

THE FUTURE OF CHINA'S EXCHANGE RATE POLICY

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Morris Goldstein and Nicholas R. Lardy

PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS
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Morris Goldstein, Dennis Weatherstone Senior Fellow since 1994, has held several senior staff positions at the International Monetary Fund (1970–94), including deputy director of its Research Department (1987–94). He is the author of *Managed Floating Plus* (2002), *The Asian Financial Crisis: Causes, Cures, and Systemic Implications* (1998), *The Case for an International Banking Standard* (1997), *The Exchange Rate System and the IMF: A Modest Agenda* (1995), coeditor of *Debating China's Exchange Rate Policy* (2008) and *Private Capital Flows to Emerging Markets after the Mexican Crisis* (1996), coauthor of *Controlling Currency Mismatches in Emerging Markets* (2004) with Philip Turner and *Assessing Financial Vulnerability: An Early Warning System for Emerging Markets* with Graciela Kaminsky and Carmen Reinhart (2000), and project director of *Safeguarding Prosperity in a Global Financial System: The Future International Financial Architecture* (1999) for the Council on Foreign Relations Task Force on the International Financial Architecture. He is a member of the Council on Foreign Relations, the Bellagio Group, and the Pew Task Force on Financial Regulatory Reform. He received his BA from Rutgers University in 1966 and PhD from New York University in 1971, both in economics.

Nicholas R. Lardy has been a senior fellow at the Peterson Institute since 2003. He was a senior fellow in the Foreign Policy Studies Program at the Brookings Institution from 1995 to 2003. He was the director of the Henry M. Jackson School of International Studies at the University of Washington from 1991 to 1995. From 1997 through the spring of 2000, he was the Frederick Frank Adjunct Professor of International Trade and Finance at the Yale University School of Management. His most recent publications are *China's Rise: Challenges and Opportunities* (2008) and *Debating China's Exchange Rate Policy* (2008). Other publications include *China: The Balance Sheet—What the World Needs to Know Now about the Emerging Superpower* (2006), *Prospects for a US-Taiwan Free Trade Agreement* (2004), *Integrating China into the Global Economy* (2002), *China's Unfinished Economic Revolution* (1998), *China in the World Economy* (1994), *Foreign Trade and Economic Reform in*

China, 1978–1990 (1992), and *Agriculture in China's Modern Economic Development* (1983). He is a member of the Council on Foreign Relations and of the editorial boards of the *China Quarterly*, *Journal of Asian Business*, *China Review*, and *China Economic Review*. He received his BA from the University of Wisconsin in 1968 and his PhD from the University of Michigan in 1975, both in economics.

**PETER G. PETERSON INSTITUTE
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1750 Massachusetts Avenue, NW
Washington, DC 20036-1903
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www.petersoninstitute.org

C. Fred Bergsten, *Director*
Edward A. Tureen, *Director of Publications,
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Preface

Analysis of exchange rate policy—be it for individual countries or groups of them or for the exchange rate system as a whole—has been a mainstay of the Peterson Institute’s research agenda since its inception. Much of the relevant Institute work in this area is summarized by John Williamson in “Fred Bergsten and the Institute’s Work on Exchange Rate Regimes” and by Morris Goldstein in “The International Monetary System in the Work of the Institute,” both chapters in the Festschrift *C. Fred Bergsten and the World Economy* (2006) edited by Michael Mussa. An underlying theme has been the view that misalignments of real exchange rates, as well as the design and operation of currency regimes, “matter” both for the economic performance of countries and for the openness and stability of the international financial and trading system. And since exchange rate policy matters, practical suggestions for how that policy can be improved merit attention and serious consideration.

As the international role and influence of China in the world economy have soared, and as China’s trade and current account surpluses have mushroomed, the Institute has expanded and sharpened its examination of China’s exchange rate policy. In September 2002 and May 2004, the Institute organized major conferences in which China’s policy toward the renminbi was evaluated—mostly in the context of the overvaluation of the US dollar and what to do about it. These conferences led to two volumes that I coedited with John Williamson: *Dollar Overvaluation and the World Economy* (2003) and *Dollar Adjustment: How Far? Against What?* (2004).

In 2006 the Institute, in collaboration with the Center for Strategic and International Studies, began work on a three-year China Balance Sheet project in order to obtain a comprehensive and holistic view of the key

economic, political, and security issues facing China and their implications for other countries, and particularly for the United States. Two volumes from that project have thus far been published, and China's exchange rate policy is among the key issues taken up: *China: The Balance Sheet—What the World Needs to Know Now about the Emerging Superpower* (2006), which I co-authored with Bates Gill, Nicholas Lardy, and Derek Mitchell, and *China's Rise: Challenges and Opportunities* (2008), which I coauthored with Charles Freeman, Lardy, and Mitchell.

In a series of op-eds, articles in leading economic journals, Peterson Institute working papers, and contributions to other Peterson Institute volumes, Goldstein and Lardy have since 2003 been analyzing the misalignment of the renminbi and offering policy prescriptions that would reduce China's large external surplus, move China toward a more sustainable and more "balanced" structure of economic growth, and create the conditions for a more harmonious relationship with China's trading partners, including the United States. In October 2007 the Institute held a major conference on China's exchange rate policy in which 30 experts took stock of the situation and identified the major policy options going forward. Wu Xiaoling, deputy governor of the People's Bank of China at the time, presented a keynote address. The conference volume was published in April 2008 (Goldstein and Lardy 2008) and has received outstanding reviews from specialists in the field.

In this Policy Analysis, Goldstein and Lardy update and expand their overview paper from the October 2007 conference to address major recent developments bearing on China's exchange rate policy, including the global financial crisis, the marked slowdown in China's economic growth between the second quarter of 2007 and the first quarter of 2009, and the change in the US administration. They welcome the large cumulative appreciation in the real trade-weighted value of the renminbi since June 2005 but also emphasize that a significant degree of undervaluation remains, and they put forward a three-stage approach for maintaining progress on reducing misalignment while countering the economic slowdown. We hope that these suggestions will prove helpful as China and the United States begin their Strategic and Economic Dialogue and further intensify their economic and financial relationships.

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The Institute hopes that its studies and other activities will contribute to building a stronger foundation for international economic policy around the world. We invite readers of these publications to let us know how they think we can best accomplish this objective.

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Introduction

In the short space of three decades China has transitioned from a largely self-sufficient economy to the world's third largest trading nation. As its role in the global trading system has expanded, the rest of the world has taken a keen interest in the evolution of its trade regime. This interest was apparent in China's negotiation to enter the World Trade Organization (WTO). Members of the WTO leading the negotiations sought to impose conditions that maximized the prospects that China's entry would occur on "commercially viable terms." In response, during the 14-year negotiation process China unilaterally cut its tariffs substantially, in large measure to demonstrate its commitment to a liberal trade regime. Since China's entry into the WTO in December 2001, the members have periodically reviewed China's compliance with the terms of its commitments.

