

**China's Exchange Rate Regime: The Long and Short of It<sup>1</sup>**  
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**1. Introduction**

China's exchange rate system is a work in progress. The accelerating pace of change makes efforts to analyze it like attempting to hit a moving target.

- In July 2005, following more than a year of intense discussion, the government announced that it was revaluing the renminbi by 2.1 per cent, switching from the dollar peg to a basket, and allowing the currency to float more freely.<sup>2</sup>
- In August it expanded the forward market by allowing all banks, including foreign banks, with licenses to trade in the interbank foreign exchange market to transact renminbi forward and swap contracts with clients as well as in the interbank market, and it allowed the banks to determine forward rates independently. The People's Bank of China also provided additional information on the composition of the reference basket, specifying that it includes not just the dollar, the euro and the yen and the Korean won but also the Malaysian ringgit, the Russian ruble, the Australian dollar, the Thai baht, the Canadian dollar and the British pound. The governor of the People's Bank did not however reveal the weights on the constituent currencies.

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<sup>1</sup> Revision of a paper for Columbia University's conference on Chinese money and finance held in New York on February 2-3, 2006.

<sup>2</sup> The PBOC announced that it was keeping the existing fluctuation band that limits daily changes in the exchange rate to 0.3 per cent while allowing the operating range and thus the frequency and extent of repositioning of that band to depend more heavily on market conditions. The last part of this statement was initially interpreted this as a commitment to permit an increase in flexibility, although in the week between the announcement and submission of this draft quite a few commentators expressed second thoughts about its meaning.

- In September the authorities eliminated an inconsistency between its rules for fluctuations against the dollar and fluctuations against the basket. Under the new regime instituted in July daily fluctuations against the dollar were supposed to be limited to 0.3 per cent per day, while at the same time daily fluctuations against the basket were supposed to be limited to 1.5 per cent. The problem was that if the dollar moved against other currencies by 2 per cent in a day, a not unprecedented event, it might prove impossible to respect both rules at the same time. On September 23<sup>rd</sup> the People's Bank of China therefore announced that henceforth the renminbi would be allowed to fluctuate by 3 per cent a day against the euro, yen and other non-dollar currencies, essentially relaxing this constraint.
- On November 25<sup>th</sup>, foreign exchange regulators announced that they were going ahead with a system of market makers to trade the renminbi against foreign currencies. At the same time, the PBOC enhanced the ability of the banks to hedge foreign currency exposures by conducting its first domestic currency swaps, selling \$6 billion to 10 domestic banks at the current exchange rate with an agreement to buy them back in a year's time. A pair of additional currency swaps totally \$8.8 billion followed in December, suggesting that further swap operations would follow at fortnightly intervals.
- On January 3<sup>rd</sup> 2006, the People's Bank of China announced that it would allow over-the-counter foreign exchange transactions to take place, effectively immediately, with the OTC mechanism running concurrently with the existing centralized automatic price matching system.<sup>3</sup> This was designed to permit

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<sup>3</sup> The automatic price matching system will presumably more attractive to smaller financial institutions that have not yet established bilateral credit lines.

authorized participants in the interbank market to quote rates before the morning opening of the market, influenced by overnight moves in G7 currencies (subject, of course, to the daily fluctuation band set by the PBOC). The intent was to introduce a more market-based “price-finding” system for the establishment of daily benchmark reference rates.<sup>4</sup>

Yet further changes will presumably have been introduced between the deadline for this draft and publication of the conference volume.

For the analyst this creates the danger that early pronouncements on the efficacy of the country’s new exchange rate system may be premature. That system is continuing to evolve as officials ferret out inconsistencies in existing arrangements, forward foreign exchange and other financial markets continue to develop, and the authorities gain experience with managing their now more flexible rate.

The analyst’s task is more challenging still for the fact that discussions of the renminbi’s management are laden with political overtones and rolled up with the state of U.S.-Chinese relations. And even those who approach the question from a narrowly economic point of view reach different conclusions because they start from different assumptions about the objective function that the Chinese authorities should seek to maximize. For some the issue is the regime that is most appropriate for the Chinese economy. Here the question is whether a currency arrangement entailing greater flexibility will enable the Chinese authorities to more effectively steer the economy as they continuing moving in the direction of a market-based monetary policy, or whether

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<sup>4</sup> The China Foreign Exchange Trading System now asks for prices from all market makers before the market opens, removes the highest and lowest offers, and then takes a weighted average of the remaining quotes as the central rate of CNY/USD trading that day. Rates for other currencies are set using cross rates against the dollar quoted in international markets.

such flexibility could be destabilizing for the country's financial system and export-led growth in the absence of prior financial reform and the further development of forward markets in foreign exchange. For others the issue is the exchange rate regime with which China can most effectively contribute to the orderly resolution of global imbalances. Here the question is whether Chinese authorities need to allow significant further appreciation in order to limit the expansion of the U.S. deficit and China's own surplus and to reconcile global rebalancing with continued expansion of the world economy.

That different people have different things in mind creates scope for confusion, as will be appreciated by anyone who has followed the debate. To avoid misunderstanding, I therefore start with a statement of what this paper is and is not about. It is about the regime that is appropriate for China. It is *not* about the equilibrium level of the exchange rate and whether the renminbi is 25.4 per cent undervalued.<sup>5</sup> Economists will understand that efforts to estimate equilibrium exchange rates are problematic.<sup>6</sup> Over and above the methodological problems that arise when attempting to implement conventional exchange-rate models, there is the question of whether the current account balance should be an argument of the Chinese authorities' objective function (this appearing to be view of the U.S. Treasury and of others who argue that China has a responsibility for

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<sup>5</sup> The precision of the figure is intended ironically. It is the difference between the 27.5 per cent estimate of the extent of undervaluation cited in the bill introduced in the U.S. Congress by Senator Charles Schumer (which is in turn an average of the 10, 30 and 40 per cent estimates of the extent of China's undervaluation that were offered to the relevant congressional committee) and the 2.1 per cent revaluation announced on the evening of July 21<sup>st</sup>.

<sup>6</sup> This problem is even dicier than usual given current disagreement over whether the Chinese economy is beginning to slow or still at risk of overheating and the fact that there will be new information on the state of the economy between now and our end-of-August conference.

contributing to the process of global rebalancing, but not of mainstream models of inflation targeting).<sup>7</sup>

I have opinions on all these questions, which I will be happy to share at our New York conference. But considerable water will have passed under the bridge between now and then, not to mention between now and when this paper finally appears in print. We will know more about the sustainability of China's rapid rates of growth. We will know more about the appetite of foreign investors for holding claims on the United States and about the validity of the global-savings-glut view of international imbalances. We will know more about how the Chinese authorities are operating the new regime in practice. Hence this paper is not about by the appropriate level of the dollar-renminbi rate but about what exchange rate *regime* is right for China over various horizons.<sup>8</sup>

In this context, I will argue that the decision of July 21<sup>st</sup>, 2005 was broadly correct.<sup>9</sup> The 2.1 per cent revaluation of the renminbi has symbolic value, notably in the United States. It is indicative of the recognition that China now shares responsibility for the stability of the global economy. At the same time it is not so large as to significantly damage the profitability of Chinese exports. A more flexible exchange rate should enable the People's Bank of China to more effectively tailor monetary conditions to local needs as it moves toward a more market-based financial system. Continued heavy management of the currency will minimize the danger of excessive volatility that could damage financial stability, exports, and economic growth.<sup>10</sup> Finally, switching to a basket should

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<sup>7</sup> A more systematic statement of the view that external balance should figure in the monetary-policy reaction function of central banks is Truman (2005).

<sup>8</sup> The various-horizons part explains the "long and short" of the title.

<sup>9</sup> The late Rudi Dornbusch once said that agreeing with the authorities is not a way for an economist to become famous, but the chips fall where they may.

<sup>10</sup> Some, like Goldstein and Lardy (2003), will argue that such a small revaluation is apt to be destabilizing, since it will only excite expectations of further revaluation. My own view, to the contrary, is that coupling

help to reconcile the further dollar decline needed for the readjustment of the U.S. deficit with the export-centered nature of China's growth model.

