This was the case in the great Asian crisis of 1997–1998 as the five countries involved had run trade deficits for several years and built up large (private) dollar debts.

First, the USA should stop bashing China to appreciate the RMB. In particular, the PBC should be encouraged to stabilize the RMB/USD exchange rate at “today’s” level: both to lessen the volatility in hot money flows and to protect the RMB value of its huge dollar exchange reserves. After a long period of undue weakness in the foreign exchanges, the dollar’s strengthening from July to November 2008 against all currencies (save the yen and the RMB) is to be welcomed. So now is a good time to convince the USA of the mutual advantages of returning to a credibly fixed RMB/USD rate by formalizing the de facto stabilization of the last half of 2008 at approximately 6.85RMB/USD. (Other countries or areas, particularly Japan and the euro zone, could take this as a reference point for stabilizing their own currency values against the RMB/USD bloc. Ideally, the IMF should support any such initiatives.)

There is a precedent for this. In April 1995, the US Treasury Secretary Robert Rubin ended 25 years of bashing Japan to appreciate the yen, and announced a new strong dollar policy that stopped the ongoing appreciation in the yen and saved the Japanese economy from deflationary further ruin. However, this policy was incomplete because the yen continued to fluctuate, thus leaving too much foreign exchange risk within Japanese banks, insurance companies, and so forth, with large holdings of dollars. This risk locks the economy into a near zero interest liquidity trap.

Once the one-way bet on RMB appreciation was eliminated, private (non-state) capital outflows from China to acquire foreign-currency assets could be quite massive. This would help relax credit constraints in developed-world financial markets and allow the PBC to better stabilize China’s domestic monetary system. When and if private capital outflows finance the bulk of China’s trade surplus, the continual build-up of official exchange reserves would cease. Then, the PBC could better control China’s domestic monetary base while suspending the drastic sterilization measures it had been using.

Second, the Chinese Government should agree to take strong measures to get rid of the economy’s net saving surplus that is reflected in its large and growing current account surpluses. This would require some combination of tax cuts, increases in government expenditures, increased dividends from enterprises so as to increase household disposable income, and further reductions in reserve requirements on commercial banks. Then, as China’s trade surplus in manufactures diminishes, pressure on the US manufacturing sector would be relaxed with a corresponding reduction in the USA’s trade deficit. Worldwide, the increase in spending in China would offset the forced reduction in US spending from the housing crash.

Again there is an important historical precedent. In the financial crisis of 1997–1998,

most East Asian countries depreciated their currencies, with Indonesia, Korea, Malaysia, Philippines and Thailand, whose currencies were attacked, suffering steep economic slumps. Fortunately, China alone kept its dollar exchange rate stable, but it did face a potential deflationary slowdown. However, in March 1998, Premier Zhu Rongji announced his famous multi-billion dollar fiscal expansion to be spread out over the following 4 years or so. This prevented an economic downturn in China by sustaining domestic aggregate demand, and China's East Asian neighbors recovered faster because they could more easily export to China.

Now China is a much bigger actor on the world stage. Therefore, with the slump in spending in the USA and elsewhere, China should step in with a big new fiscal expansion, much more than the welcome half trillion dollars announced on 10 november 2008 to be comparable to what Zhu Rongji managed in 1998. China is better placed now to finance a large fiscal expansion than it was in 1998. Its trade surplus is proportionately bigger and should be reduced anyway. Unlike in 1998, China's public finances are now very strong, with a surge in tax revenues, and the old bad loan problem with its banks has been largely corrected. Enterprises, both state-owned and private, are now very profitable.

In contrast, the US public finances are in a mess. The pre-crisis fiscal deficit is still with us. In addition, the federal government has taken on huge new contingent liabilities from bailouts of innumerable financial institutions that will hamstring the federal budget for years to come. Therefore, any new US fiscal "stimuli," or big new spending programs not covered by tax increases, should be limited both to avoid further deterioration in the US public finances and to avoid further increasing the US trade (saving) deficit.

Such an accord, with fiscal expansion concentrated in China but with the RMB/USD rate stabilized, is in everybody's interest.¹¹

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¹¹ From the old Mundell–Flemming model of open-economy macroeconomics, students of international finance will recognize that a fiscal expansion is much more effective in stimulating the domestic economy when the exchange rate is fixed rather than when it is floating.

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