More recently, China's foreign exchange regime also has received growing attention from the international community. A rapidly growing external surplus and substantial official intervention in the foreign exchange market, combined with large-scale sterilization of the resulting increases in China's international reserves, have naturally raised a number of important questions about the nature of China's foreign exchange regime. For example, to what extent have the actions of the authorities resulted in an undervalued exchange rate for the renminbi? To what extent are China's international obligations on exchange rate policy in conflict with its domestic economic priorities? Did China's large external surpluses contribute to the emergence of the global financial crisis in 2008? Do China's massive holdings of US treasury obligations and other US dollar-denominated financial assets provide China with substantial leverage vis-à-vis the United States that China might use to advance its own economic

and political interests? What role has the International Monetary Fund (IMF) played and what role should it play in overseeing developments in China's exchange rate regime?

Almost four years have passed since China announced a number of changes to its foreign exchange regime on July 21, 2005. During this period, the debate on the pros and cons of China's exchange rate policy, which had begun several years earlier, intensified. In our analysis we identify the key issues in that debate and offer policy prescriptions for the period ahead. In framing these policy suggestions, we have taken account of the fact that, like most of the rest of the world struggling with the global financial crisis and economic slowdown, economic growth in China has slowed markedly—from 14 percent (at an annual rate) in the second quarter of 2007 to only 6.1 percent in the first quarter of 2009.

In chapter 1 we review the evolution of China's foreign exchange regime since the beginning of the reform period three decades ago, including developments since the regime change in July 2005. In chapter 2 we analyze key economic challenges facing the Chinese authorities in light of the increasingly undervalued exchange rate through 2007, the accelerating buildup of foreign exchange reserves, and more recently the sharp decline in economic growth. These challenges include maintaining progress on currency reform while trying to use monetary policy as an effective instrument of macroeconomic management; reducing excessive reliance on investment and external demand to sustain economic growth; preventing defense of the currency regime from unduly handicapping efforts to strengthen and transform banks into truly commercial entities; and containing the risk of protectionism abroad in response to the emergence of China's very large global current account surplus. We conclude in chapter 3 with a scorecard on the leading options for China's exchange rate policy going forward, contrasting a "stay-the-course" policy with a bolder three-stage approach to expedite correction of the renminbi's undervaluation.

Evolution of China's Exchange Rate Regime in the Reform Era

Reforms of China's exchange rate regime have been a key factor underlying the country's growing participation in global trade since economic reform began in 1978. From 1949 until the late 1970s, the state fixed China's exchange rate at a highly overvalued level as part of the country's import-substitution industrialization strategy. Through its system of economic planning, the state adopted policies to accelerate industrial development in order to reduce China's dependence on imported manufactured goods. These policies included direct controls on imports and exports, an overvalued exchange rate, and tight controls over foreign exchange. The overvaluation of the currency allowed the government to provide imported machinery and equipment to priority industries at a relatively lower domestic currency cost than otherwise would have been possible.

But the overvalued exchange rate led to excess demand for foreign exchange and turned the terms of trade against producers of China's exports, which in the 1950s were predominantly agricultural and processed food products. As early as 1950 the Chinese authorities introduced extensive exchange controls that, among other things, required the deposit of all sources of foreign exchange, including export earnings, in the Bank of China, the sole institution authorized to deal in foreign exchange.¹ This surrender requirement was facilitated by the establishment of a small number of state-controlled trading companies that specialized in trade in well-defined, nonoverlapping product lines. By the mid-1950s, the few

1. Beginning in 1985 the state began to gradually allow other banks to conduct foreign exchange transactions. The Bank of China is a commercial bank while the People's Bank of China is China's central bank.

remaining nonstate companies engaged in international trade were nationalized, ensuring direct state control of virtually all sources of foreign exchange. The Bank of China, in turn, allocated the limited supply of foreign exchange to priority uses identified by the state through its economic planning process.

The overvaluation of the currency naturally depressed the domestic prices of traditional export goods and undermined the incentive to produce them. The state sought to overcome this problem by requiring producers to achieve specified levels of output and product sales to state trading companies for sale in the international market.

Several types of evidence support the view that the Chinese currency was systematically overvalued for the three decades before reform began in the late 1970s. First, the currency was inconvertible and subject to extensive exchange controls, summarized above. Second, the domestic currency cost of earning one dollar in export sales substantially exceeded the exchange rate throughout the 1950s–70s (Lardy 1992, 24–27), so foreign trade companies, on average, lost money on their export sales. For example, in 1975 products that cost RMB3 on the domestic market could be sold internationally for \$1; but since the exchange rate was only RMB1.86 per dollar, a trading company would incur a loss of RMB1.14 for every dollar's worth of international sales. These losses on exports were covered by the profits these firms earned from the domestic sales of imported goods whose prices were based on a markup over the cost of similar domestic goods (Lardy 1992, 26). Finally, as we explain below, when the currency reached what was arguably close to an equilibrium level in 1994–95, this level represented a substantial depreciation from that which prevailed in the years before reform.

Transition to an Equilibrium Exchange Rate

China's transition by the mid-1990s to a system in which the value of its currency was determined by supply and demand in a foreign exchange market was a gradual process spanning 15 years that involved changes in the official exchange rate, the use of a dual exchange rate system, and the introduction and gradual expansion of markets for foreign exchange.

The most important prerequisite for moving to a market-determined exchange rate was an easing of controls on trade and other current account transactions, as occurred in several very early steps. In 1979 the State Council approved a system allowing exporters and their provincial and local government owners to retain a share of their foreign exchange earnings, referred to as foreign exchange quotas (previously these earnings had to be surrendered in their entirety to the Bank of China).

At the same time, the government introduced a similar system to allow retention of part of the foreign exchange earnings from nontrade

sources, such as overseas remittances, port fees paid by foreign vessels, and tourism. This foreign exchange retention system, introduced to provide increased incentives for exports and other sources of foreign exchange, evolved in complex ways. Different rates were set for different types of commodities—for some products retentions were allowed only for incremental exports above a base level, frequently the magnitude of exports in the recent past; and, over time, regionally differentiated rates came to replace product-specific rates. But the net result was that by the mid-1980s, only a few years after the system was introduced, about 40 percent of all foreign exchange earnings was in the hands of provinces and export producers while the central government controlled the rest (Lardy 1992, 51–57).

As early as October 1980, exporting firms that retained foreign exchange above their own import needs were allowed to sell the excess through the state agency responsible for the management of China's exchange controls and its foreign exchange reserves, the State Administration of Exchange Control.² Beginning in the mid-1980s, the government sanctioned foreign exchange markets, known as swap centers, eventually in dozens of cities. The initial restrictions on participation in these markets gradually eroded and the volume of transactions expanded significantly, reaching more than \$13 billion in 1990. Initially the government sought to control the price of foreign exchange in these markets, but controls were progressively eased and the market price invariably displayed a premium to the official exchange rate, again confirming the continued overvaluation of the renminbi by the official exchange rate.