My criticisms of the new policy regime center on the ambiguity that remains after the recent announcement about the likely degree of exchange rate flexibility. I worry that the authorities may not permit the rate to fluctuate sufficiently to create the perception of a two-way bet and encourage prudence on the part of financial market participants.

Measures to suppress volatility may encourage speculators to all line up on one side of the market, at present the side anticipating further appreciation, subjecting the economy to worrisome capital inflows and aggravating the risk of overheating. Over time, an even more flexible exchange rate will become desirable, and at that point the fluctuation band retained as part of the new regime may become binding. Repeated changes in the regime – widening the band, or abandoning it entire – will then create unnecessary questions about the consistency and credibility of policy; I will argue that from this point of view it would have been better to eliminate the band on July 21<sup>st</sup>. Given the Chinese authorities very extensive foreign exchange reserves, they have ample resources with which to manage the rate via intervention; already the band has become an unnecessary crutch. Finally, I worry that for domestic political and economic reasons the Chinese authorities may be reluctant to accept the further appreciation of the exchange rate needed over time to help smoothly resolve the problem of global imbalances.

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revaluation with a freer float creates a two-way bet that should prevent currency speculators from all automatically lining up on one side of the market (Eichengreen 2005). Here we have an example of the kind of question that is impossible to answer on an evidentiary basis given that there are only days between the policy announcement and submission of the draft.

## 2. Lessons from the Theory of Optimum Currency Areas

The theory of optimum currency areas is the obvious jumping-off point for this analysis.<sup>11</sup> This theory and its empirical counterpart suggest that large countries subject to distinctive business-cycle conditions (“asymmetric shocks”) will want a more flexible exchange rate, since they can both afford and will wish to tailor monetary policy to domestic conditions.<sup>12</sup> In contrast, relatively open economies with weak financial systems will want a less flexible rate, since volatility will be corrosive to financial stability and export growth.<sup>13</sup> Here we immediately see the dilemma confronting the Chinese authorities and the fact that there is no simple answer to the question of what exchange rate regime is right for the country. On the one hand, China is a large economy whose exceptionally rapid development and transformation subject it to distinctive business cycle risks. These structural factors create an obvious case for a more flexible rate. On the other hand, the country has a high export/GDP ratio and a weak financial system. These considerations point toward a less flexible rate. Splitting the difference suggests a moderate increase in flexibility, which was precisely the decision taken on July 21<sup>st</sup>.

This framework also suggests that China will want to move over time in the direction of greater exchange rate flexibility. Sooner or later the country will have to address the problems in its banking and financial system, and a stronger financial system will enable it to cope more easily with the consequences of a more flexible exchange rate. Moreover, China will not run savings rates of 50 per cent forever; social demands for

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<sup>11</sup> See Mundell (1961), McKinnon (1963) and Kenen (1969).

<sup>12</sup> Country size also increases the utility of the currency as a means of payment, store of value and unit of account even when it is floating, both because financial markets are subject to strongly increasing scale economies and simply because so many agents are using the currency in day-to-day transactions.

<sup>13</sup> These are all findings of the cross-country econometric comparisons in Bayoumi and Eichengreen (1997).

higher consumption standards, the development of financial markets that enable households and firms to insure themselves against market risks at lower cost, and the construction of a social safety net will make this so. We know that economies more dependent on domestic demand and less dependent on export demand demonstrably prefer a more flexible rate.<sup>14</sup>

The question is when China should commence its movement in this direction. My argument in this paper (as in a predecessor, Eichengreen 2005) is that the government was right to begin moving in the summer of 2005. The appropriate regime given current conditions is a managed float in which the exchange rate is allowed to fluctuate more than in the last ten years. Greater flexibility will allow the authorities to more effectively steer the economy. It will prevent domestic interest rates and financial conditions from being dictated by interest rates and financial conditions in the rest of the world, which becomes a growing danger as the capital account continues to open through a combination of policy action and market development. Such flexibility will become all the more important as the banks are commercialized and stakes are sold to foreign investors, rendering less effective past practice of managing monetary conditions by issuing instructions to financial institutions.<sup>15</sup>

To be clear, the government is right to insist that its more flexible exchange rate should still be heavily managed. But the degree of intervention should decline over time,

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<sup>14</sup> This too is a robust finding of Bayoumi and Eichengreen (1997).

<sup>15</sup> I regard the standard objections to this advice – and in particular the notion that further steps to foster the development of forward markets on which banks and firms can hedge exchange-rate risk are a prerequisite for greater flexibility – as unconvincing, for reasons explained below.

for the reasons described above. Ten years from now, the renminbi might appropriately fluctuate as freely as the South Korean won or the Brazilian real today.<sup>16</sup>

The question is what exchange rate regime is best for navigating this transition. We know that repeated changes in the exchange rate regime are undesirable. Repeated changes in the regime inevitably encourage speculation about changes in the currency's level, complicating the conduct of monetary policy. The best way of enhancing the credibility of policy is for the authorities to follow a consistent monetary policy operating strategy, something that will not be possible if they are repeatedly changing the exchange rate regime. This argues against moving first to a band and then later to a band-free float. It argues against serial increases in bandwidth over time. Rather, given the exchange rate regime that will be appropriate for China ten years from now – a moderately managed float – the government would have been better advised to eliminate all pretence of a band last month.

### **3. Lessons from the Literature on Sequencing**

The other obvious jumping off point for this analysis is the literature on the sequencing of international monetary and financial reforms. A one-sentence summary of that literature is that exchange rate flexibility should precede capital account convertibility. Exchange rate flexibility should come first to avoid creating one-way bets for speculators, who can force the authorities to abandon their exchange rate commitment under duress, at considerable cost to their policy credibility, or to reverse prior measures liberalizing the capital account, which will also raise questions about the consistency of

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<sup>16</sup> Some will say that this is not a very high standard of flexibility. They should be reminded that both countries have moved in the direction of very much greater exchange rate flexibility in recent months and years.

policies. If, instead, the capital account is opened first, large amounts of liquidity may flow in, creating a financially-disruptive credit boom and fanning fears of a socially-disruptive inflation that can only be headed off by revaluation.<sup>17</sup> Or else large amounts of liquidity may flow out, draining reserves unless the authorities devalue. Thus, capital account liberalization should be preceded by a modicum of exchange rate flexibility that creates losses in the event that expectations of revaluation or devaluation are disappointed, avoiding one-way bets and thereby preventing currency speculators from all lining up on one side of the market. This is one of the principal lessons of the 1997-8 Asian financial crisis, which was aggravated by the fact that many countries in the region opened the capital account before moving to greater exchange rate flexibility rather than the other way around.<sup>18</sup>

From this point of view, many of us were alarmed by the argument frequently heard in Beijing of the need to delay the transition to greater exchange rate flexibility until there was more progress in liberalizing the capital account. To the contrary, that China has now taken a modest step in the direction of greater flexibility is reassuring precisely in light of the significant steps in the last year to further liberalize the capital

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<sup>17</sup> So far, China has been able to avoid most of these consequences, aside from what many observers refer to a bubble in property markets in Shanghai and elsewhere along the coast. It has been able to sterilize the effects because domestic interest rates are lower than those prevailing abroad. (The PBOC and the government can mop up capital inflows by purchasing them in exchange for domestic securities without incurring a balance-sheet or fiscal cost.) But this will not be the case forever; as savings rate normalizes, interest rates will rise. And as the banks are commercialized, they will grow more reluctant to hold government bonds at artificially low interest rates. Already there are signs of this (see the discussion in the *Financial Times*, 30 December 2003, p.10).

<sup>18</sup> See inter alia the discussions of this issue in Goldstein (1998) and Eichengreen (1999). In the interest of fairness it should be noted that the decision to open the capital account was often taken in response to external pressure from the U.S. Treasury and the International Monetary Fund. It is gratifying to see that the IMF now recognizes the danger of liberalizing the capital account prior to moving to greater flexibility (see Prasad, Rambaugh and Wang 2005) – in contrast to its de facto position in 1997-8.

account.<sup>19</sup> Already the capital account is sufficiently porous that large amounts of portfolio capital are attracted by expectations of rapid economic growth and currency appreciation. The authorities' capacity to insulate the economy from the effects of these inflows, by inter alia instructing the banks not to lend, are increasingly limited by the ability of that finance to circumvent the banking system.<sup>20</sup> Greater exchange rate flexibility, which forces international investors to think twice before all lining up on one side of the market, will not eliminate these risks, but it should attenuate them to some extent.

