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ABSTRACT

The Renminbi's Dollar Peg at the Crossroads*

In the face of huge balance of payments surpluses and internal inflationary pressures, China has been in a classic conflict between internal and external balance under its dollar currency peg. Over the longer term, China's large, modernizing, and diverse economy will need exchange rate flexibility and, eventually, convertibility with open capital markets. A feasible and attractive exit strategy from the essentially fixed RMB exchange rate would be a two-stage approach, consistent with the steps already taken since July 2005, but going beyond them. First, establish a limited trading band for the RMB relative to a basket of major trading partner currencies. Set the band so that it allows some initial revaluation of the RMB against the dollar, manage the basket rate within the band if necessary, and widen the band over time as domestic foreign exchange markets develop. Second, put on hold ad hoc measures of financial account liberalization. They will be less helpful for relieving exchange rate pressures once the RMB/basket rate is allowed to move flexibly within a band, and they are best postponed until domestic foreign exchange markets develop further, the exchange rate is fully flexible, and the domestic financial system has been strengthened and placed on a market-oriented basis.

JEL Classification: F32

Keywords: china balance of payments, china currency, fixed exchange rate exit strategy and renminbi

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From 1997 until July 21, 2005, the Chinese authorities pegged the renminbi (RMB) price of the United States dollar within a narrow range. On July 21, 2005, China's authorities moved to an adjustable basket peg against the dollar, with a revaluation of the central RMB/\$ rate of 2.1 percent relative to the prior central rate of RMB 8.28 per dollar. Figure 1 shows the course of the RMB/\$ nominal exchange rate over a longer historical perspective. Following a period of substantial cumulative inflation, the official rate of the RMB was devalued sharply in 1994, albeit in tandem with unification of the official and parallel exchange markets.¹ A slight appreciation followed. Very notably in view of the claims that China's exchange rate policy is dictated by the imperative of maintaining an undervalued currency, the authorities resisted substantial devaluation pressures, at the cost of some deflation, during the Asian crisis period starting in 1997. For some time now the situation has been reversed, with strong revaluation pressures, speculative capital inflows, and gathering inflationary momentum in the economy. The ability to resist speculative pressures comes from the maintenance of restrictions on private capital flows, especially inflows, as well as from administrative controls useful in restraining inflation.² Nonetheless, "hot money" inflows have helped swell China's foreign reserves immensely in recent years.

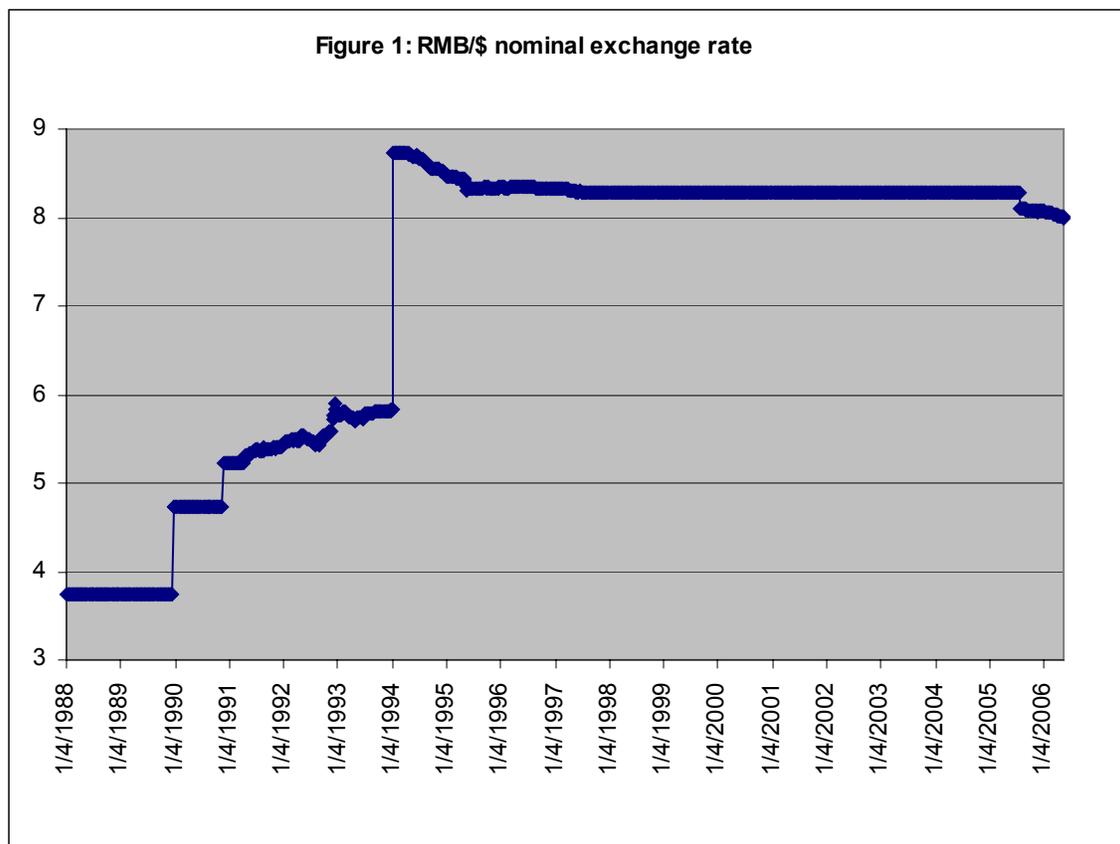
Prior to July 21, 2005, most observers, and indeed the Chinese government itself, acknowledged that China's exchange-rate arrangements were unsustainable and undesirable as a long-term foundation for responding, without disruptive episodes of inflation or deflation, to inevitable real-side shocks, as well as to secular changes in the economy such as real appreciation due to Balassa-Samuelson effects. The recent

¹ At the time of unification, the parallel rate already stood at a depreciated level relative to the official rate.

revaluation-cum-“flexation” is a response to the situation, including the external trade pressures it had generated, but leaves questions about how flexibility will be exploited in the future. So far, even the ± 0.3 percent margins of RMB/\$ flexibility that exist have not been utilized fully. Furthermore, capital markets that are open to the world seem a prerequisite for a modern high-income economy such as China seeks eventually to become. The issues concern the transition. How might China best move toward a genuinely more flexible exchange-rate regime? How might it best dismantle capital controls? And how might it optimally sequence these two conceptually distinct liberalization initiatives?

In the following pages I have four goals. First, to provide a brief overview of developments in China’s real exchange rate, external accounts, and inflation, thereby filling in some concomitants of the nominal exchange rate trajectory in Figure 1. Second, to draw parallels with the experience of Germany (still the world’s premier exporter) during the Bretton Woods era. Third, to discuss the rather successful experiences of Chile and Israel in transiting from pegged exchange rates with capital controls to floating rates with financial opening. Fourth and finally, to sketch a blueprint for gradually flexing the renminbi’s exchange rate in advance of capital-account liberalization.

² Prasad and Wei (2005) offer an excellent discussion.



Recent Trends

Up until the large devaluation-cum-unification of 1994, China's nominal exchange rate against the U.S. dollar moved upward over time to accommodate relatively rapid domestic inflation. Since 1994 the RMB has not depreciated, and it was absolutely fixed in recent years until July 2005. The dollar has fluctuated against other industrial-country currencies, however, and in China itself, inflation has been variable and, at times, high. The result has been substantial variability in the *effective* (or multilateral) real exchange rate of the RMB.