The other major policy instrument the government used to move the currency toward a market-determined rate was devaluation, beginning in January 1981 when the State Council introduced an "internal settlement rate" of RMB2.8 to the dollar. At the time the official exchange rate was RMB1.5 so the new rate, which applied to all trade transactions, was a devaluation of almost 100 percent.³ In effect this measure introduced a dual exchange rate system, since the official exchange rate still applied to nontrade transactions. The government then began to devalue the official exchange rate, so that by the end of 1984 it had converged to the internal settlement rate of RMB2.8. In early 1985 the government abolished the internal settlement rate and all international transactions were settled at the official exchange rate (but the authorities continued to operate

2. Initially this agency was directly subordinate to the State Council. In 1993 it came under the administrative control of the People's Bank of China, the country's central bank. In 1997 the official English translation of the name of this organization was changed to the State Administration of Foreign Exchange, commonly known by its acronym SAFE. Its name in Chinese remains the same.

3. The official rate was pegged to a basket of currencies while the internal settlement rate was pegged exclusively to the dollar.

the internal swap market for foreign exchange and its role continued to expand).

After the internal settlement rate was abolished the authorities continued to devalue the currency, to a rate of RMB3.2 by mid-1986 and then, in a single step on July 5, 1986, an additional 15 percent, to RMB3.7 (Lardy 2002, 49). A further devaluation in December 1989 took the rate to RMB4.7. Over the next four years the government devalued the currency until it reached RMB5.8 at year-end 1993. Then on January 1, 1994, the government unified the official and swap market rates by moving the official rate to the then prevailing swap market rate, RMB8.7. Over the next 18 months the government revalued the currency until it reached RMB8.30 in June 1995, and then slowly moved it to RMB8.28 by October 1997.⁴ From that time until the reform initiated on July 21, 2005, the nominal value of the currency vis-à-vis the dollar fluctuated in a very narrow range around RMB8.28.

Although tightly managed by the government, the official exchange rate during the mid-1990s was probably a reasonable approximation of an equilibrium rate, given the controls on capital account transactions that then prevailed. Several reasons underlie this judgment.

First, although commentators argued that the 1994 unification of the two rates amounted to a massive devaluation of the renminbi that left the currency significantly undervalued (Makin 1997), the evidence indicates that this interpretation is in error. Just before the unification of the official and swap market rates in January 1994, China's foreign exchange retention system had widened so greatly that four-fifths of all foreign exchange transactions were flowing through the swap market, where the rate was RMB8.7 (IMF 1995, 13). Government allocation of foreign exchange at the official rate of RMB5.8 accounted for the remaining one-fifth of the market. Thus the effective depreciation of the exchange rate, calculated by comparing the weighted average of the swap market rate and the official exchange rate before unification with the new rate of RMB8.7, was 7 percent, not the 35 percent sometimes cited (Fernald, Edison, and Loungani 1998).

Second, the price of foreign exchange in the swap market by the time of the unification of the two rates was overwhelmingly market determined. Government intervention in the swap market, which was important in the mid-1980s, had effectively ended in 1988. Until then the government had set the price in the swap market on a daily basis and all transactions had to occur at the fixed price. But beginning in 1988 in Shanghai, the most important market, the government introduced a Walrasian auction system to determine the price. In this system, a market-clearing price

4. The move from RMB8.7 to RMB8.3 represents a nominal appreciation of 4.8 percent; from RMB8.3 to RMB8.28 is a nominal appreciation of 0.25 percent; the cumulative nominal appreciation was 5 percent.

was established daily by auction, prior to the commencement of trading, and then all trades had to occur at that price (Lardy 1992, 63). In short, the swap market rate by the mid-1990s reflected supply and demand for foreign exchange, free of government interference. A weighted average of the swap market rate of RMB8.7 and the official rate of RMB5.8 before unification of the two rates is RMB8.1, suggesting that the unified rate of RMB8.7 might have been slightly undervalued.

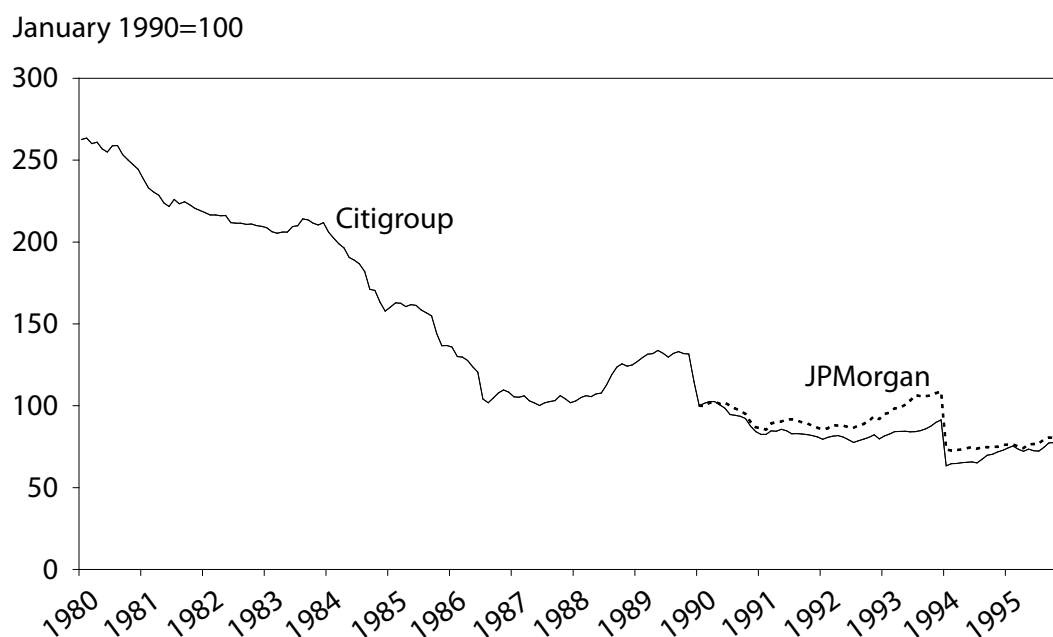
The judgment that in January 1994 the renminbi at RMB8.7 was slightly undervalued is reinforced by developments in the swap market for foreign exchange in 1993. As the government plan to unify the official and the swap market rates became known in the last months of 1993, the swap market rate depreciated considerably.⁵ This was the inevitable result as importers, who were able to access foreign exchange at the official market rate, accelerated their transactions, knowing that within a matter of months they would have to pay much more for foreign exchange. On the other hand, exporters, who were required to surrender their foreign exchange at the official rate, postponed some of their trades until after the unification took place, in order to be able to convert their foreign exchange earnings at what they anticipated would be a much more favorable rate (People's Bank of China 1995, 44; IMF 1995, 6). This seems to be the chief explanation of why China's trade balance, which had been slightly positive in 1990–92, unexpectedly was in relatively large deficit in 1993 and then returned to a modest surplus in 1994.