Equally, there is already scope for disruptive capital outflows in a future scenario where there is a sharp slowdown in growth, new problems surface in the financial system, or there is a geopolitical dispute with the United States. Rather than succumbing, the authorities may then be tempted to deploy their reserves to defend the exchange rate. Both theory and evidence suggest that this would be a losing battle even for a central

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<sup>19</sup> In 2004 the government unified regulations affecting the ability of banks operating in China to fund themselves abroad, allowed multinational corporations operating in China more freedom to move funds in and out of the country, allowed insurance companies to invest in foreign-currency-denominated assets overseas, allowed social insurance funds to invest in overseas securities markets, allowed qualified foreign institutions to issue renminbi-denominated bonds in China, and permitted emigrants as well as overseas citizens receiving inheritances to transfer their property abroad. The further steps in the direction of liberalization taken a couple of weeks following the July 21<sup>st</sup> announcement point in the same direction. The first week in August, the State Administration for Foreign Exchange (SAFE) announced two measures further relaxing controls on the foreign exchange transactions of individuals and corporations. Chinese residents departing the country for less (more) than 6 months were allowed to purchase currencies with value equivalent to \$5000 (\$8000), up from \$3000 (\$5000) previously. Corporations were allowed to keep up to 80 per cent of their foreign exchange earnings in their own accounts, up from 50 per cent previously. The first measure was designed to offset large capital inflows and pressure for further appreciation, while the second one in principle allows firms to better hedge their exposures. But the bottom line is that these changes make it all the more imperative that the renminbi now be allowed to exhibit more flexibility on a day-to-day basis in order to discourage banks, firms and others from building up excessive foreign currency positions.

<sup>20</sup> Everyone will be familiar with stories of foreign finance flowing directly into the Shanghai property market without first passing through the banks. And, as already noted, the power of lending directives will decline further with the commercialization of the banking system.

bank with \$1 trillion of reserves; in the absence of controls, even this formidable war chest is nothing compared to the resources that can be mobilized by the markets.<sup>21</sup>

This observation also points to the principal lesson of the literature on exit strategies: countries should exit from a peg while the going is good. They should exit while growth is strong, capital is flowing in, and expectations are for appreciation.<sup>22</sup> Exiting under duress, in contrast, is almost always costly.<sup>23</sup> It forces the authorities to reluctantly abandon their commitment to defend the peg, contradicting previous policy statements and diminishing their credibility, something that is inevitably damaging to confidence, stability and growth. The literature on exit strategies also suggests that growth can be supported by expanding domestic demand, most logically through the implementation of expansionary fiscal initiatives, at the same time the growth of external demand is being slowed by the appreciation of the currency. This fiscal expansion is most likely to be feasible – and confidence enhancing rather than threatening – when the underlying condition of the economy is strong. Recent work also suggests that a non-disruptive exit to greater flexibility is easier to engineer while at least some capital controls remain in place.<sup>24</sup> The authorities are better able to move at a time of their own choosing, and the disruptive financial fallout is less. Again one worries that, had the Chinese authorities waited too long to loosen the peg and if they now wait too long to allow greater flexibility, the opportunity for a smooth transition will be lost.

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<sup>21</sup> The hedge fund industry alone is sometimes estimated to have a \$1 trillion of capital, and with leverage its ability to take positions is considerably greater. And then there are the commercial banks, investment banks, insurance companies, and pension funds whose capital is a multiple of this figure.

<sup>22</sup> See Eichengreen and Masson et al. (1998).

<sup>23</sup> This finding of the 1998 study cited in the preceding footnote has been verified by the more comprehensive recent analysis of Asici, Ivanova and Wyplosz (2005).

<sup>24</sup> This is another finding of Asici, Ivanova and Wyplosz (2005).

Chinese economists are well aware of these literatures. What then explains their emphasis on international financial liberalization as a prerequisite for greater exchange rate flexibility? The weightiest argument is that a more liberal capital account regime fosters the development of deep and liquid spot and forward foreign exchange markets, which in turn are needed for banks and firms to hedge their foreign exposures. Banks have currency mismatches on their balance sheets, according to this argument, which they have to be able to hedge in order to protect themselves from volatility. Foreign investment enterprises and domestic enterprises assembling imported components similarly have foreign-currency-denominated obligations. Absent adequate hedging opportunities, an increase in exchange rate volatility could be destabilizing for both the financial and industrial sectors.

There is something to this point, although it should not be pushed too far. Hedging foreign-currency exposures on financial markets is impossible, by definition, when the capital account is closed.<sup>25</sup> It would be ludicrous for a country with a fully closed capital account to subject banks and firms, unable to hedge the exposures created by their transactions on current account, to significant exchange rate volatility. At the same time we know, for all the reasons enumerated above, that a large country with a fully open capital account should embrace some degree of exchange rate flexibility. The degree of capital account liberalization in practice being a continuum, there must be an intermediate stage at which it is optimal to move from a peg to a more flexible exchange rate. In effect, the question boils down to: at precisely what point in the process of capital account liberalization should the country begin to move to greater flexibility?

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<sup>25</sup> One might object that there is always the offshore market in nondeliverable forwards, but when the capital account is completely closed residents will have no access to that market, as a matter of definition.

#### 4. Hedging Foreign Exposures

There are a number of grounds on which it can be argued that China has now reached this point – that it can indulge in greater currency flexibility without subjecting banks and firms to significantly increased risks. For one thing, the principal banks do not have large foreign exposures. To be sure, the problems of the Chinese banking system are well known. The banks are still burdened by a legacy of nonperforming policy loans, information systems are inadequate, and internal controls are lax; fixing these problems should be an urgent priority. That said, it is not clear that these problems will be significantly aggravated by a modest increase in exchange rate variability. It is not as if the banks' foreign exposures, such as they are, will become vastly more difficult to manage. China's outward investment having been limited in the past by a combination of factors including capital controls, the banks possess limited foreign-currency-denominated assets.<sup>26</sup> Capital controls and financial regulations have limited the accumulation of foreign-currency-denominated liabilities even more strictly.<sup>27</sup> Consequently, the announced change in the exchange rate's level and a modest future increase in volatility should not have major balance-sheet implications for the financial sector. To be sure, as capital account liberalization proceeds, the banks will have more scope for funding themselves abroad, and these risks will become more acute. This

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<sup>26</sup> The consolidated financial sector is a different story, of course, the PBOC holding large amounts of U.S. Treasury and U.S. agency securities. But this is a policy problem of a different sort.

<sup>27</sup> The net open positions of the banks are limited to 20 per cent of working capital according to the latest information I have (Canales-Kriljenko 2004). (If there is new information, participants at the preconference can usefully correct me.) All data on the Chinese banking system should be taken with multiple grains of salt. But the most recent figures I have seen (for September 2004 – again, perhaps participants in the preconference will help me obtain more up-to-date information) suggest that foreign liabilities comprise only about 1 per cent of the total liabilities of the aggregate commercial banking sector, and that they are dominated by foreign assets by a factor of 5 to 1. The source for these figures is J.P. Morgan Chase, *Global Data Watch*, February 4, 2005.

points to the importance of tightening regulation of the banks as the process of external opening proceeds – whether or not the authorities move to a significantly more flexible exchange rate – a point that is elaborated in Section 5 below. But it does not suggest that, in the short run, a limited increase in exchange rate volatility would significantly compound the problems of the banks.

The main risk to the banks lies in the danger that export growth and growth generally will slow sharply due to movements in the currency. Slower growth will mean more nonperforming loans, and slower export growth will make for more nonperforming loans in the export sector. A substantial (double-digit) appreciation of the renminbi might have had this effect, given the relatively low (single-digit) profit rates in the export sector.<sup>28</sup> But this was not the decision taken on July 21<sup>st</sup>. In any case, the argument of this paper is not for a substantial appreciation of the currency.<sup>29</sup> Rather, it is for a gradual increase in the degree of exchange rate variability. And the evidence that exchange rate volatility has a first-order impact on export growth, much less aggregate economic growth, varies from weak to nonexistent.<sup>30</sup> Even studies finding evidence of such an effect generally conclude that its magnitude is small.