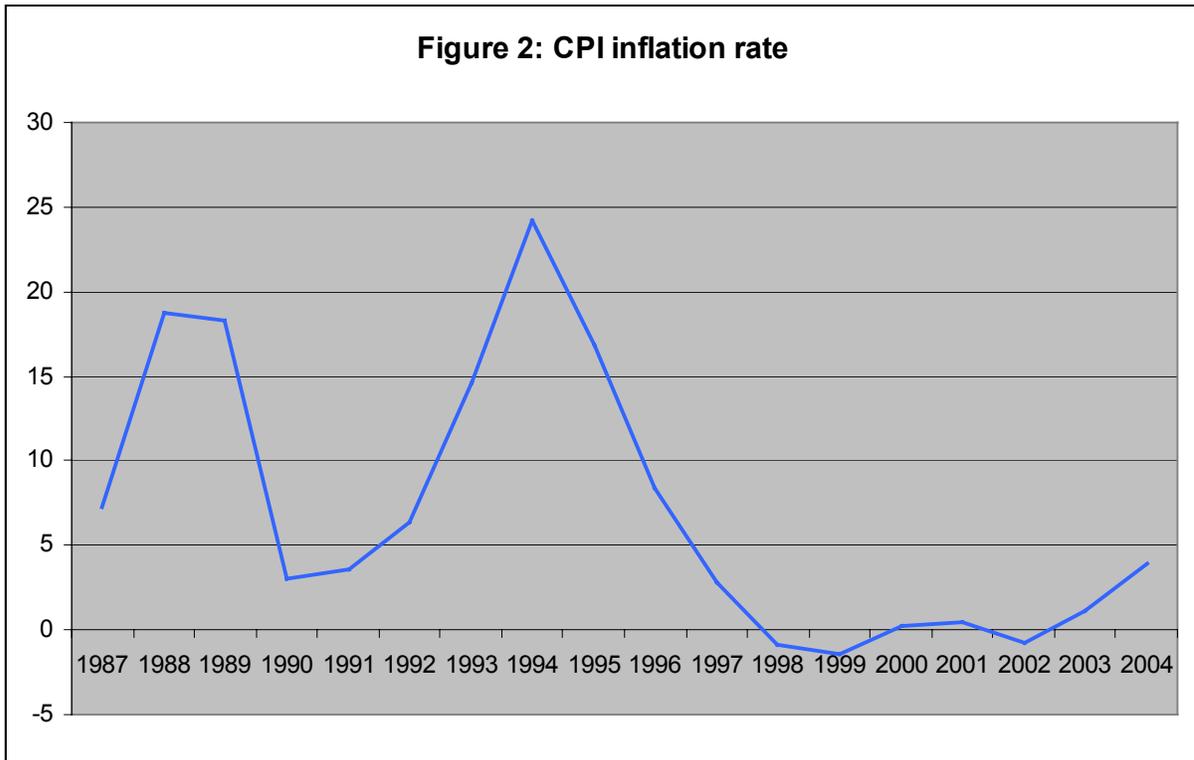
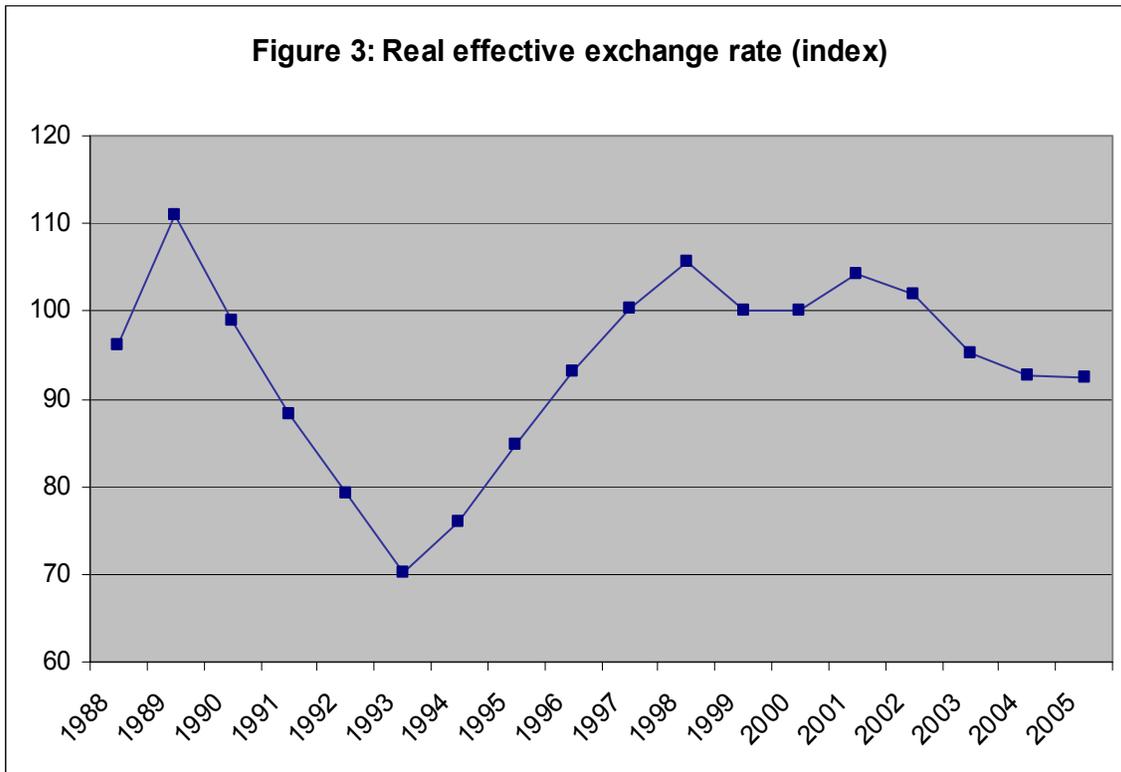


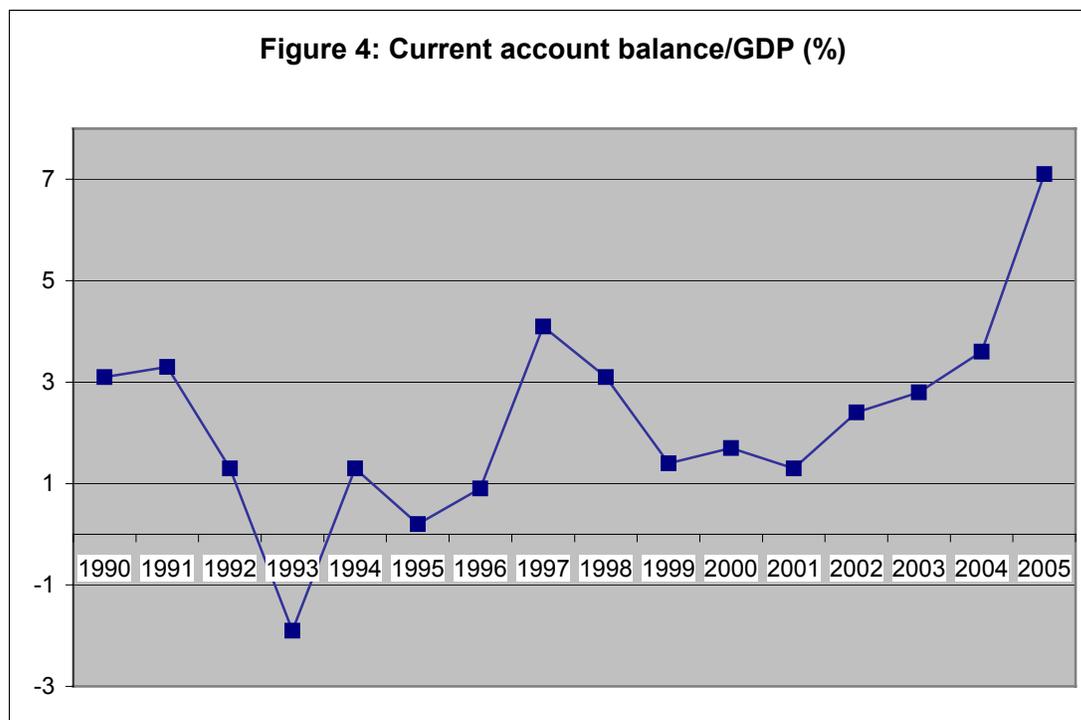
Figure 2 shows the behavior of the CPI inflation rate for China since the late 1980s. Earlier spikes in inflation were associated with social unrest. Inflation was brought down after the mid-1990s, however, and, as noted earlier, even became negative during the late 1990s. Data for 2004 show, however, a fairly sharp increase in inflation, to 3.9 per cent per annum, and the IMF (in the *World Economic Outlook* for April 2005) had forecast a rate of 3 percent for 2005, which in the event turned out to be slightly lower. Other estimates of China's true current and prospective inflation are higher; the situation is complicated by administrative controls that help keep measured inflation in check.