If the renminbi was slightly undervalued at RMB8.7 in January 1994, subsequent developments brought it closer to an equilibrium level. As already noted, the nominal exchange rate of the renminbi vis-à-vis the dollar appreciated to RMB8.3 within 18 months of the rate unification. And China had relatively high inflation—indeed, the highest of the reform era—in 1994 when consumer prices shot up by 24 percent and again in 1995 when the price increase moderated but was still quite elevated at 17 percent. Inflation higher than the average of one's trading partners is the equivalent of appreciation since it makes the country's goods less competitive in international markets. The appreciation of the renminbi in real trade-weighted terms is reflected in figure 1.1. The International Monetary Fund (IMF) calculated that subsequent to the unification of the official and swap market exchange rates, the real effective exchange rate of the renminbi appreciated by 13 percent in 1994 and an additional 5 percent in 1995 (IMF 1996, 50).

Third, China's current account position in 1994–96 was not far from equilibrium. As shown in figure 1.2, the current account deficit of 2.0 percent of gross domestic product in 1993 gave way to very modest surpluses of 1.4 percent in 1994, 0.2 percent in 1995, and 0.9 percent in 1996.

5. The swap market rate averaged a little over RMB8 per dollar in the first quarter of 1993 but in June fell sharply to a low of RMB10 per dollar before recovering to average about RMB8.7 per dollar in the last quarter of the year.

Figure 1.1 Real effective exchange rate of the renminbi, 1980–95



Note: The indices of the real effective exchange rate are based on the official exchange rate and thus do not take into account transactions in the swap market.

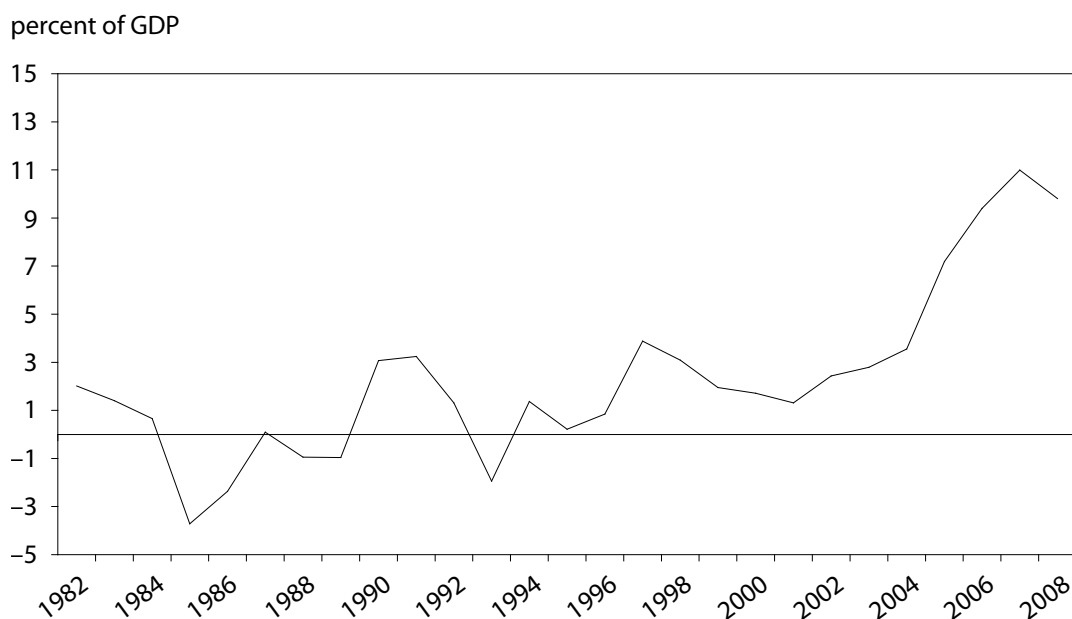
Sources: Citigroup, Competitive Trade- Weighted Exchange Rate Index; JPMorgan, Real Broad Effective Exchange Rate Indices.

Fourth, anecdotal evidence suggests that the volume of transactions in the curb market for foreign exchange fell precipitously after the unification of the two rates, suggesting that the new unified rate was close to equilibrium.

Finally, the unification of the swap and official exchange rates in 1994 was accompanied by a substantial reduction in exchange controls on current account transactions and was followed less than two years later by a formal move to full convertibility on all current account transactions. In addition, the state abolished the foreign exchange retention system for domestic firms, instead requiring them to sell all their foreign exchange earnings to banks but, importantly, allowing them to freely purchase from banks the foreign exchange needed for trade transactions.⁶ Coincident with this reform, in April 1994 the state established the China Foreign Exchange Trading System based in Shanghai. This was the beginning of a unified interbank market in foreign exchange. On November 28, 1996, the government announced that effective December 1 it would approve all bona fide requests for foreign exchange for current payments and transfers

6. For a good subject to import licensing, a firm would have to obtain a license before purchasing foreign exchange to complete the transaction.

Figure 1.2 Current account position, 1982–2008



Sources: National Bureau of Statistics of China (2007b); ISI Emerging Markets, CEIC Database; People's Bank of China, Statistical Investigation Office (1997, 204–205); Xinhua News Agency, Press Conference of the State Council Information Office, "Maintaining Economic Growth, Preventing Risks and Improving the Future Balance of Payments," February 18, 2009, www.xinhuanet.com.

(IMF 1997, 132).⁷ In effect, China formally accepted the obligations of the International Monetary Fund's Article VIII, meaning that it had achieved convertibility on all current account transactions. This was perhaps the ultimate indication that the exchange rate had moved decisively toward an equilibrium rate. The government was confident that it could meet all legitimate requests for foreign exchange to finance imports and other current account transactions. Before the mid-1990s, this would have been impossible because the official exchange rate was still overvalued (i.e., there was excess demand for foreign exchange at the prevailing official exchange rate).

In contrast with the earlier policy of frequent exchange rate adjustments, after mid-1995 China's authorities kept the currency closely pegged to the dollar. Given developments in international financial markets, however, China's real effective exchange rate was anything but stable. During the Asian financial crisis of 1997–98, the value of many Asian currencies vis-à-vis the US dollar plummeted. With the renminbi pegged to the dol-

7. The additional steps after 1994 to completely liberalize controls on current account transactions involved liberalizing the access of foreign-funded enterprises to the foreign exchange market and abolishing the foreign exchange balancing requirement for these firms (IMF 1997, 131–32).

lar, as the latter appreciated on a trade-weighted basis so too did the renminbi. As shown in figure 1.1, from mid-1995 to early 2002, when the value of the dollar reached a peak, the real trade-weighted value of the renminbi appreciated 24 percent.

The evolution of China's current account over the second half of the 1990s and into the early part of the next decade suggests that China's real effective exchange rate remained reasonably close to an equilibrium value. As figure 1.2 shows, China's current account surplus was somewhat elevated in 1997 and 1998, largely reflecting the slowdown in China's growth during those years, which significantly moderated the demand for imports. But as a more normal rate of growth resumed, the current account surplus fell, dropping to 1.3 percent of GDP by 2001.