There are also a number of reasons for thinking that the effect of exchange rate volatility on exports and growth will be even smaller in China than the country's dependence on foreign markets otherwise suggests. Export enterprises not only sell final products abroad, but they also source inputs abroad, providing them with a natural hedge. In addition, a large share (by some estimates, a majority) of Chinese exports is accounted

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<sup>28</sup> For more on this, see Section 6 below.

<sup>29</sup> The appropriateness of that will depend on evolution of macroeconomic conditions in China, the behavior of the U.S. dollar, and the weight that the Chinese authorities attach to their contribution to resolving global imbalances

<sup>30</sup> The most recent survey and contribution to this literature of which I am aware is Tenreyro (2004).

for by foreign investment enterprises. Foreign owners and joint venture partners are in a favorable position to hedge against currency fluctuations. They can invest in a diversified portfolio of production locations or in financial assets that co-vary negatively with the profits of Chinese export enterprises, since they are not prevented from accumulating assets abroad by China's capital controls. This allows them to ride out temporary fluctuations in the exchange rate and to provide bridge finance to the export enterprise in question. These factors may change with time: Chinese exporters will source more inputs domestically, while foreign investment enterprises will ultimately account for a smaller share of total exports. But by the time that happens China will have developed alternatives, such as deeper and more liquid markets in currency forwards and other derivatives with which the risk of currency fluctuations can be hedged.

Were exchange rate volatility to rise immediately to very high levels, higher than is typical of the countries analyzed in cross-section studies of the correlation between export growth and currency volatility, this would be a different story. But this is not something that anyone foresees. The currency's movement will continue to be damped by the PBOC. The central bank will lean against the wind, pumping liquidity into the market if the exchange rate shows a tendency to appreciate excessively and selling foreign assets into the market if there is the danger of a currency collapse. By providing this liquidity, the central bank in effect supplies the hedging services required by the export sector. This is precisely the situation in other emerging markets that operate a managed float despite the retention of capital controls limiting the development of hedging opportunities. India is an example of a large, export-oriented emerging market that has successfully reconciled currency flexibility with the maintenance of capital

controls through heavy management of the exchange rate.<sup>31</sup> There is no obvious reason why China cannot do what India does.<sup>32</sup>

As noted, there will be growing scope over time for export enterprises and others to purchase hedges on financial markets. Already the development of the foreign exchange market provides some scope for doing so. Early last summer the authorities authorized the big four state-owned commercial banks and three share-holding commercial banks to offer renminbi forward cover to their corporate clients, subject to tight control of the pricing of the forward contracts. In mid-August they expanded the market by allowing all banks, including foreign banks, with licenses to trade in the interbank foreign exchange market to transact renminbi forward and swap contracts with clients as well as in the interbank market, and they allowed the banks to determine the forward rates independently. Restrictions on the duration of forward contracts were removed. The scope of legitimate transactions was extended from those arising from trade in goods and services and investment income to all current account transactions and select capital account transactions, including repayment of approved foreign borrowing, domestic companies' foreign exchange receipts from foreign listing, etc. Qualified nonbank financial institutions and nonfinancial corporates with a "genuine need" for foreign exchange transactions are now allowed to participate in the interbank forex market.

The infrastructure for foreign exchange trading has also been strengthened by the establishment of the Shanghai-based China Foreign Exchange Trading System (CFETS),

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<sup>31</sup> See Shah and Patnaik (2005).

<sup>32</sup> A qualification to this argument is that India has a better developed forward market, but as noted below this is at least in part a consequence of its greater exchange rate flexibility.

powered by a technology provided by Reuters.<sup>33</sup> Previously, CFETS traded only four overseas currencies, the euro, the Japanese yen, the Hong Kong dollar, and the U.S. dollar. The new system will in addition allow for trading in four additional currencies, the pound sterling, the Swiss franc, the Australian dollar, and the Canadian dollar. Liquidity will be provided by nine global market makers: ABN Amro, HSBC, Bank of Montreal, Bank of China, CITIC Industrial Bank, ING, Royal Bank of Scotland, Duetsche Bank, and Citigroup. Banks in China will be able to place orders, request prices, and execute foreign exchange transactions, either over the Internet or via leased line circuits, with a single click. These facilities should be particularly valuable to smaller banks that have found it difficult to obtain competitive interbank rates, since CFETS will act as the trading counterparty for the foreign liquidity providers and only subsequently will settle with its domestic member banks. It will not be long before the growing volume of spot transactions on this market is supplemented by currency forwards and futures. The PBOC can help to jump-start forward market activity by providing backup cover to commercial banks, enabling the latter to conduct forward sales and purchases and square their open positions, as countries like Ireland, New Zealand and Finland did in the 1970s and 1980s when they first emerged from heavily controlled capital account regimes.<sup>34</sup>

But more than infrastructure is needed to foster the development of deep and liquid foreign exchange markets. In addition there must be an incentive for agents to engage in foreign currency transactions. Duttagupta, Fernandez and Karasadag (2004) show that countries with more variable exchange rates tend to have more liquid foreign

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<sup>33</sup> Most of the information here is drawn from Leung (2005).

<sup>34</sup> See Quirk, Hacche, Schoofs and Weniger (1988).

exchange markets, since it is there that banks and firms have an incentive to participate in the market. Foreign exchange market liquidity is not simply a prerequisite for greater exchange rate flexibility. In addition, greater exchange rate flexibility can promote market liquidity.<sup>35</sup>

## **5. Prudential Considerations**

I have argued that a modest increase in exchange rate flexibility like that announced in July 21<sup>st</sup> will not create major new risks for China's banking, financial and corporate sectors. But neither are such dangers absent. In particular, the fact that China's banks are incompletely commercialized and that the big-four banks are too big to fail limits the incentive for managers to internalize the relevant risks. Similarly, the weakness of corporate governance heightens the danger that industrial borrowers will not pay sufficient attention to the risks posed by their foreign exposures.

This makes it important to adapt prudential policies to the reality of greater flexibility. Duttagupta, Fernandez and Karasadag (2004) provide a convenient taxonomy of the prudential measures that should be taken by the government of a country exiting from a peg. First, supervisors should issue guidelines for strengthening the banks' internal risk policies and procedures. Such policies may include laying down written policies on foreign exchange operations, exposure limits, risk management procedures, and the preservation of firewalls between front and back offices, while the relevant procedures should include regularly stress testing the potential impact of exchange rate

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<sup>35</sup> The authors' evidence of this positive relationship between exchange rate flexibility and foreign exchange market turnover is weaker for the authors' developing countries than in their advanced-country subsample, but the very small size of their developing-country subsample raises questions about what conclusions can be drawn from analyzing this category of countries separately.

movements on the performance of foreign currency loans. Given the fact that the Chinese banking system is incompletely commercialized, it is critical that such instructions be reinforced by strict prudential regulations. These regulations should include binding limits on net open positions as a percent of capital, on foreign currency lending as a percent of foreign currency liabilities, and on overseas borrowing and bond issuance. They should distinguish the special risks of foreign currency lending to sectors that do not generate foreign currency revenues or that are subject to unusually volatile returns. They could include tighter reserve requirements for banks with foreign-currency deposits, minimum credit-rating requirements for external borrowing by domestic corporations, and asymmetric open position limits. China already has a number of such measures in place. These now should be modernized and elaborated.

Second, effective management of exchange rate risk requires the creation of information systems capable of monitoring the current condition of the banking system. The easy part is requiring banks to report foreign currency positions in a standardized format and on a regular schedule. Harder is ensuring that the assets and liabilities underlying those positions are valued using modern accounting rules and procedures and marked to market continuously. It is also necessary to get banks to report large exposures to individual borrowers, for the authorities to obtain information from the corporate sector on their foreign currency incomes, other foreign currency debts, and hedging operations, and for them to assemble information on the exposures of those large borrowers to the banking system as a whole. All this will become more important but at the same time more difficult as the banks are commercialized, lengthening the distance

between bank managers and government bureaucrats, and as the private sector gains ground over the state sector.