Source: IMF

Figure 3 shows China's real effective CPI exchange rate index, as calculated by the IMF (with an increase being a real appreciation of the RMB). As inflation was brought down after the late 1980s, the currency depreciated in real terms, then appreciated in real terms, notwithstanding the 1994 nominal depreciation against the dollar, in the face of renewed domestic inflation. In the late 1990s the real external value of the RMB stabilized as the price level did. Most recently, the RMB has depreciated in real terms to somewhat below its Asian-crisis levels, in tandem with the dollar's depreciation.

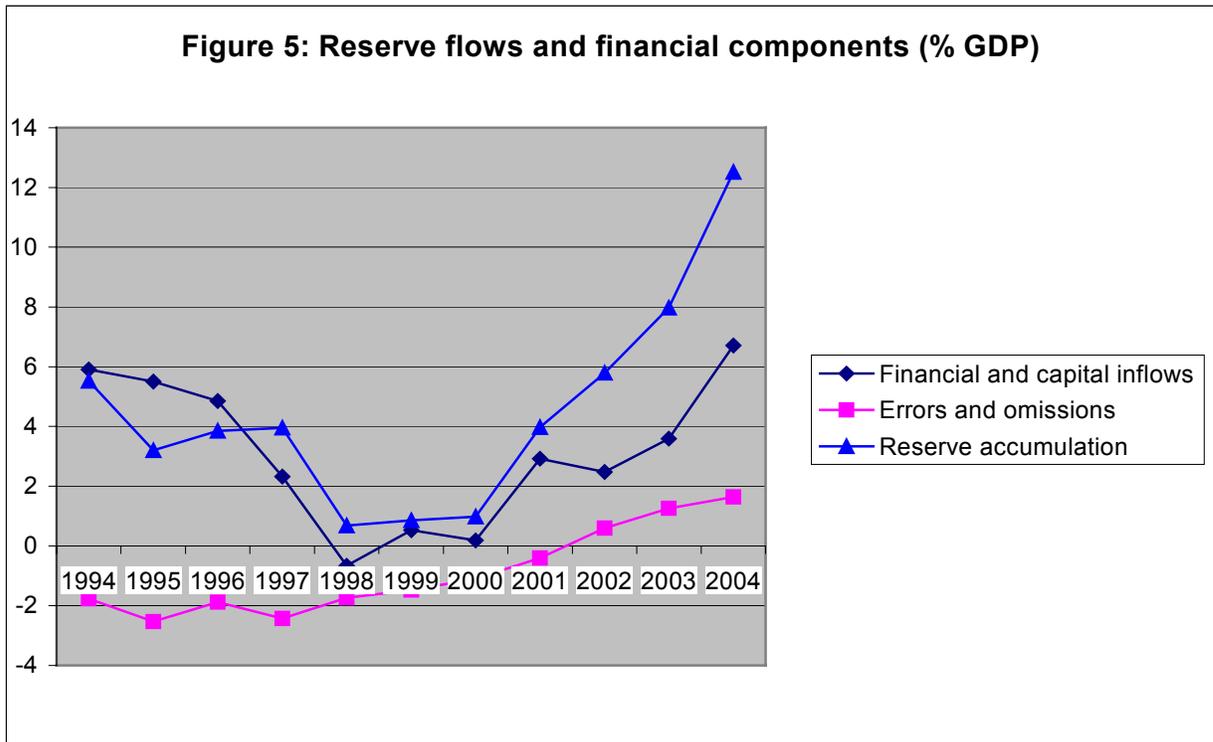
These swings in the real exchange rate bear no transparent contemporaneous relationship to the behavior of China's current account balance, shown in Figure



Source: IMF.

4. In strong surplus in the first years of the 1990s, the current account turned negative in 1993. It then returned to surplus, reaching a local peak of about 4 percent of GDP on the eve of the Asian financial crisis. Since 2001, the net export surplus has grown (according to IMF calculations) to far exceed its prior 1997 peak.

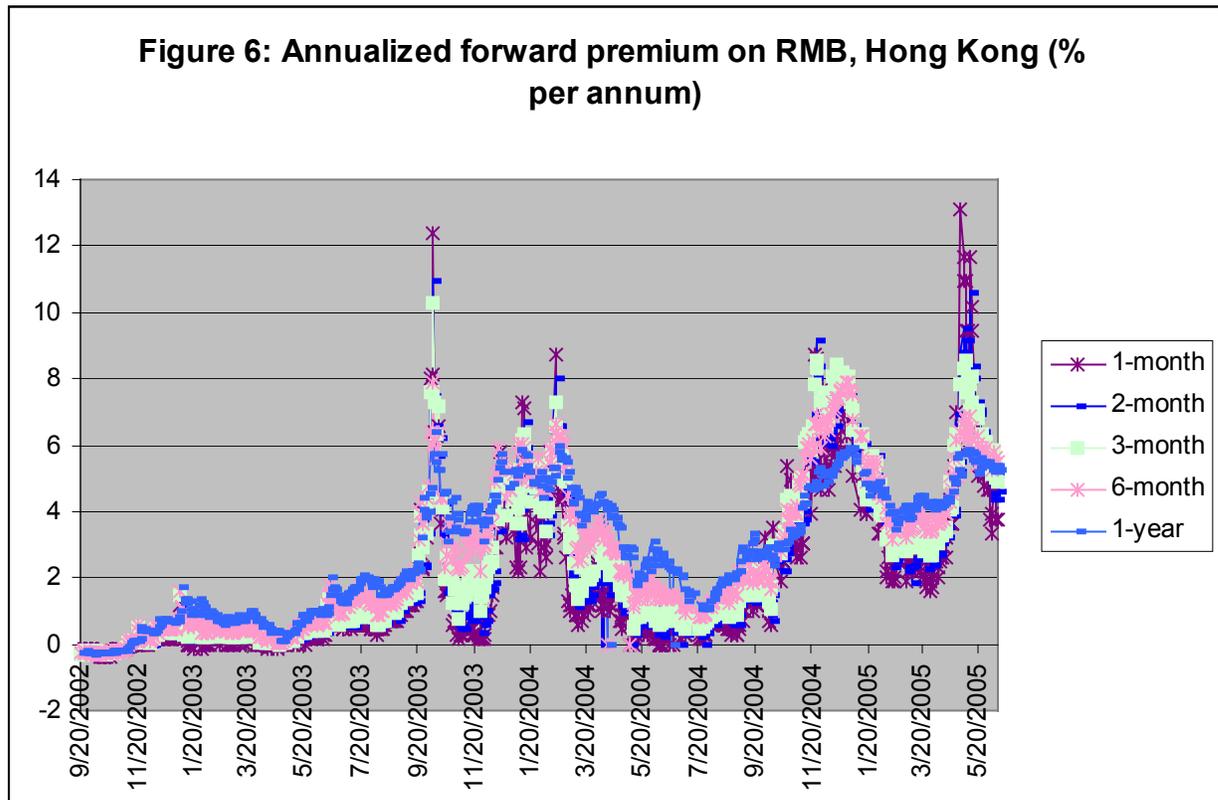
The current account surplus, taken alone, would contribute to a substantial balance of payments surplus, to growth in foreign reserves, and, absent sterilization, to growth in the monetary base and in broader monetary aggregates. However, other balance of payments flows have reinforced these effects strongly. Net inflows of foreign direct investment (FDI) averaged near 5 percent of GDP just prior to the Asian crisis. Since that time they have been lower, but still were about 3.2 percent of GDP in 2003 and 2004. FDI is, however, only one category in the private financial account. In that context, the



balance of payments developments of 2003 –2006 have been quite significant.