Our interpretation is that, while China's nominal exchange rate remained fixed vis-à-vis the dollar, the appreciation of the dollar was coincidentally roughly the amount needed to keep China's current account position in reasonable equilibrium from 1994 through the early 2000s. Despite an annual real effective appreciation of the renminbi of over 3 percent per year from 1994 through 2001, it appears that the competitiveness of Chinese exports was not unduly affected. As we discuss in more detail in chapter 2, that suggests this period was characterized by substantial growth of total factor productivity in China's export sector. In short, China's actual real effective exchange rate seems to have roughly tracked the real equilibrium exchange rate from the mid-1990s to the very early part of the next decade.

In sharp contrast, after 2001 the Chinese policy of maintaining a fixed nominal exchange rate vis-à-vis the dollar produced very different results. The value of the dollar, after peaking in February 2002, began to depreciate, pulling down the value of the renminbi. By mid-2005, the value of the renminbi on a real trade-weighted basis had fallen by about 10 percent compared with its peak value in February 2002. Assuming that productivity growth in China's export sector continued after 2001,⁸ the combination of these two factors suggests that by mid-2005 the renminbi was undervalued by about 20 percent. As a result, starting in 2002 the competitiveness of Chinese goods in international markets began to increase significantly, causing China's trade and current accounts to move into increasingly large surplus positions.

Developments since Mid-2005

On July 21, 2005, China introduced a new currency regime that ended the decade-long fixed nominal exchange rate of the renminbi vis-à-vis the

8. Support for this assumption comes from the work by Dwight H. Perkins and Thomas G. Rawski (2008, 839). They estimate that total factor productivity growth for the economy as a whole was 3.2 percent per year in 1995–2000 and 3.1 percent per year in 2000–2005.

US dollar (People's Bank of China 2005). The authorities not only immediately revalued the official bilateral rate by 2.1 percent, moving it from RMB8.28 to RMB8.11 to the dollar but also announced that the renminbi henceforth would be managed "with reference to a basket of currencies" rather than being pegged to the dollar. Most importantly, the central bank said that the exchange rate was to become "more flexible" with its value based more on "market supply and demand."

By the end of 2008 the nominal renminbi-dollar rate was RMB6.83, reflecting a cumulative nominal appreciation against the US dollar of 21 percent compared with that in July 20, 2005. As shown in table 1.1, the rate of renminbi movement relative to the dollar was anything but uniform over this period—ranging from small depreciations of 0.3, 1.3, and 1.6 percent (at an annual rate) in May 2006 and October and November 2008, respectively, to large appreciations of more than 10 percent from November 2007 through March 2008 and again in June 2008. Taking the post-July 2005 period as a whole, the rate of nominal renminbi appreciation relative to the dollar has been on a rising trend, increasing from roughly 3 percent a year in 2005 and 2006 to approximately 7 percent a year in 2007 and 2008.

Next, consider the behavior of China's real trade-weighted exchange rate, usually called the real effective exchange rate; this is the relative price most relevant for the evolution of China's balance of payments position. Indices of real effective exchange rates, such as those shown in figure 1.1, provide a summary of how the renminbi has moved against a weighted average of the currencies of China's trading partners, where the weights reflect the relative importance of each country in China's trade.⁹ In addition, indices of "real" as opposed to nominal effective exchange rates adjust for differences in inflation rates between the home currency and its trading partners. This adjustment accounts for the fact that an increase in domestic inflation compared with the home country's trading partners has the same effect on the home country's competitiveness as an appreciation of its nominal exchange rate.

In table 1.2, we show the evolution of three popular indices (constructed by JPMorgan Chase, Citigroup, and the Bank for International Settlements [BIS]) of real effective exchange rates for the renminbi in February 2002–December 2008. The table shows the raw trade-weighted real index as well as the cumulative appreciation since February 2002, when the value of the US dollar peaked, and since June 2005, when China adopted its new exchange rate policy. While the three indices usually yield similar qualitative conclusions, they sometimes produce quite divergent quantitative answers in the short run because their calculations are based on different country weights and because they use different domestic price indices. Nonetheless, several conclusions stand out.

9. In some indices the weights take into account the degree of competition between China and other countries in third-country markets.

Table 1.1 Movements in nominal US dollar and real effective exchange rate of the renminbi, June 2005 to January 2009

		Nominal vis-à-vis US dollar			JPMorgan real effective exchange rate		
Year	Date	Rate	Appreciation (percent)		Rate	Appreciation (percent)	
			Month (over previous month)	Annualized (month*12)		Month (over previous month)	Annualized (month*12)
2005	June 30	8.277			96.7		
	July 29	8.108	2.1	24.9	99.7	3.1	37.2
	August 31	8.097	0.1	1.6	99.1	-0.6	-7.2
	September 30	8.093	0.1	0.6	100.9	1.8	21.8
	October 31	8.084	0.1	1.3	102.2	1.3	15.5
	November 30	8.080	0.1	0.7	102.6	0.4	4.7
	December 31	8.070	0.1	1.4	102.2	-0.4	-4.7
	January 27	8.061	0.1	1.4	100.5	-1.7	-20.0
	February 28	8.042	0.2	2.9	100.8	0.3	3.6
	March 31	8.017	0.3	3.7	101.7	0.9	10.7
	April 28	8.017	0.0	0.1	102.4	0.7	8.3
	May 31	8.019	-0.0	-0.3	99.3	-3.0	-36.3
2006	June 30	7.996	0.3	3.5	99.9	0.6	7.3
	July 31	7.973	0.3	3.4	101.1	1.2	14.4
	August 31	7.959	0.2	2.2	99.8	-1.3	-15.4
	September 29	7.909	0.6	7.6	102.0	2.2	26.5
	October 31	7.879	0.4	4.5	102.7	0.7	8.2

2007	November 30	7.844	0.5	5.4	November	100.9	-1.8	-21.0
	December 29	7.809	0.4	5.4	December	101.0	0.1	1.2
	January 31	7.778	0.4	4.8	January	103.1	2.1	25.0
	February 28	7.741	0.5	5.7	February	102.3	-0.8	-9.3
	March 30	7.734	0.1	1.0	March	102.4	0.1	1.2
	April 30	7.706	0.4	4.5	April	103.5	1.1	12.9
	May 31	7.651	0.7	8.6	May	103.6	0.1	1.2
	June 29	7.616	0.5	5.5	June	103.7	0.1	1.2
	July 31	7.574	0.6	6.6	July	104.3	0.6	6.9
	August 31	7.561	0.2	2.1	August	103.1	-1.2	-13.8
	September 28	7.511	0.7	8.0	September	104.1	1.0	11.6
	October 31	7.469	0.6	6.7	October	103.3	-0.8	-9.2
2008	November 30	7.400	0.9	11.3	November	102.8	-0.5	-5.8
	December 31	7.305	1.3	15.6	December	105.4	2.5	30.4
	January 31	7.185	1.7	19.9	January	106.8	1.3	15.9
	February 29	7.106	1.1	13.4	February	106.4	-0.4	-4.5
	March 31	7.019	1.2	14.8	March	107.2	0.8	9.0
	April 30	7.000	0.3	3.2	April	109.7	2.3	28.0
	May 30	6.947	0.8	9.2	May	110.1	0.4	4.4
	June 30	6.859	1.3	15.4	June	110.8	0.6	7.6
	July 31	6.839	0.3	3.6	July	112.6	1.6	19.5
	August 29	6.835	0.1	0.8	August	114.4	1.6	19.2