Finally, the exchange rate should be allowed to fluctuate freely enough that lenders and borrowers are aware of the risks of foreign exposures. This is another lesson of the Asian crisis of 1997-8.<sup>36</sup> Officially operating a managed float but in practice strictly limiting the variability of the exchange rate through intervention in the foreign exchange market, as South Korea did in the run-up to its crisis, may encourage banks and borrowers to underestimate the risk of exchange rate changes and to assume excessive foreign exposures, which can come back to bite them when there is a sudden increase in volatility.<sup>37</sup> Sufficient variability in the exchange rate on a day-to-day basis can provide a constant reminder of the risks of those exposures.

## **6. An Evaluation of the Recent Policy Announcement**

Only time will tell whether the new regime really entails greater exchange rate flexibility. The fact that there is no change in official band width is also compatible with no increase in the degree of flexibility. We will have to see whether the authorities in fact permit the exchange rate to fluctuate more freely. There are many examples of emerging markets that officially pursue managed floats but in practice operate what amounts to a de facto peg (Calvo and Reinhart 2002, Reinhart and Rogoff 2004). If this is what China does, then domestic interest rates will become even more tightly linked to foreign interest rates as the capital account opens further. This will make it harder for

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<sup>36</sup> One that is emphasized in Eichengreen (1999).

<sup>37</sup> Exchange rate policy was only one element of the Korean crisis, of course; in addition, the country opened its capital account in precisely the wrong way, freeing bank borrowing abroad while keeping restrictions on other portfolio capital flows.

those responsible for macroeconomic management to tailor money and credit conditions to domestic needs. Lack of exchange rate variability will also heighten risks in the financial sector by encouraging lenders and borrowers to underestimate the dangers of foreign exposures. If, on the other hand, the new regime really represents a shift toward greater flexibility, then it is a step in the right direction on all these grounds. In addition, if the Chinese authorities are truly prepared to see the exchange rate exhibit greater flexibility, then there will be more scope for relative price adjustments to facilitate global rebalancing.

I now develop these points in turn.

**Degree of flexibility.** The current regime is still too new to definitively characterize the degree of flexibility. At the time of writing, we have fewer than a hundred daily close-of-business observations on the realized rate. (Recall that the authorities' new rules for the exchange rate's fluctuation pertain to the change in the rate between successive trading days, quoted at the close of business.) This is a small number of observations for econometric work. Nonetheless, it may be useful to experiment with the limited data we have in an attempt to characterize the post-reform behavior and management of the rate and in an effort to recover the implicit weights placed on the major currencies in the authorities' basket peg.

I follow Benassy-Quere and Coeure (2001), who in turn follow Frankel and Wei (1993) in estimating a simple model of a basket peg. I regress the change in the exchange rate of the Renminbi (RMB) against a numeraire (N) on the change in the exchange rates of the dollar (\$), euro (E), yen (Y) and the won (W) against that same numeraire.

$$\delta [\text{RMB/N}] = a_0 + a_1 \delta [\$/\text{N}] + a_2 \delta [\text{E/N}] + a_3 \delta [\text{Y/N}] + a_4 \delta [\text{W/N}] \quad (1)$$

As more data become available, it will presumably be possible to add the other currencies that Chinese officials suggest as figuring in their intervention decisions.<sup>38</sup>

Here I focus on the three major currencies to conserve degrees of freedom. In the old (pre-July 21<sup>st</sup>) regime,  $a_1$  would presumably have been unity, while  $a_2$  and  $a_3$  would have been zero. In the new regime it is interesting to ask whether the weight on the dollar has declined, how close the weights on the three major currencies come to summing to either one (in which the three of them effectively constitute a rigid basket peg) or zero (in which case the currency is effectively floating), and whether there have been changes in these relationships over time.

The appeal of this approach is its simplicity. Its limitation is its sensitivity to the choice of numeraire, which is taken here as the Swiss franc – which Chinese officials have stated does not figure in their basket. The problem is that if the numeraire covaries with one of the currencies included in the basket, then the latter will exhibit a relatively small variance, complicating estimation and conceivably causing the currency in question to be confused with the constant term. Here one might think that the Swiss franc covaries with the euro even though the franc is officially a floating currency. If so the method may tend to understate the importance of the euro in the renminbi basket. There is no perfect solution to this problem. Most any currency used as numeraire would have some tendency to covary with one of the big four.<sup>39</sup> Here I check the sensitivity of the results to choice of numeraire by substituting the Australian dollar for the Swiss franc, since the

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<sup>38</sup> See the discussion on p.1 above.

<sup>39</sup> So would the SDR, which is dominated by the dollar, or a basket of G-7 currencies. Moreover, in using such a basket it will no longer be the case that when the sum of the coefficients is zero the currency can be interpreted as floating.

the Australian and Swiss economies and therefore the A\$ and SF are likely to vary different cyclical properties.

I estimate these relationships on data starting immediately after July 21<sup>st</sup>. Including the observation for July 21<sup>st</sup>, when there was a one-time revaluation against the dollar, would bias the coefficient on that independent variable downward. It would be tantamount to estimating a relationship while ignoring the existence of a structural break or regime change. I estimate rolling regressions on 30 days of data to allow for variation over time.

The results using the Swiss franc as numeraire, in Figure 1, suggest the continued dominance of the dollar in the PBOC's intervention strategy. Over the full sample, the weight on the dollar is on the order of 0.9. None of the other currencies considered shows up with a coefficient that is significantly greater than zero at standard confidence levels. The rolling regressions, which allow for structural change over the period, suggests a somewhat lower weight on the dollar for most of the sample period, especially recently. They suggest a positive weight for the Korean won, which is presumably a proxy for other East Asian currencies ex the yen, around the middle of the sample period.<sup>40</sup> But they do not suggest a decline over time in the weight attached to the dollar.

There is reason to think, as noted above, that using the Swiss franc as numeraire leads to some understatement of the importance of the euro. While substituting the Australian dollar, as in Figure 2, produces a larger point estimate of the weight on the

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<sup>40</sup> It would appear that the difference between the full-sample estimates and the rolling regressions is attributable to data centered around the 50<sup>th</sup> observation (in early October), when for a brief period the RMB appears to co-vary negatively with the yen and therefore the estimated weights on the other currencies are correspondingly higher. This was a period when the yen appreciated sharply against the dollar before giving back the ground gained. It would appear that the PBOC followed the dollar, yielding a negative covariation with the yen in this portion of the sample.

euro in the latter part of the sample period, but not one that differs significantly from zero at standard confidence levels. Like the estimates in Figure 1, these results suggest the continuing dominance of the dollar in the PBOC's intervention strategy. They provide no indication that the weight on the greenback is declining or that other currencies figure significantly in the PBOC's management practices.

**Maintenance of the band.** In addition, I have reservations about the maintenance of the band. The logic laid out in Section 2 above suggests that as China further strengthens its financial system and diversifies its demand it will want to let the currency fluctuate more freely. As it moves toward a market based financial system and acquires a more conventional monetary-policy transmission mechanism, it will wish to adopt a form of inflation targeting, either formal or informal, as the anchor for monetary policy. It will thus have to widen its narrow band and ultimately drop it entirely.

From this point of view, retaining the 0.3 per cent daily fluctuation band as part of the new regime was an opportunity missed. Repeated changes in monetary regime, including changes in foreign exchange market intervention rules, create uncertainty about the future. They raise questions about the consistency of the authorities' policy commitments. They diminish the credibility of policy. Agents need to be able to anticipate reliably how the authorities will react in the future to new information about the state of the economy. If that reaction is liable to differ over time, in uncertain ways, then the stabilizing impact of current policy will be less. A 0.3 per cent daily fluctuation band is not a binding constraint now, when the problems of the financial system, the importance of export demand, the weakness of conventional mechanisms for monetary transmission, and the maintenance of residual capital controls all militate in favor of a

limited increase in flexibility. But it may bind five years from now. If speculation about whether China will revalue is replaced by speculation about how quickly it will relax or abandon its fluctuation band, stability will suffer, and little will have been gained.