Figure 5 illustrates these developments, a standard speculative response to expectations of RMB revaluation by the private sector. Especially in the past few years, financial and capital inflows have accelerated sharply, reaching more than 6 percent of GDP in 2004. Errors and omissions, once negative, are now strongly positive and probably also reflect covert financial inflows. In 2004 unrecorded inflows attributed to errors and omissions amounted to just over 1.6 percent of GDP. It is probable that, through the mechanism of leads and lags, the measured current account balance also was distorted in an upward direction. As a result, China’s pace of reserve accumulation (the sum of the two other series in Figure 5 plus the current account surplus) has been remarkable: around 8 percent of GDP in 2003, and more than 50 percent higher in 2004.

By the end of 2005, China's international reserves (by one measure) stood at \$819 billion, and the accumulation has continued at a rapid clip into 2006, with reserves at the end of March 2006 standing at \$875 billion.



Some direct evidence on the state of market expectations comes from the Hong Kong market for non-deliverable forward RMB – a market in which settlement is based on payment in non-RMB currency of the notional profit on the forward contract on the settlement date.³ Figure 6 shows an approximation to the annualized forward premium on RMB at various maturities, out to one year. Clearly the expectations driving these rates are quite volatile, and also, at times, are consistent with sizable expected depreciation

³ See Ma, Ho, and McCauley (2004).

rates of the dollar against the RMB. As of June 9, 2005, for example, the one-month ahead annualized RMB forward premium was 3.8 percent, and the corresponding one-year rate was 5.3 percent. We know that the expectations theory of the forward premium is not accurate, but on the other hand, such large premiums could not exist were the RMB peg fully credible. By this measure, revaluation expectations have persisted after the small step revaluation of July 21, 2005, lately residing in a range of 3 to 4 percent on an annualized basis.

One way to gauge the magnitude of the imbalance in asset markets is to note that, were China's capital account fully open and not subject to political risks, then the *covered* interest parity theorem, which does hold quite closely, would at many times have implied zero or *negative* nominal RMB rates of interest. Covered interest parity would equate the difference between dollar and RMB nominal interest rates to the forward premium on RMB. Given the prevailing level of dollar interest rates, the resulting "virtual interest rate" can be negative. For example, early in the summer of 2005, one-year Eurodollar deposit rates were about 4 percent, while the one-year forward RMB premium had exceeded 5 percent. China's deposit rate stood at around 2.25 percent. With an open capital market, the result would have been a massive speculative attack driving RMB nominal interest rates down to zero, though the precise dynamics are hard to pin down without an explicit model of such a revaluation attack.

One cannot escape the conclusion that expectations of RMB revaluation have been driving massive capital inflows into China, notwithstanding the administrative controls on capital inflow that are in place.⁴ The People's Bank of China (PBOC) has

⁴ The claim is sometimes made that the recent inflows represent repatriation capital and therefore will subside naturally. That argument seems inconsistent with the magnitude of the inflows.

attempted to sterilize much of this increase in foreign exchange reserves, ultimately resorting to the issuance of special sterilization bills in order to soak up liquidity. (If, under open capital markets, speculation were to drive RMB interest rates to zero, then these sterilization bills would of course become perfectly substitutable for money.) One effect of sterilization can be seen in the central bank's balance sheet. According to PBOC (2005), net foreign assets made up about 60 percent of total assets in 2004, as compared with 33 percent in 1995. Clearly the PBOC has been in a difficult position: it must maintain a relatively high interest rate to discourage overheating of the economy, yet this interest rate enhances the incentive for capital inflows, which already are high as a result of exchange-rate expectations. As Blanchard and Giavazzi (2005) and Frankel (2005) observe, the PBOC has been facing a classic conflict between internal and external balance, in which the monetary policies that restrain inflation simultaneously magnify the external surplus and thus work to undermine the anti-inflationary monetary measures.

The ability to use quantitative operations and interest rate policy somewhat independently has so far aided the Chinese authorities, but such tactics raise stability issues as in the classic Mundellian assignment problem, with the stable assignment depending on the level of international capital mobility. In any case, the medium-term goal of the authorities is, appropriately, to move toward a more competitive internal financial system in which independent management of prices and quantities in the money market will no longer be an option. Such an evolution is also necessitated by the need to move toward an alternative nominal anchor for monetary policy once the dollar peg is

modified, preferably some relative of domestic inflation targeting, in which a short-term interest rate is the prime instrument of the monetary authority.⁵

On July 21, 2005 China's authorities revalued the RMB by about 2.1 percent against the U.S. dollar, announcing at the same time that:

- China was “moving into a managed floating exchange rate regime based on market supply and demand with reference to a basket of currencies.”
- The PBOC would ensure that “the daily trading price of the US dollar against the RMB in the inter-bank foreign exchange market will continue to be allowed to float within a band of ± 0.3 percent around the central parity published by the People's Bank of China, while the trading prices of the non-US dollar currencies against the RMB will be allowed to move within a certain band announced by the People's Bank of China.”
- The PBOC “will make adjustment of the RMB exchange rate band when necessary according to market development as well as the economic and financial situation” and maintain “the RMB exchange rate basically stable at an adaptive and equilibrium level, so as to promote the basic equilibrium of the balance of payments and safeguard macroeconomic and financial stability.”

These changes did not spell out the nature or schedule for future changes in the RMB exchange rate, but they did open the door to transitional arrangements very much like

⁵ See Goodfriend and Prasad (2006) for an excellent discussion.

those that have been pursued successfully in other emerging-market countries, such as Chile and Israel, which have ultimately achieved healthy economic growth coupled with low inflation, financial stability, full currency convertibility, and a fully floating exchange rate. (See the discussion below.)

What seems to have happened so far is a willingness by the PBOC to exploit *slightly* more aggressively than in recent years the narrow bands for the RMB's U.S. dollar exchange rate. Strategically, this willingness is important for at least two reasons. First, even a small degree of day-to-day *symmetric* uncertainty about the exchange rate is a deterrent to capital inflows speculating on further RMB revaluations. Given the width of the band, there is the potential for a meaningful squeeze of dollar bears. The second advantage of even the very limited degree of variability allowed so far is in terms of the development of the domestic foreign exchange market under conditions of limited but non-negligible exchange-rate uncertainty. Markets in both spot and forward transactions will have to develop further as a prerequisite for allowing a greater play of market forces in determining the exchange rate – and indeed, the authorities have recently promoted these developments by introducing forward and spot over-the-counter trading in the interbank market for foreign exchange. Both of these considerations – the need to deter speculation and the need to develop the market – suggest that as an immediate next step, even greater exchange rate variability be allowed within the existing bands around the current parity. So far, nothing near even the limited range of flexibility implied by the narrow bands has been exploited, nor has there been much trend appreciation (only about 1.2 percent against the USD through the summer of 2006 following the initial 2.1 percent step revaluation of July 21, 2005). It is also unclear what the “basket” provision in the

PBOC's stated exchange-rate arrangements means, because the RMB has remained so stable against the U.S. dollar.