(table continues next page)

Table 1.1 Movements in nominal US dollar and real effective exchange rate of the renminbi, June 2005 to January 2009 *(continued)*

		Nominal vis-à-vis US dollar			JPMorgan real effective exchange rate		
Year	Date	Rate	Appreciation (percent)		Rate	Appreciation (percent)	
			Month (over previous month)	Annualized (month*12)		Month (over previous month)	Annualized (month*12)
2008 <i>(continued)</i>	September 26	6.818	0.2	2.9	September	2.7	32.5
	October 31	6.826	-0.1	-1.3	October	1.4	17.4
	November 28	6.835	-0.1	-1.6	November	-1.2	-14.1
	December 31	6.835	0.0	0.1	December	-3.7	-44.8
	January 23	6.838	-0.0	-0.6	January	-0.5	-6.3
2009							

Sources: State Administration of Foreign Exchange, www.safe.gov.cn; JPMorgan, Real Broad Effective Exchange Rate Indices.

Table 1.2 Real effective exchange rate of the renminbi, 2002–08

Date	JPMorgan real trade-weighted rate			Citi real trade-weighted rate			BIS real trade-weighted rate		
	Cumulative appreciation (percent)			Cumulative appreciation (percent)			Cumulative appreciation (percent)		
	Index (2000=100)	Since February 2002	Since June 2005	Index (January 1980=1)	Since February 2002	Since June 2005	Index (2005=100)	Since February 2002	Since June 2005
2002									
February	105.5	0.0		0.363	0.0		119.45	0.0	
December	100.6	-4.6		0.334	-8.0		107.46	-10.0	
2003									
December	94.8	-10.1		0.329	-9.3		100.52	-15.8	
2004									
December	93.1	-11.8		0.317	-12.8		95.71	-19.9	
2005									
June	96.7	-8.3	0.0	0.314	-13.6	0.0	99.47	-16.7	0.0
July	99.7	-5.5	3.1	0.324	-10.7	3.4	101.21	-15.3	1.7
August	99.1	-6.1	2.5	0.331	-8.8	5.6	103.32	-13.5	3.9
September	100.9	-4.4	4.3	0.326	-10.2	3.9	103.11	-13.7	3.7
October	102.2	-3.1	5.7	0.325	-10.5	3.6	102.26	-14.4	2.8
November	102.6	-2.7	6.1	0.331	-8.7	5.6	103.04	-13.7	3.6
December	102.2	-3.1	5.7	0.336	-7.4	7.1	102.49	-14.2	3.0
2006									
January	100.5	-4.7	3.9	0.323	-11.1	2.8	94.90	-20.6	-4.6

(table continues next page)

Table 1.2 Real effective exchange rate of the renminbi, 2002–08 (continued)

Date	JPMorgan real trade-weighted rate			Citi real trade-weighted rate			BIS real trade-weighted rate		
	Cumulative appreciation (percent)			Cumulative appreciation (percent)			Cumulative appreciation (percent)		
	Index (2000=100)	Since February 2002	Since June 2005	Index (January 1980=1)	Since February 2002	Since June 2005	Index (2005=100)	Since February 2002	Since June 2005
2006									
<i>(continued)</i>									
February	100.8	-4.5	4.2	0.333	-8.4	6.0	103.71	-13.2	4.3
March	101.7	-3.6	5.2	0.324	-10.9	3.1	102.32	-14.3	2.9
April	102.4	-2.9	5.9	0.320	-12.0	1.8	102.80	-13.9	3.3
May	99.3	-5.9	2.7	0.314	-13.6	-0.1	101.00	-15.4	1.5
June	99.9	-5.3	3.3	0.318	-12.4	1.3	100.69	-15.7	1.2
July	101.1	-4.2	4.6	0.323	-11.1	2.9	100.43	-15.9	1.0
August	99.8	-5.4	3.2	0.328	-9.6	4.6	102.28	-14.4	2.8
September	102.0	-3.3	5.5	0.327	-10.0	4.2	103.37	-13.5	3.9
October	102.7	-2.7	6.2	0.325	-10.4	3.7	102.16	-14.5	2.7
November	100.9	-4.4	4.3	0.328	-9.8	4.4	101.31	-15.2	1.8
December	101.0	-4.3	4.4	0.335	-7.9	6.6	101.35	-15.2	1.9
2007									
January	103.1	-2.3	6.6	0.330	-9.2	5.1	96.68	-19.1	-2.8
February	102.3	-3.0	5.8	0.340	-6.4	8.3	105.60	-11.6	6.2
March	102.4	-2.9	5.9	0.330	-9.2	5.1	104.02	-12.9	4.6

April	103.5	-1.9	7.0	0.325	-10.4	3.7	104.31	-12.7	4.9
May	103.6	-1.8	7.1	0.329	-9.5	4.7	105.91	-11.3	6.5
June	103.7	-1.7	7.2	0.335	-7.8	6.7	105.94	-11.3	6.5
July	104.3	-1.1	7.9	0.343	-5.6	9.2	106.40	-10.9	7.0
August	103.1	-2.3	6.6	0.352	-3.1	12.2	109.54	-8.3	10.1
September	104.1	-1.3	7.7	0.345	-5.1	9.9	108.68	-9.0	9.3
October	103.3	-2.1	6.8	0.336	-7.5	7.1	104.97	-12.1	5.5
November	102.8	-2.6	6.3	0.339	-6.6	8.1	104.18	-12.8	4.7
December	105.4	-0.1	9.0	0.351	-3.4	11.7	105.93	-11.3	6.5
2008									
January	106.8	1.2	10.4	0.345	-5.0	9.9	100.72	-15.7	1.3
February	106.4	0.9	10.0	0.361	-0.5	15.1	111.74	-6.5	12.3
March	107.2	1.6	10.9	0.349	-3.9	11.2	108.93	-8.8	9.5
April	109.7	4.0	13.4	0.350	-3.7	11.4	111.14	-7.0	11.7
May	110.1	4.4	13.9	0.351	-3.2	12.0	112.51	-5.8	13.1
June	110.8	5.0	14.6	0.356	-1.9	13.5	111.89	-6.3	12.5
July	112.6	6.7	16.4	0.363	0.0	15.8	111.91	-6.3	12.5
August	114.4	8.4	18.3	0.377	3.9	20.2	116.77	-2.2	17.4
September	117.5	11.4	21.5	0.371	2.3	18.4	119.14	-0.3	19.8
October	119.2	13.0	23.3	0.366	0.7	16.5	121.11	1.4	21.8
November	117.8	11.7	21.8	0.368	1.3	17.2	122.96	2.9	23.6
December	113.4	7.5	17.3	0.373	2.6	18.7	119.62	0.1	20.3

Sources: JPMorgan, Real Broad Effective Exchange Rate Indices; Citigroup, Competitive Trade-Weighted Exchange Rate Index; Bank for International Settlements, Effective Exchange Rate Indices.