**Impact on global imbalances.** A two per cent appreciation of the renminbi, even accompanied by appreciations of other Asian currencies, is too small to have much impact on the pattern of global imbalances. I am of the view that a seven per cent current account deficit like that which the U.S. is currently running is unsustainable, that this deficit will have to be cut by at least half in order to stabilize net claims on the United States as a share of global wealth, and that substantial exchange rate changes will be needed as part of that adjustment.<sup>41</sup> Mainstream models (e.g. Obstfeld and Rogoff 2004) suggest that a real effective dollar depreciation of at least 20 per cent will be required to reduce the U.S. current account deficit to the requisite 3 per cent of GDP.<sup>42</sup>

Assume that half this adjustment will have to occur in the next year, while the other half can occur the year after that. For purposes of back-of-the-envelope calculations, we can take U.S. trade with Europe and Asia as of roughly equal importance. Then the 10 per cent fall in the effective exchange rate of the dollar that must occur in the next 12 months can be accomplished by a 15 per cent appreciation of Asian currencies against the dollar and a 5 per cent appreciation of euro against the dollar. Europe's competitiveness and growth will be hurt by the euro's further appreciation against the dollar but more than cushioned by its fall against the Asian currencies. (Still taking trade shares with the two

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<sup>41</sup> All this is on the optimistic assumption of 6 per cent nominal income growth in the United States. In this case a deficit/GDP ratio of 3 per cent produces a net international investment position for the United States of 50 per cent of GDP, which in turn prevents net claims on the United States as a share of global wealth from exploding. For the underlying arithmetic, see Mann (2003) and Mussa (2005).

<sup>42</sup> The more refinements of this analysis we see, the larger that the estimates of the required real exchange rate adjustment seem to become.

regions of one half for purposes of back-of-the-envelope calculation, the euro's effective rate depreciates by 2 ½ per cent.) The negative impact on profitability and growth in Asia is similarly moderated by the fact that the appreciation of Asian currencies is less against the euro than the dollar. (Again, with trade shares of one half, effective appreciation is 12 ½ per cent.)

This simple arithmetic is just a reminder that the problem of global imbalances has not been solved by China's 2 per cent revaluation and that further appreciation of the renminbi is likely to follow as a result of the operation of market forces. Putting profit margins in the export sector at 6 per cent and noting that imported content accounts for half of the value of exports suggests that Chinese exporters might just be able to tolerate a 12 per cent appreciation.<sup>43</sup> Of course, how easily they do so will depend on how quickly they succeed in moving down the learning curve and cutting their costs; this will also be critical for whether the second part of this process of global adjustment can be smoothly reconciled with rapid Chinese (and global) growth.

Be that as it may, the unavoidable conclusion is that global rebalancing requires continued currency flexibility on China's part. But there is also a danger: hot money inflows may accelerate in anticipation of the yuan's further strengthening. This makes it all the more essential that the Chinese authorities allow the currency to exhibit greater volatility. Only the presence of a two-way bet – only the possibility that the yuan can fall as well as rise from day to day – will prevent currency traders from all lining up on one

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<sup>43</sup> Andy Xie of Morgan Stanley puts profit margins in the export sector at 5 per cent, which I regard as implausibly low. See however Buckley (2005), which reports comments that are also consistent with relatively low single-digit profit margins. In addition, Gong and Ng (2005) suggest that profit rates are narrower in the export sector than economy wide.

side of the market and limit speculative inflows. This is another reason why retaining the currency band was a mistake.

## **7. Some Lessons from Japan**

There are few historical precedents to help to inform decision making by the Chinese authorities. One prior historical experience with the capacity to shed light on their dilemmas is Japan's exit from its dollar peg at the beginning of the 1970s.<sup>44</sup> Like China now, Japan then was a high-growth economy. The rate of growth of real GDP averaged almost 10 per cent per annum between 1955 and 1971, approaching current Chinese levels. As in China today, elastic supplies of labor released from rural underemployment supported the growth of the modern sector: employment in Japanese agriculture declined by 3 per cent per annum all through the 1950s. Like China now, Japan then was committed to export-led growth. Exports expanded by more than 17 per cent per annum between 1955 and 1971. This export growth was supported by an exchange rate that was pegged to the dollar at 360 yen from April 25, 1949 in conjunction with the Dodge Line, a level that was increasingly regarded as undervalued over time.<sup>45</sup> As in China now, savings and investment in 1960s Japan rose to high levels – 40 per cent of GDP, much higher than the rates than prevailed in earlier periods. The combination of a competitively valued exchange rate and a high savings rate produced persistent current account surpluses and rapidly growing international reserves in the second half of the 1960s.

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<sup>44</sup> This parallel is studied at length in Eichengreen and Hatase (2005), some of whose findings are summarized here.

<sup>45</sup> The Dodge Line was the set of economic reforms advanced by Joseph M. Dodge in the late 1940s, the President of Detroit Bank who was appointed advisor to the General Headquarters of the occupying forces. For details of the Dodge Line, see Nakamura (2003) and Miwa (2003).

As in China today, there was strong resistance to arguments for greater exchange rate flexibility to and to allowing the yen to appreciate against the dollar. Those few economists and officials who did consider the possibility of revaluation tended to dismiss it as damaging to exports, investment and confidence.<sup>46</sup> An exchange-rate centered policy was also essential because Japan did not possess a normal monetary-policy transmission mechanism. Open market operations of the normal sort did not really exist, since there was little in the way of a liquid bond market. The central bank rationed discounts and loans against bills. It gave window guidance to the large city banks in the 1950s and then to the long-term credit banks, large regional banks and trust banks in the 1960s. A more variable exchange rate was dismissed as undesirable because strict capital controls limited the ability for corporations to hedge against exchange rate fluctuations. Critics of greater flexibility observed that the volume of transactions on the forward market, where foreign exposures might have been hedged, was extremely low.

All this makes for suggestive parallels with China's position today. Thus it is also important to acknowledge the existence of significant differences between the two cases. Industrial development had been underway in Japan for a longer period – by the end of World War II, for more than half a century. China, in contrast, had a dearth of modern industry when embarking on reform in 1978. Compared to China today, Japan then was closer to the technological frontier defined by the United States.<sup>47</sup> The system of technology transfer was different (Japan restricted inward FDI and relied on technology

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<sup>46</sup> The prominent exceptions were the members of the Forum for Foreign Exchange Rate Policy, who recommended revaluation and shifting to a crawling peg in their report issued on 10 July 1971. Even the members of the forum recommended limiting the yen's appreciation to 2 to 4 per cent a year, reflecting widespread worries about the negative repercussions of a large step revaluation.

<sup>47</sup> Japanese per capita GDP in 1950 expressed in 1990 international Geary-Khamis dollars was \$1,926, whereas Chinese per capita GDP in 1978 was \$979. Five years later the comparable figures were \$2,772 and \$1,265.

licensing and reverse engineering). The movement of labor from the countryside to the cities was not governed by a system of internal passports or visas. The banking system was stronger. And, notwithstanding the industrial policies of MITI, government intervention in the economy was less.

Still, when U.S. President Nixon suspended the convertibility of the dollar on August 15<sup>th</sup>, 1971, and the greenback fell sharply against the European currencies, the Japanese authorities had little choice but to decouple their currency. Initially, the Japanese government and the BOJ prevented the yen from rising against the dollar. For two additional weeks the central bank intervened in the foreign exchange market, buying dollars, to prevent the yen-dollar rate from changing. Over these two weeks the combined reserves of the Ministry of Finance and the BOJ rose by 50 per cent. At that point, intervention was curtailed and the yen was allowed to rise, from 360 to the dollar on August 27<sup>th</sup> to 308 toward the end of the year, when intervention resumed following the negotiation Smithsonian agreement. When the Smithsonian agreement collapsed in early 1973, the yen was allowed to fluctuate again; it floated upward toward 265, where the exchange rate's fluctuation was limited to a narrow band.

This was a large revaluation by contemporary Chinese standards. It also bears some resemblance to the kind of two-stage adjustment suggested for the renminbi by observers like Goldstein and Lardy (2003). Thus, it is interesting to ask how the Japanese economy was affected. Econometric estimates for this period suggest relatively low passthrough from exchange rates to prices in this period and thus that the change in the nominal exchange rate had a substantial impact on the real exchange rate, profitability and competitiveness. In turn, the appreciation of the real rate had a substantial impact on

exports and investment. Counterfactual estimates in Eichengreen and Hatase (2005) suggest that exports were depressed by 8 per cent in 1972 by the revaluation, other things equal. The real appreciation reduced investment by 11 per cent, other things equal. These are precisely the strong negative implications for growth feared by Chinese officials today.