The PBOC has stated that the RMB band will be adjusted in an “adaptive” way when this is desirable. That is, the exchange rate regime is, in principle, a managed float within an *adjustable* band. As is well known from many past experiences, notably the collapse of adjustable dollar parities toward the end of the Bretton Woods system, such a system is incompatible over the long run with increasing openness to international financial transactions – whether de jure (through changes in regulation) or de facto (through increased opportunities to circumvent regulation). Because broader convertibility of the RMB is a long-term goal of China's authorities, it follows that the current exchange rate arrangement cannot be viewed as permanent. Moreover, it is likely that the July 2005 revaluation will hold off political and speculative pressures for further revaluation only temporarily. The key questions that then arise are:

- Toward what end point would the current currency system optimally evolve?
- Through what succession of stages should it pass to reach that goal?
- What sequencing of exchange rate regime change with financial regulatory change is most desirable?

The fundamental constraints on policy in an open economy guarantee that the a fixed exchange rate, open capital markets, and a monetary policy geared toward domestic goals cannot all be attained at the same time. China, like the main industrial regions and the

advanced emerging markets, will wish to be able to devote monetary policy toward some variant of flexible domestic inflation targeting, a process that will itself require further reform and development of the domestic financial system so that (as noted above) an interbank interest rate can be used as the prime proximate instrument of monetary policy. Experience shows that the success of an inflation-targeting regime requires low-inflation credibility, which in turn can be enhanced by the granting of statutory instrument independence to the central bank. But in such a system, the inflation target, rather than an exchange-rate target, provides the nominal anchor for monetary policy. Given the desire for broader RMB convertibility and low inflation, then, a regime in which the RMB fluctuates – perhaps in a managed way – against trading partners’ currencies is inevitable. Importantly, the movement toward a floating exchange rate for the RMB can progress quite far, and optimally will do so, before further liberalization of financial-account restrictions is undertaken. This last point will be returned to below, in the discussion of sequencing.

Other successful emerging markets have made a transition from a peg against the U.S. dollar to a basket peg that preserves competitiveness relative to a more comprehensive array of trading partners than simply the United States. Despite the announced intention of the PBOC to restrict the RMB’s rate against non-U.S. currencies to stated ranges while simultaneously restricting the RMB/USD rate to a narrow range, it is hard to see how this will be possible in many circumstances. For example, a very large one-day shift in the \$/Euro exchange rate must result in a commensurate shift in the RMB/Euro rate, unless the narrow RMB/USD fluctuation limit is breached. Such large unexpected fluctuations in nondollar exchange rates may cause serious adjustment

problems for some market participants, providing the rationale for a rapid move to a basket peg in which the currencies of major trading partners receive weights proportional to the value of their trade with China. It transpired that, initially after July 21, 2005, the allowable fluctuation range for the RMB/euro and RMB/yen bilateral rates were to be ± 1.5 percent. On September 23, 2005, in a bow toward logic and necessity, those bands were widened to ± 3 percent.

While the move to a *meaningful* basket target is a necessary first step, the most logical next step is a progressive widening over time of the width of the basket's fluctuation zone, with the eventual goal of a zone so wide that intervention limits are rarely if ever met – the case of a floating exchange rate. Naturally, intervention (or monetary policy more generally) could be used to smooth fluctuations within this zone. If the zone width is to be widened slowly, then a system in which the mid-point of the zone crawls, or in which the bands are widened asymmetrically over time, could be useful in accommodating long-run structural tendencies (for example, Balassa-Samuelson type dynamic trends of RMB real appreciation). This type of currency regime is often referred to as a BBC – short for “basket, band, and crawl.”⁶ Another advantage of a *gradually* expanding target range is the limitation of risks while market actors and institutions are adjusting to an environment of active currency trading and exchange rate uncertainty.

Finally there is the question of sequencing. The current health of China's banking system does not allow a precipitous opening of the financial account, especially for inflows. That is no reason, however, to delay in embarking on a program of increasing exchange rate flexibility over time, along with the enhancement of domestic foreign exchange trading. Ultimately, however, a restructuring of bank portfolios, expanded

prudential supervision, and deregulation, if carried out successfully, would allow further financial opening. Another strong impetus for thorough domestic financial reform is that under a regime of managed floating, the central bank interest rate will provide the most effective tool for responding to exchange market developments when circumstances make such a response appropriate. Only a resilient financial sector, however, will be able to withstand the possibly sharp interest-rate movements that could be needed either to smooth sharp incipient exchange-rate movements or to respond to domestic inflationary pressures.

Germany's Postwar Experience Revisited

China's current situation illustrates the well-known open-economy trilemma – the impossibility of reconciling capital mobility with a fixed exchange rate and a monetary policy geared toward domestic objectives. China has been able to pursue exchange stability and price stability simultaneously (so far) mainly through the maintenance of its controls over financial capital movements. As the effectiveness of these controls erodes over time, however, as they are bound to do in a setting of expanding trade, the tradeoffs implied by the trilemma will inevitably become harsher.

Germany's postwar experience provides an excellent illustration of this process. Over the course of the 1950s, the war-ravaged country emerged as an economic power and world-class exporter. Through most of the 19950s, the deutsche mark (DM), like other European currencies, was inconvertible on both current and financial account. In

⁶ See Williamson (2001) for a comprehensive discussion.

December 1958 European countries embraced nonresident convertibility on current account; Germany went further, also embracing convertibility on financial account.

Germany at the time had emerged as a “chronic” surplus country. In addition, Germany’s relatively high rate of productivity growth in manufacturing suggested that the DM should appreciate in real terms over time – implying, at a fixed nominal parity against the dollar, inflation higher than the U.S. rate. The German authorities were unhappy about accepting this relatively high inflation. In embracing an open financial account at the start of 1959, they therefore retained a number of restrictions aimed at restricting short-term inflows of speculative “hot money” (see Obstfeld and Taylor 2004, pp. 156-7; and for a more detailed discussion of German experience, Emminger 1977). There was also the hope that these measures would facilitate sterilization of surpluses, which the Deutsche Bundesbank pursued energetically.

Seeing a fall in the Bundesbank’s foreign reserves in the spring of 1959, Germany optimistically lifted its inflow restrictions in May 1959, but it was forced to reimpose them little more than a year later in the face of renewed speculative purchases of DM. Finally, in March 1961 Germany revalued its currency by 5 percent against the dollar.

Revaluation provided a respite, but with wider convertibility and growing world trade came increased opportunities to circumvent capital controls. Germany progressively tightened its inflow controls in the late 1960s and early 1970s in the face of renewed speculation, first on a DM/French franc realignment, then on a DM/dollar realignment. Swamped by reserve inflows nonetheless, the authorities allowed a temporary DM float prior to the December 1971 Smithsonian realignment. Ultimately, however, continuing speculation during 1972 and early 1973, little deterred by a panoply of inflow restrictions

and interest taxes, forced a closure of the foreign exchange markets and then the move to generalized floating in March 1973.

Table 1 indicates some fundamentals of the German economy during the Bretton Woods period. Given the pattern of relative sectoral productivity growth, one would expect the DM to appreciate in real terms over time against the dollar. With a fixed parity, however, this could be accomplished only through Germany tolerating a secular inflation rate above that in the U.S. As the table shows, during the period of inconvertibility prior to 1960, Germany was able to maintain an inflation rate quite close to that of the U.S. In the 1960s, with a much-reduced scope for sterilization of balance of payments surpluses, Germany was forced to tolerate inflation further above the (higher) U.S. level that prevailed. Ultimately, the conflict between the authorities' inflation aversion and their Bretton Woods commitments led to a breakdown. As speculative capital flooded the money markets – without any corresponding restriction in U.S. liquidity, as might have been the case in a gold standard-like system – German inflation accelerated, forcing abandonment of the dollar peg.