First, the cumulative real effective appreciation of the renminbi between the July 2005 reform and year-end 2008 is sizable, ranging from 17 to 20 percent according to the three indices. It is worth noting that the cumulative real effective appreciation of the renminbi would be considerably smaller if one used some alternative benchmarks that have sometimes been used in the wider and longer-running discussions about the adjustment of external imbalances among the major economies. For example, 2002 is a relevant benchmark because (1) the US dollar, a key variable in the external imbalance problem, hit its peak (in February) and (2) China's external imbalance began its prolonged rise that continued through 2008. If February 2002 is used as the base, then the cumulative real effective appreciation of the renminbi (as of December 2008) is substantially less, ranging from negligible to 7.5 percent, as shown in table 1.2. This earlier period illustrates how the three indices of real effective exchange rates can sometimes produce quite divergent answers.

Second, the pace of real effective appreciation of the renminbi has been quite variable.¹⁰ Initially appreciation was quite rapid: on an annualized basis it ranged in 2005 from 6 to 14 percent, according to the indices shown in table 1.2. But all three indices show that on a real effective basis the renminbi actually depreciated during 2006. Appreciation resumed in 2007, but at a modest pace. As a result of this pattern, as late as October 2007 the cumulative real effective appreciation of the renminbi (since the July 2005 reform) was only 5 to 7 percent (that is, approximately 2 to 3 percent a year), a fact that led at the time to the complaint that on the relative-price measure that mattered the most, real exchange rate adjustment for the renminbi was very modest (Goldstein 2007b).

Since late 2007, the pace of appreciation on a real effective basis has picked up considerably. For example, between November 2007 and December 2008, the real effective rate of the renminbi appreciated by 10 percent according to the JPMorgan and Citi indices and 14 percent according to the BIS index. For the latter index, the appreciation of the currency between November 2007 and December 2008 accounts for three-quarters of cumulative appreciation since July 2005; for the other two indices that share is at least half.

Further investigation reveals that while the renminbi appreciated against the currencies of 12 of China's 13 major trading partners (the Japanese yen being the exception) from November 2007 to December 2008, particularly large (nominal) renminbi appreciations were registered against the Korean won (40 percent), the UK pound sterling and the Australian

10. Reinforcing this result, and as shown in the last column of table 1.1, according to the JPMorgan index, the rate of real effective appreciation has varied from depreciations (at an annual rate) of 20 percent or more (in January 2006, May 2006, November 2006, and December 2008) to appreciations of 20 percent or more (in September 2005, September 2006, January 2007, December 2007, April 2008, and September 2008).

dollar (33 percent each), the Canadian dollar (27 percent), and the euro (21 percent); the appreciation against the US dollar during this period was 8 percent. Once one takes into account the weights of these currencies in the trade-weighted index (as well as that of the Taiwan dollar, which fell by 10 percent against the renminbi over this period), it emerges that the euro and the Korean won together accounted for about half of the renminbi appreciation (during the November 2007–November 2008 period) and that the US dollar, the Taiwan dollar, the pound sterling, and the Canadian dollar together made up roughly a third of it.¹¹ As discussed in chapter 3, a major issue going forward is whether these large depreciations (vis-à-vis the renminbi) in most of China's key trading partners will be largely reversed once recovery from the ongoing global economic and financial crisis is firmly established.

Turning from the size and variability of renminbi exchange rate changes to the claimed "basket" characteristics of the new currency regime, empirical studies (Eichengreen 2004b; Frankel and Wei 2007, 2008) have found that the renminbi has continued to track the US dollar and that there is little evidence of the Chinese authorities managing the renminbi with reference to a basket of currencies.¹²

Exchange rate changes, whether measured in bilateral and nominal terms or in real and effective terms, are of course not the only components of China's competitiveness. Through mid-2008 the government took two other steps to reinforce the appreciation of the renminbi.

First, in a series of moves beginning in September 2006 the authorities reduced or eliminated the value-added tax (VAT) rebates paid to producers of exported goods, thus increasing the final cost of producing exports. For example, in the most comprehensive adjustment, which was announced in June 2007 and took effect July 1, the government eliminated rebates for 553 products and reduced the rate of rebate on another 2,268 products. Combined, these accounted for 37 percent of all export products.¹³ The

11. These calculations are based on the BIS real effective exchange rate index since the BIS provides publicly the currency weights needed for this exercise.

12. We updated that evidence by considering the relationship of the renminbi to other currencies in the reference basket. In these regressions we too found that the US dollar continues to dominate the movement of the renminbi in the post-currency reform period (July 2005–December 2008), in the sense that (1) the estimated coefficient on changes in the US dollar is the only one in the regression for changes in the renminbi that is consistently statistically significant and (2) the size of this coefficient is usually close to unity. In addition, when comparing the estimated coefficients on changes in the US dollar over time, there is no pronounced tendency for the size of that coefficient to decline during the post-currency reform period.

13. In the absence of monthly data on VAT rebates prior to 2007 it is difficult to estimate precisely the effect of cuts in VAT rebates in 2006 and 2007. For some years even the annual data can't easily be used to measure trends in the effective rate of rebate. For example, a substantial portion of the rebates paid by the Ministry of Finance in 2006 was for payments

motivation for these adjustments varied. For example, the 553 products for which export rebates were eliminated were all judged to be very energy intensive, so lower rebates, which presumably would reduce exports and thus production, would have positive effects on the environment, a growing priority for the Chinese government.

Second, from time to time the authorities introduced changes in the export processing regime that increased the costs of assembling exports from imported parts and components, thus reducing the competitiveness of these goods on international markets. In July 2007, for example, the authorities added 1,850 products to the “restricted list” for import processing.¹⁴

Despite the real trade-weighted appreciation of the renminbi, the reduction in VAT rebate rates for a large number of export products, and the restrictions imposed on the export processing regime, over the three years following the introduction of a more flexible exchange rate, China’s global current account surplus expanded substantially (figure 1.2). It stood at \$68.7 billion (3.6 percent of GDP) in 2004, but rose to \$160.8 billion in 2005 (7.2 percent of GDP), \$250 billion (9.4 percent of GDP) in 2006, and then \$372 billion (11.0 percent of GDP) in 2007 (National Bureau of Statistics of China 2007b, 95; State Administration of Foreign Exchange, Balance of Payments Analysis Small Group 2007, 8; 2008a, 9, 11).¹⁵ By 2006 China’s absolute current account surplus was, by a wide margin, the largest of any country in the world. A surplus relative to GDP of the magnitude recorded in 2007 is “unprecedented for a country of China’s size and stage of development” (McGregor 2007).