Yet, in fact, capital investment rose by almost 2 per cent between 1971 and 1973, while export volumes rose by 12 per cent. Growth was interrupted only for a quarter. The economy bottomed out in December 1971 according to the business cycle dates of the Economic Planning Agency. Real GNP then grew by more than 10 per cent on an annualized basis in the first quarter of 1972 and continued powering ahead thereafter. The explanations for this happy outcome lie in the timing of the exit and the extent of domestic demand support. The exit occurred in a period when the world economy was growing strongly, the first OPEC oil shock not having hit and the subsequent recession yet to follow. Buoyant external demand was particularly important for the continued growth of Japanese exports. In addition, the government applied extensive fiscal stimulus to support aggregate demand as the composition of spending rotated away from net exports toward domestic demand. A supplementary budget was passed for April 1971-March 1972, and a more expansionary stance was adopted for fiscal year 1972 with expenditure on general account up by 22 per cent and expenditure on public investment and lending through the Fiscal Investment and Loan Program of the Ministry of Finance up by 32 per cent over the previous year. The lessons for China are clear: exit while global demand growth is still strong, and provide fiscal support.

The flaw in the Japanese authorities' exit strategy was their continued reluctance to cut the link with the dollar even in a period when the greenback was falling significantly against other currencies and when keeping a dollar peg meant a significant intensification of inflationary pressure on the Japanese economy. To prevent the yen from moving further, the BOJ was forced to cut its discount rate repeatedly, starting in December 1971 and June 1972 (by 50 basis points on both occasions). Inflation rose alarmingly as the authorities allowed accelerating money supply growth to prevent the currency from rising further. In 1974, when the first OPEC oil shock was superimposed on this inflationary environment, the inflation rate rose to 25 per cent, at which point the authorities were forced to apply the brakes, precipitating a major recession. Better in retrospect would have been a more gradual shift in the direction of appreciation starting at an earlier date which would not have forced the authorities to choose between an explosion of inflation and a major recession, or to have countenanced both. If Chinese officials, for their part, are confronted by a sharp fall in the dollar, this will be an important lesson to recall.

## **8. Conclusion**

The 2 per cent revaluation of the renminbi and the commitment to greater exchange rate flexibility announced on July 21<sup>st</sup> were important first steps. Greater flexibility will help the Chinese authorities tailor monetary conditions to domestic needs. The revaluation is a modest Chinese contribution to resolving the problem of global imbalances. But definitively resolving that problem will require, together with other adjustments, considerable further appreciation of the renminbi-dollar rate. Effectively

tailoring monetary conditions to local needs and averting the danger that China will be overwhelmed by speculative capital flows will require accepting considerably higher levels of exchange-rate variability than officials have shown a tolerance for so far.

These arguments for greater exchange rate flexibility and further appreciation against the dollar may create discomfort among Chinese officials. The old regime of limited volatility and stability against the dollar has now delivered more than a decade of economic growth at double-digit rates. There is an understandable reluctance to tamper with success. But circumstances in China and the world are now very different from those of 1994, in turn requiring adaptations in monetary and exchange rate policies. The example of Japan in the early 1970s suggests that the transition to a new regime, involving both a higher level of volatility and trend appreciation against the dollar, can be navigated successfully, without unduly disrupting the growth process, if the Chinese authorities draw the right lessons from history.

## References

- Asici, Ahmet, Nadezhda Ivanova and Charles Wyplosz (2005), "How to Exit from Fixed Exchange Rate Regimes," unpublished manuscript, Graduate Institute of International Studies, Geneva.
- Bayoumi, Tamim and Barry Eichengreen (1997), "Optimum Currency Areas and Exchange Rate Volatility: Theory and Evidence Compared," in Benjamin Cohen, ed., *International Trade and Finance: New Frontiers of Research*, Cambridge: Cambridge University Press, pp.184-215.
- Benassy-Quere, Agnes and Benoit Coeure (2001), "On the Identification of De Facto Currency Pegs," unpublished manuscript, CEPII.
- Buckley, Chris (2005), "When to Float the Yuan? A Debate Erupts in China," *International Herald Tribune* (June 27), p.9.
- Calvo, Guillermo and Carmen Reinhart (2002), "Fear of Floating," *Quarterly Journal of Economics* 117, pp.379-408.
- Canales-Kriljenko, Jorge Ivan (2004), "Foreign Exchange Market Organization in Selected Developing and Transition Economies: Evidence from a Survey," IMF Working Paper no. 04/4 (January).
- Duttagupta, Rupa, Gilda Fernandez, and Cem Karasadag (2004), "From Fixed to Float: Operational Aspects of Moving Toward Exchange Rate Flexibility," IMF Working Paper no.04/126 (July).
- Eichengreen, Barry (1999), *Toward a New International Financial Architecture: A Practical Post-Asia Agenda*, Washington, D.C.: Institute of International Economics.
- Eichengreen, Barry (2005), "Chinese Currency Controversies," *Asian Economic Papers* (forthcoming).
- Eichengreen, Barry and Mariko Hatase (2005), "Can a Rapidly-Growing Export-Oriented Economy Smoothly Exit a Peg? Lessons for China from Japan's High Growth Era," NBER Working Paper no. 11625 (September).
- Eichengreen, Barry and Paul Masson et al. (1998), "Exit Strategies: Policy Options for Countries Seeking Greater Exchange Rate Flexibility," IMF Occasional Paper (April).
- Frankel, Jeffrey and Shang-jin Wei (1993), "Trade Blocs and Currency Blocs," NBER Working Paper no.1335 (April).