Thanks to the abandonment of the peg, however, Germany was able to reestablish monetary control as well as control over inflation. Unlike some industrial countries (notably Japan), Germany did not experience an inflation surge as a result of the 1973-74 oil price shock. Furthermore, German unemployment remained low through the global recession of the early 1980s. German growth did decline in the 1970s compared to the earlier postwar years – real GDP growth was about 2.8 percent per year over 1970-80,

Table 1: Inflation Rates and Productivity Growth for the U.S. and Germany

	<u>Germany</u>	<u>United States</u>
Inflation:		
1950-60	2.8	2.6
1960-71	4.1	3.4
Labor productivity growth by sector, 1950-73:		
Services	2.8	1.4
Industry ^a	5.6	2.2
Agriculture	6.3	5.4

^a Including construction.

Source: Obstfeld (1993).

slightly lower for 1981–1990 (2.6 percent, with the emergence in that decade of very high unemployment) – though these figures for the West are favorable compared to the 1991-2001 1.5 percent growth rate for unified Germany. It is hard to blame the German growth slowdown immediately after the 1960s on floating – there was a worldwide productivity slowdown coupled with (and to some degree caused by) the oil shocks. Thanks to floating, Germany was able to lower its capital inflow controls and regain monetary independence. It later became the anchor for Europe-wide disinflation prior to the euro. The country remains the world's leading exporter, although the recent problems of growth, unemployment, and fiscal balance associated with its welfare state are well appreciated. Most observers would argue that Germany's overall experience with a floating DM and an open financial account was quite favorable. Germany's long-term problems seem not to have been caused or aggravated by its 1973-99 currency regime.

China finds itself at a conjuncture today similar to Germany's in the early or perhaps mid-1960s, although it faces a global capital market that is vastly deeper and broader than that of the 1960s. Having recently embraced current account convertibility and in the face of speculative capital inflows, the Chinese authorities have opted to sterilize, tighten controls on financial inflows, and loosen controls on outflows, all in the hope of managing domestic liquidity so as to restrain inflationary pressures. The process is bound to become increasingly difficult. Furthermore, with capital outflows increasingly liberalized, it will be difficult if not impossible to close the door again should the RMB be subject to devaluation pressures down the road, as was true in the late 1990s.

And there is one other respect in which China's position is dramatically more precarious than that of Germany in the 1960s. It finds itself the target of protectionist

pressures, emanating especially from the United States, and based on claims of exchange rate “manipulation” that, however spurious, seems to carry emotional and political currency with the electorates of the industrial countries.⁷

Greater RMB flexibility would serve China’s macroeconomic objectives while simultaneously defusing some of the pressure from its trading partners. China has announced a new currency framework in which substantial flexibility is possible. Now China has the chance to implement a gradual exit strategy from the its de facto currency peg.

Experiences of Chile and Israel

Both Chile and Israel had considerable success in moving to floating exchange rates with financial account convertibility. Both now operate inflation-targeting monetary regimes; Chile has an independent central bank and in Israel, the move toward central bank instrument independence is high on the economic reform agenda. Both countries followed similar paths.⁸

Chile had a disastrous early experience of financial opening culminating in a 1982 crisis involving a huge output loss, steep currency depreciation, and nationalization of much privately contracted financial-sector external debt. This sobering history provides the background for the successful reforms undertaken since the mid-1980s.

⁷ The contention of Dooley and Garber (2005) that China can easily sustain its currency peg for another decade or more seems vastly overoptimistic in view of the pressures that China already faces and its manifest efforts to ward them off. See also Goldstein and Lardy (2005).

⁸ For useful background on Chile, see Cowan and De Gregorio (2005) and Le Fort (2005). On Israel, see Bufman and Leiderman (2001) and Haas et al. (2005). See Williamson (1996) for a broad earlier survey.

On the currency side, from the mid-1980s the Chilean peso's USD exchange rate was kept within a crawling band, the central parity of which was adjusted daily to reflect the inflation difference between Chile and its main trading partners. The goal of the crawl was to maintain competitiveness – though there is a danger in any such system that expectations feed into inflation, resulting in accommodation of the expectations via the exchange rate. Partly for this reason, no doubt, as well as due to pervasive indexation, inflation remained relatively high in Chile for a decade, dropping below double digits only in the mid-1990s. (In 1998 lagged domestic inflation was replaced by an inflation target in the definition of the crawl, a key reform in bringing inflation down further.) Although the top end of the band (weak peso) was tested frequently prior to 1991, 1991-97 was a period similar to the recent past in China, with the peso near the strong edge of the band and attempts by the authorities to resist capital inflows and to sterilize. (Estimates of the quasi-fiscal costs of sterilization run about 0.5% of GDP per year, a huge number. Net international reserves peaked at 25 percent of GDP.)

In 1992 Chile redefined its central peso rate in terms of a basket including the DM and yen as well as the USD. Variations in currency composition were made opportunistically. Starting in September 1998, in the wake of capital outflows associated with Asian-crisis spillovers, the currency-band width was set at ± 4 percent and widened continuously until December 1999, when free floating of the peso was declared.

On the financial account, prior to liberalization, Chile channeled transactions through a formal foreign exchange market consisting of the central bank, commercial banks, and specially authorized exchange trading houses. An informal (but completely legal) informal foreign exchange market existed for non-financial transactions; it had a

floating exchange rate. Initially, however, exporters and importers of capital were obliged to sell foreign exchange proceeds in the formal market. The non-financial private sector was allowed to acquire foreign exchange informally. The strength of enforcement sometimes reflected balance of payments pressures. Only by the mid-1990s had the discrepancy between formal and informal exchange rates essentially disappeared. Chile still maintained, for some years afterward, its famous unremunerated reserve requirement on foreign capital inflows, but this was scrapped in the late 1990s. Prior to full financial liberalization and, shortly afterward, free floating, Chile extensively restructured its domestic financial system and imposed extensive regulation and supervision, with special attention to currency mismatches on balance sheets. There was also a substantial development of domestic forward exchange trading after 1995.

Israel adopted a peg to the USD as part of its escape from very high inflation in 1985. In August 1986 the dollar peg was changed to a basket peg, and after a series of speculative devaluation attacks in 1988–91, a crawling band was introduced. Also at this time, an inflation target was introduced. The prior regime had involved fixed but adjustable bands, thereby encouraging speculation in light of Israel's continuing high inflation compared to trading partners. In the newer regime, the band width was widened over time in response to various market pressures.

After 1995 – again in analogy to China's current position – Israel went through some years of capital inflows, which it was forced to sterilize at an enormous quasi-fiscal cost approaching 1 percent of GDP per year. One response was a doubling of the currency band's total width in June 1997 from 14 to 28 percent, with further gradual widening in the future also announced at that time. As of 2005, the shekel's exchange

rate floated, and inflation was comparable to that in the lowest-inflation industrial countries. Of course, these achievements have taken place in a political environment that has been remarkably unfavorable for most of the 2000s.

Israel removed exchange controls only after introducing considerable exchange-rate flexibility, completing this move to convertibility in the late 1990s and early 2000s. Hand in hand with this went reforms in domestic financial markets aimed at greater stability and flexibility. Among other useful developments has been more extensive forward exchange trading.

An Exit Strategy for China

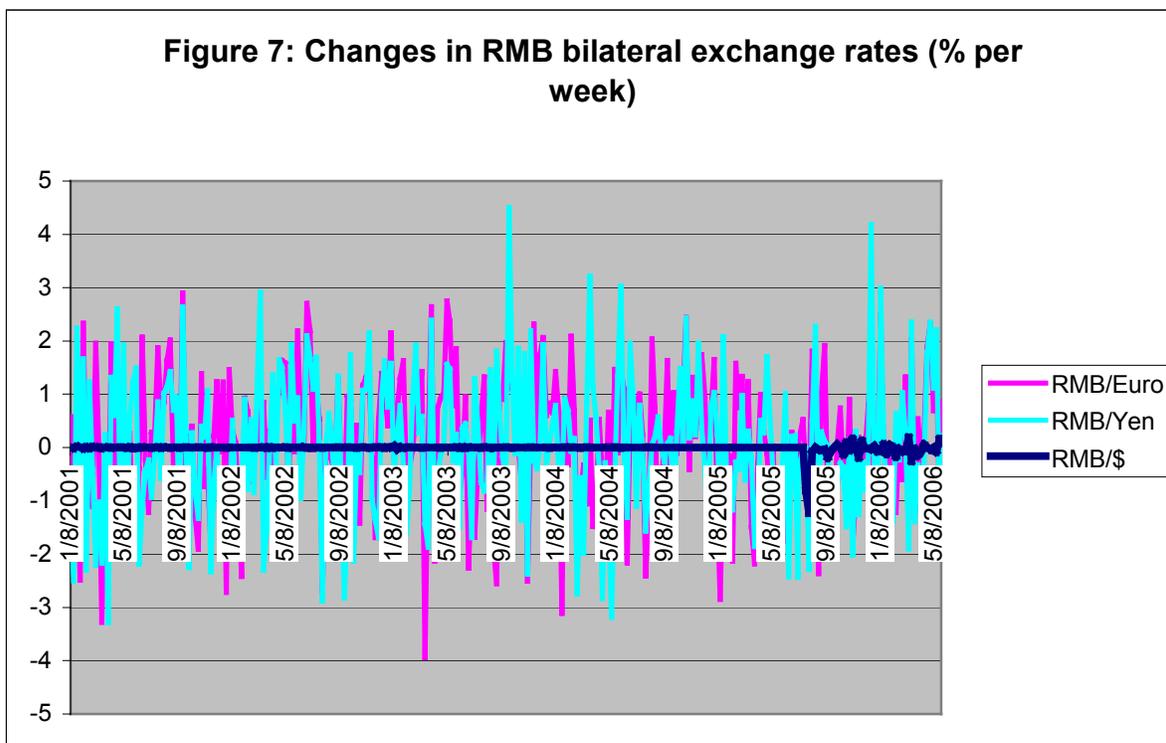
The strategy I describe for China has two components. First, adoption of a target zone for the exchange rate between the RMB and a basket of main trading partner currencies. This step was already taken by China in July 2005, although as indicated above, so far the system seems to operate as a de facto dollar peg, the bands of fluctuation for the RMB/\$ rate remain quite narrow, and the “basket” provision seems meaningless in light of the apparent commitment to hold the RMB/\$ bilateral rate fairly steady. Under the first component of the strategy, the basket target zone would gradually expand over time until a full float was achieved. In the interim, the influence of the basket would be to deter large fluctuations in the effective exchange rate. The second component of my blueprint calls for the retention of extant financial account controls, especially inflow controls, until a high degree of exchange-rate flexibility and a domestic financial reform have been

attained. As noted, similar strategy packages were pursued successfully by Chile and Israel.

A first point to make is that the RMB/dollar link has not brought overall exchange rate stability in any relevant sense. Although the RMB has been stable *against the dollar*, movements in the dollar itself have implied sharp change in the RMB's exchange rate against third currencies, notably the euro and the yen. Figure 7 shows the week-to-week fluctuations of the RMB against the yen and euro in recent data. Volatility in nondollar exchange rates is considerable, not infrequently entailing a plus or minus 2 percent change (or more) in the space of a single week. Because China has substantial trade with Europe and Japan, the RMB peg against the dollar cannot be justified on the basis of trade-enhancing effects that supposedly work through real exchange-rate stabilization – at best we have trade creation with the U.S. (and countries that peg to the dollar) but trade diversion with respect to Europe and Japan.

The unbalanced volatility suggests that for China, a basket peg such as has been officially announced (but not yet implemented) might indeed offer a better trade-off between the benefits and costs of an exchange target. In principle, the relevant basket would include the currencies of all China's principal trading partners, those from which it imports intermediate products and consumption goods as well as those to which it exports.

As a simplified example, define the price of a three-currency basket consisting of \$1, ¥100, and E1 (1 euro) to be $R/B = (R/\$)^{1/3}(R/¥)^{1/3}(R/E)^{1/3}$. (Apparently China's actual "reference" basket is much more inclusive.) Because the RMB price index for the basket can also be written as $R/B = (R/\$) (\$/¥)^{1/3} (\$/E)^{1/3}$, the PBOC can stabilize R/B such



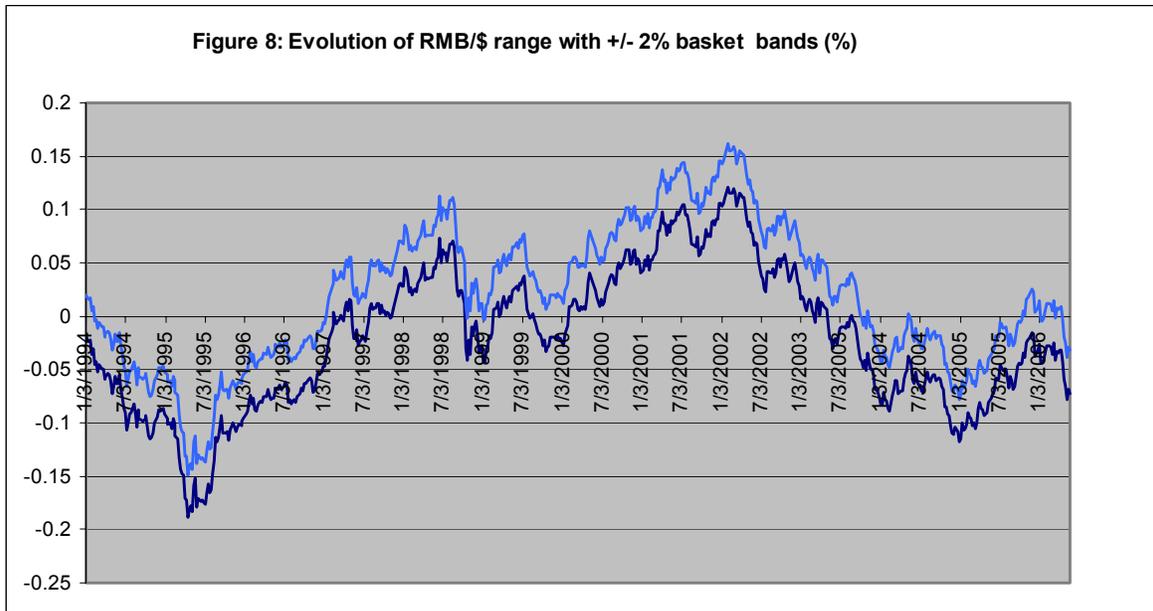
that $c_l \leq \log R/B \leq c_u$ by stabilizing the dollar rate $\log R/\$$, not between unchanging limits as is now the case, but between limits that depend on the bilateral rates of the dollar against the yen and euro:

$$c_l - (1/3)\log \$/\text{¥} - (1/3)\log \$/\text{E} \leq \log R/\$ \leq c_u - (1/3)\log \$/\text{¥} - (1/3)\log \$/\text{E}.$$

For example, if the dollar depreciates against the yen, the band for the RMB/dollar rate is moved downward (a revaluation against the dollar) to smooth the resulting shift in the RMB price of the basket.