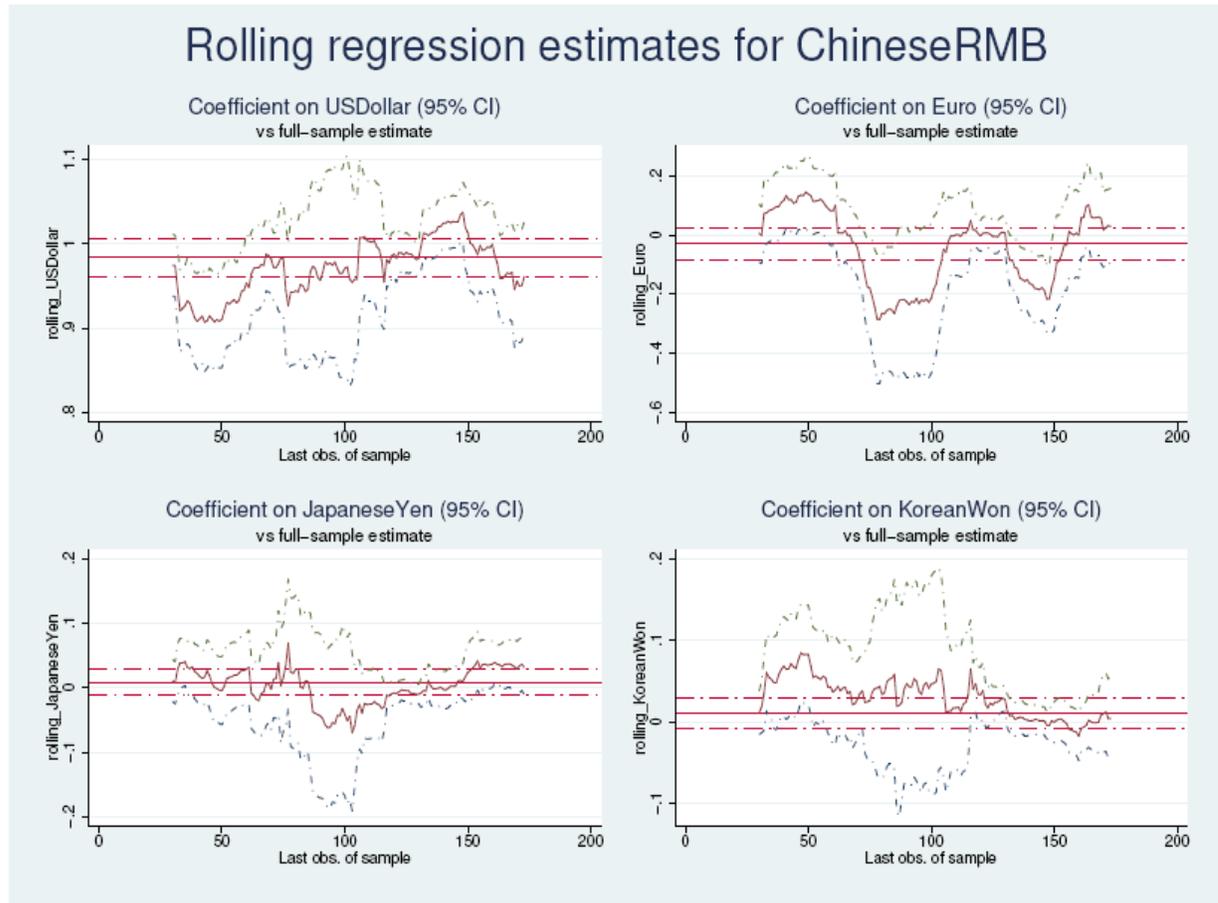
- Goldstein, Morris (1998), *The Asian Financial Crisis*, Washington, D.C.: Institute of International Economics.
- Goldstein, Morris and Nicholas Lardy (2003), “Two-Stage Currency Reform for China,” *The Asian Wall Street Journal* (12 September).
- Gong, Frank and Grace Ng (2005), “China’s RMB on the Way to a Long, Gradual Appreciation,” JP Morgan Global Data Watch, Economic Research Note, 22 July, pp.9-10.
- Kenen, Peter (1969), “The Theory of Optimum Currency Areas: An Eclectic View,” in Robert Mundell and Alexander Swoboda, eds, *Monetary Problems of the International Economy*, Chicago: University of Chicago Press, pp.41-60.
- Leung, Raymond (2005), “China Develops Further its Interbank FX Trading System,” in *Asian Bond and Currency Markets 2005*, Hong Kong: Citigroup.
- Mann, Catherine (2003), “how Long the Strong Dollar? In C. Fred Bergsten and John Williamson (eds), *Dollar Overvaluation and the World Economy*, Washington, D.C.: Institute for International Economics.
- McKinnon, Ronald (1963), “Optimum Currency Areas,” *American Economic Review* 53, pp.717-725.
- Mundell, Robert (1961), “Optimum Currency Areas,” *American Economic Review* 51, pp.657-665.
- Mussa, Michael (2005), “Sustaining Global Growth While Reducing External Imbalances,” in C. Fred Bergsten (ed), *The United States and the World Economy: Foreign Economic Policy for the Next Decade*, Washington, D.C.: Institute for International Economics.
- Obstfeld, Maurice and Kenneth Rogoff (2004), “The Unsustainable U.S. Current Account Position Revisited,” NBER Working Paper no. 10869 (November).
- Prasad, Eswar, Thomas Rumbaugh and Qing Wang (2005), “Putting the Cart Before the Horse? Capital Account Liberalization and Exchange Rate Flexibility in China,” Policy Discussion Paper no. 05/1, Washington, D.C.: IMF.
- Quirk, Peter, Graham Haache, Viktor Schoofs and Lothar Weniger (1988), “Policies for Developing Forward Foreign Exchange Markets,” IMF Occasional Paper no. 60, Washington, D.C.: IMF.
- Shad, Ajay and Ila Patnaik (2005), “India’s Experience with Capital Flows: The Elusive Quest for a Sustainable Current Account Deficit,” IMF Working Paper 11387 (May).

Reinhart, Carmen and Rogoff (2004), “The Modern History of Exchange Rate Arrangements: A Reinterpretation,” *Quarterly Journal of Economics* 119, pp.1-48.

Tenreyro, Silvana (2004), “On the Trade Impact of Nominal Exchange Rate Volatility,” unpublished manuscript, Federal Reserve Bank of Boston.

Truman, Edwin (2005), “Postponing Global Adjustment: An Analysis of the Pending Adjustment of Global Imbalances,” Working Paper 05-6, Washington, D.C.: Institute of International Economics.

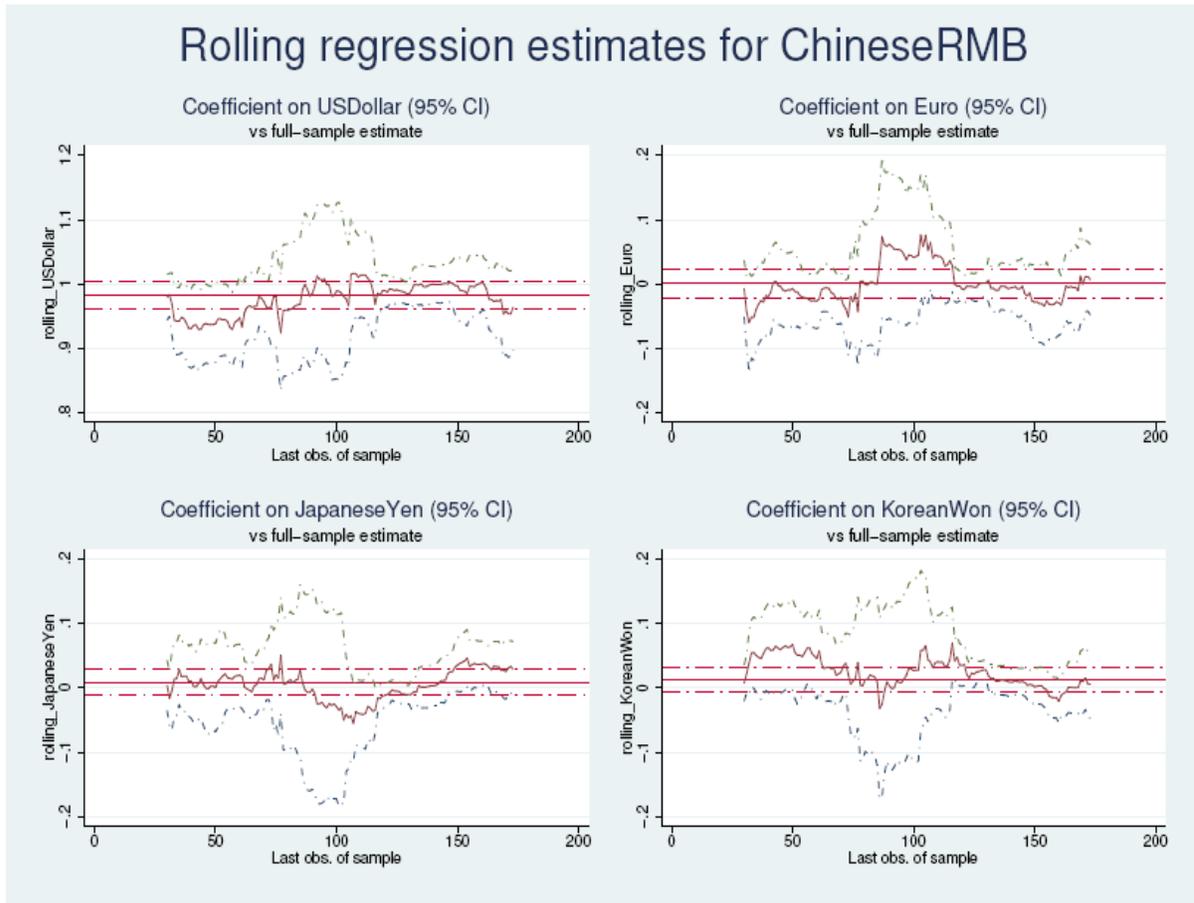
Figure 1



- Notes:
- Exchange rate data use the **Swiss franc** as the numeraire.
  - Period coverage: July 22, 2005 to March 21, 2006, with gaps (total of 173 observations).
  - Solid and dotted straight lines depict full-sample coefficient and 95% confidence intervals.
  - Moving-window width is fixed at 30 observations.

Source: Global Financial Database.

Figure 2



- Notes:*
- Exchange rate data use the **Australian dollar** as the numeraire.
  - Period coverage: July 22, 2005 to March 21, 2006, with gaps (total of 173 observations).
  - Solid and dotted straight lines depict full-sample coefficient and 95% confidence intervals.
  - Moving-window width is fixed at 30 observations.

*Source:* Global Financial Database.