Figure 8 shows the result of the following thought experiment: suppose that at the start of 1994 China had adopted a 4 percent wide band for the RMB price of an equal-

weighted basket of dollars, yen, and euros (that is, 2 percent up or down, and using the ECU before 1999). How would the implied band for the RMB/\$ bilateral exchange rate



have moved over time in response to dollar exchange rate movements against the euro and the yen? That is, what RMB depreciation or appreciation against the dollar would the specified fairly narrow basket peg have allowed?⁹

The figure displays a considerable range of variation in the RMB/\$ bilateral rate. The RMB would have appreciated significantly against the dollar during the mid-1990s period of dollar weakness, perhaps by more than 15 percent. On the other hand there would have been a depreciation against the dollar during the height of the Asian crisis, caused by the depreciation of the yen against the dollar. The yen's sharp appreciation against the dollar in the fall of 1998 would have provoked a similar RMB movement,

⁹ McKinnon (2005) has suggested that the current range of fluctuation in the RMB/\$ rate be widened to plus or minus 1 percent, with no revaluation of the central rate. While that step would be useful as a preliminary measure, it clearly would not suffice and would become unsustainable were China to open its financial account fully. Furthermore, it is hard to see the rationale for a continuing dollar peg in a world

followed by a trend of depreciation as the dollar strengthened toward its 2002 peak (with the price of dollars in terms of RMB potentially rising as much as 15 percent).

Interestingly, recent movements of the dollar against the euro and yen would have allowed a substantial revaluation of the RMB/\$ rate, perhaps defusing some of the protectionist sentiment in the U.S. Congress. It is impressive that fairly narrow basket bands (those underlying the figure are narrower than the old European Monetary System bands) allow so much flexibility relative to the dollar.

A feature of the basket system is that intervention in support of the basket rate could still be carried out entirely in the RMB/\$ market. The reason is that the basket can be implemented entirely through a (variable) RMB/\$ exchange rate target. As a technical matter, the band could be redefined each morning using the exchange dollar rates prevailing earlier that day in the Tokyo markets. Or it could be updated more frequently. The decision to peg to a basket is also separable in principle from the decision on the denomination of foreign-currency reserves. Diversification of official reserves in line with the basket weights would serve to stabilize the value of reserves in terms of RMB, but is not otherwise a necessary adjunct of a basket peg system.

China so far has not implemented a basket peg in the way described above. A genuine basket peg is desirable, however, with the implied margins for RMB/\$ fluctuation being widened over time, and in both directions. Interestingly, there would not necessarily be a one-way bet for speculators against the dollar at the edge of the band, because the band as a whole could move in either direction as a result of movements in the dollar's rates against the yen and euro. Speculators could bet on the value of the

where the euro and yen are not pegged to the dollar – there would be no “network externalities” in terms of overall effective exchange rate stability from continuing to peg to the dollar.

basket, however – though some randomization of the basket weights would introduce greater uncertainty into that trade, too. Some countries (e.g., Singapore) attempt to foil speculation by creating uncertainty about the weights on the various basket components.

An alternative basket-like scheme would adjust the RMB/\$ bands, not in response to dollar exchange rates against third currencies, but to the dollar prices of imports from third countries. (Since these prices are not monitored daily, in practice the day to day fluctuations would mostly reflect exchange rate changes.) The rationale for this approach would be that, from the viewpoint of welfare, stabilization of import prices seems more relevant than stabilization of currency values. This type of arrangement might fit better with the goal of inflation control, since it would act to restrain domestic import-price inflation. In practice, however, the differences compared with currency targeting would unfold only gradually.

How much of a revaluation is ultimately necessary for the RMB? There is considerable uncertainty about the answer and a wide range of methodologies and estimates. Frankel (2005) suggests one possible approach, based on the Balassa-Samuelson relationship between per capita real income and the real exchange rate. China's relationship to the cross section regression of price level on real per capita income within the Penn World Table sample suggests a 36 percent RMB undervaluation for 2000. If figure 3 is a good guide, the level of undervaluation would be similar now. Goldstein and Lardy (2004) cite a 15 percent undervaluation. As I do, they suggest the adoption of a basket target within a zone, but coupled with an initial 15 percent step revaluation. Eichengreen (2005) takes the view that the RMB's undervaluation is smaller than this. In view of the underlying uncertainties, I would favor a graduated approach

such as the PBOC seems to have embarked upon, rather than a steep initial revaluation that could be disruptive for the economy and might have to be reversed later. In particular, a gradualist approach would avoid an abrupt redistribution of income away from the relatively poor rural sector, where agricultural output prices are linked to world prices through the nominal exchange rate.¹⁰ Even a narrow band, as McKinnon (2005) has emphasized, would help set the stage for the development of domestic foreign exchange trading. However, it is important that the range of de facto flexibility be widened ahead of an acceleration of financial market pressures.

Once market forces are given greater play in determining the day-to-day value of the RMB/\$ rate, the RMB might well move initially to the strong edge of any band that was established. For that reason, it is important that the existing capital flow controls not be dismantled until the exchange rate bands have been widened to the point where a managed float has been achieved. The move to a currency band, a band that could be widened over time, would render superfluous some of the ad hoc liberalization measures that have been deployed to ease exchange-rate pressures. Many discussions make insufficient distinction between enhanced exchange flexibility, which can be achieved (with less currency volatility) under restricted international financial flows, and openness of the financial account. The two are completely different, and a less risky sequencing would tackle the full gradual relaxation of financial-account controls only after the achievement of a good degree of exchange-rate flexibility. Eichengreen (2005) and

¹⁰ See Blanchard and Giavazzi (2005), who discuss macro measures complementary to revaluation. Of course, an initial step revaluation that inadvertently went too far could spark massive financial outflows through the exit door that now has been opened in response to the current appreciation pressures. Indeed, any revaluation that was not expected to be repeated soon would likely encourage a sharp financial outflow as the speculative positions that have been built up over the past couple of years were unwound. Again, Germany experienced this pattern of inflows, revaluation, and outflows during the last Bretton Woods

Prasad, Rumbaugh, and Wang (2005) lay out the case for this sequencing in greater detail. The manifest hazards of opening to inflows in the current setting of domestic banking-system weakness furnishes one of the most compelling arguments for placing further decontrol of the financial account on the back burner.

Summary

In the face of huge balance of payments surpluses and internal inflationary pressures, China has been in a classic conflict between internal and external balance under its dollar currency peg. Over the longer term, China's large, modernizing, and diverse economy will need exchange rate flexibility and, eventually, currency convertibility with open capital markets. A feasible and attractive exit strategy from the essentially fixed RMB exchange rate would be the following two-stage approach, consistent with the steps already taken since July 2005, but going beyond them:

1. Establish a limited trading band for the RMB relative to a basket of major trading partner currencies. Set the band so that it allows some initial revaluation of the RMB against the dollar. Manage the basket rate within the band if necessary, and widen the band over time as domestic foreign exchange markets develop. Possibly allow a trend crawl in the band to accommodate long-run real exchange rate changes due to structural changes along Balassa-Samuelson lines.

years (Obstfeld 1993). This type of uncertainty is another reason for not relaxing financial-account controls further in the course of the transition to greater RMB flexibility.

2. Put on hold ad hoc measures of financial account liberalization. They will be less helpful for relieving exchange rate pressures once the RMB/basket rate is allowed to move flexibly within a band, and they are best postponed until domestic foreign exchange markets develop further, the exchange rate is fully flexible, and the domestic financial system has been strengthened and placed on a market-oriented basis. Only a resilient financial sector will be able to withstand the occasional sharp interest-rate changes that the monetary authorities may find necessary – whether they are responding to incipient unwanted exchange-rate movements or to domestic inflationary pressures.

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