China’s current account surplus in 2008 was \$426 billion or 9.8 per-

in arrears from prior unspecified years. So comparing the average rebate rate in 2006 of 6.3 percent with the 2005 average of 6.5 percent would understate the decline. In 2007 rebates were 6 percent of the value of exports. The decline of only one-half of 1 percent over the two-year period suggests that rebate rate reductions on average raised the prices of Chinese exports only modestly. Keeping in mind that (unlike an appreciation of the currency) a downward adjustment of VAT rebate rates has no effect on the price of imports, the VAT adjustments in 2006 and 2007 would have an effect on China’s trade balance similar to a renminbi appreciation of only 0.25 percent.

14. This meant that firms importing parts and components to be assembled into exports could no longer import the items free of both import duties and VAT. Rather, firms had to deposit with the government an amount equal to half of the import duties and VAT, with these amounts to be refunded when the related final goods are exported. Some firms had to deposit amounts equal to the full amount of the import duties and VAT. The government estimated that the July 2007 expansion of the list would cost export processing firms RMB600 million, an amount equal to 2 percent of the value of the processed exports affected by the new restrictions (Shi Lu 2007).

15. Again, if one goes back to 2001, the expansion of China’s global current account surplus is much larger, as it was then only 1.3 percent of GDP. The 11.0 percent figure for 2007 is calculated based on the upward revision of China’s 2007 GDP, announced by the authorities on January 14, 2009. Prior to this revision the current account surplus in 2007 was 11.3 percent of GDP.

cent of the preliminary GDP figure announced by the authorities in January 2009 (State Administration of Foreign Exchange, Balance of Payments Analysis Small Group 2009, 10). The increase of about \$54 billion compared with 2007 was primarily due to the increase in the trade surplus.¹⁶ Surpluses in investment income and current transfers were up moderately and the deficit in services increased slightly.

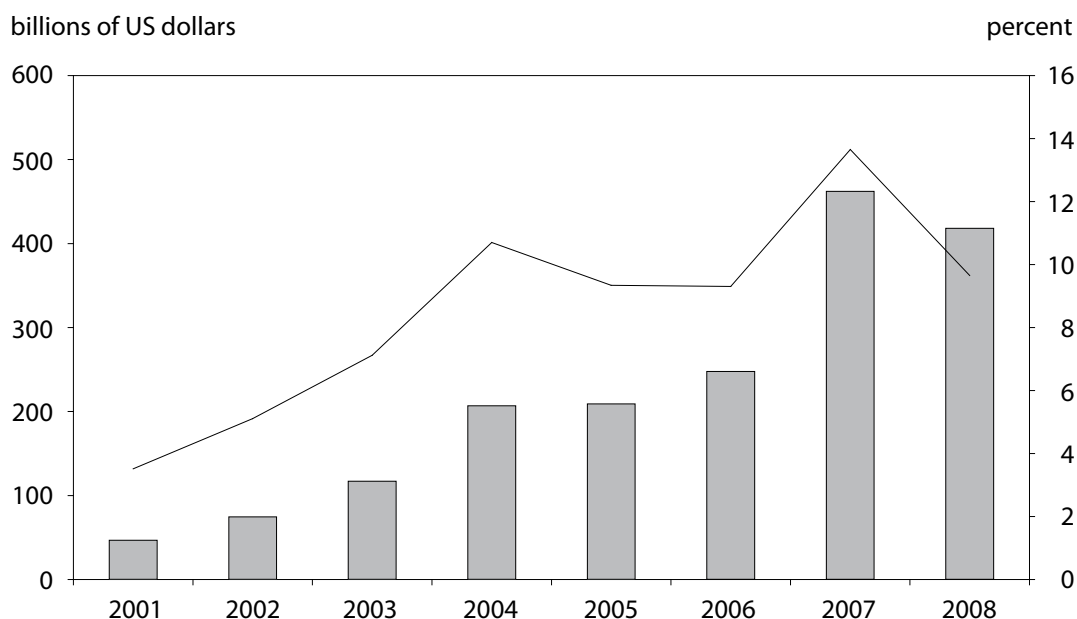
The buildup of official holdings of foreign exchange reserves also has accelerated in the first three years of the new foreign exchange regime.¹⁷ In the two 12-month periods through June 2005 and June 2006 reserves rose by \$240 billion and \$230 billion, respectively. Thus, despite the official statement in July 2005 that the value of the renminbi increasingly would be determined by supply and demand in the market, the pace of official intervention in the foreign exchange market in the first year of the new foreign exchange regime was little changed from the last year of the old regime. Moreover, subsequent government intervention in the market increased sharply. In the 12-month periods through June 2007 and June 2008, reserves rose by \$391 billion and \$476 billion, respectively, about 60 and 100 percent more, respectively, than in the previous two 12-month periods. Total reserves reached \$1,809 billion at the end of June 2008 and \$1,946 billion at the end of 2008 (People's Bank of China 2008, 2009).

Figure 1.3 shows the buildup of reserves on a calendar-year basis, starting in 2001. China's exchange market intervention as a share of GDP was modest in the early years of the decade but then expanded significantly, averaging almost 10 percent of GDP during 2004–06. Reserve buildup reached a peak of almost 14 percent of GDP in 2007 and then declined both

16. The goods surplus reported by the Ministry of Trade in 2008 was \$295 billion, an increase of 12.5 percent over 2007. When converted to a balance of payments basis, in which imports are measured on a free-on-board basis, the goods surplus was \$361 billion, up from \$315 billion in 2007.

17. Increases in reported official holdings of foreign exchange reserves are a downward-biased estimate of the magnitude of official intervention in the foreign exchange market because periodically portions of these funds have been transferred or redeployed to other uses. For example, through the end of 2006 the central government transferred \$66.4 billion in official foreign exchange reserves from the State Administration of Foreign Exchange (SAFE) to Central Huijin Investment Limited (commonly referred to as Central Huijin) (Kroeber 2007). Central Huijin used the funds to recapitalize four banks, three securities firms, and one insurance company. In 2007 the government created the China Investment Corporation (CIC) as a specialized investment vehicle. It received \$200 billion from China's foreign exchange reserves, about a third of which was used to acquire the assets of Central Huijin. SAFE also periodically has engaged in foreign exchange swap transactions with state-owned commercial banks, and these swaps have removed large amounts of foreign exchange from official reserves. Finally, since August 2007, when the central bank has raised the required reserve ratio, it has required China's largest banks to deposit their additional reserves with the central bank in foreign exchange. That means the foreign exchange is still on the central bank's balance sheet but is listed as a liability to banks rather than as official foreign exchange reserves.

Figure 1.3 Change in foreign exchange reserves, 2001–08



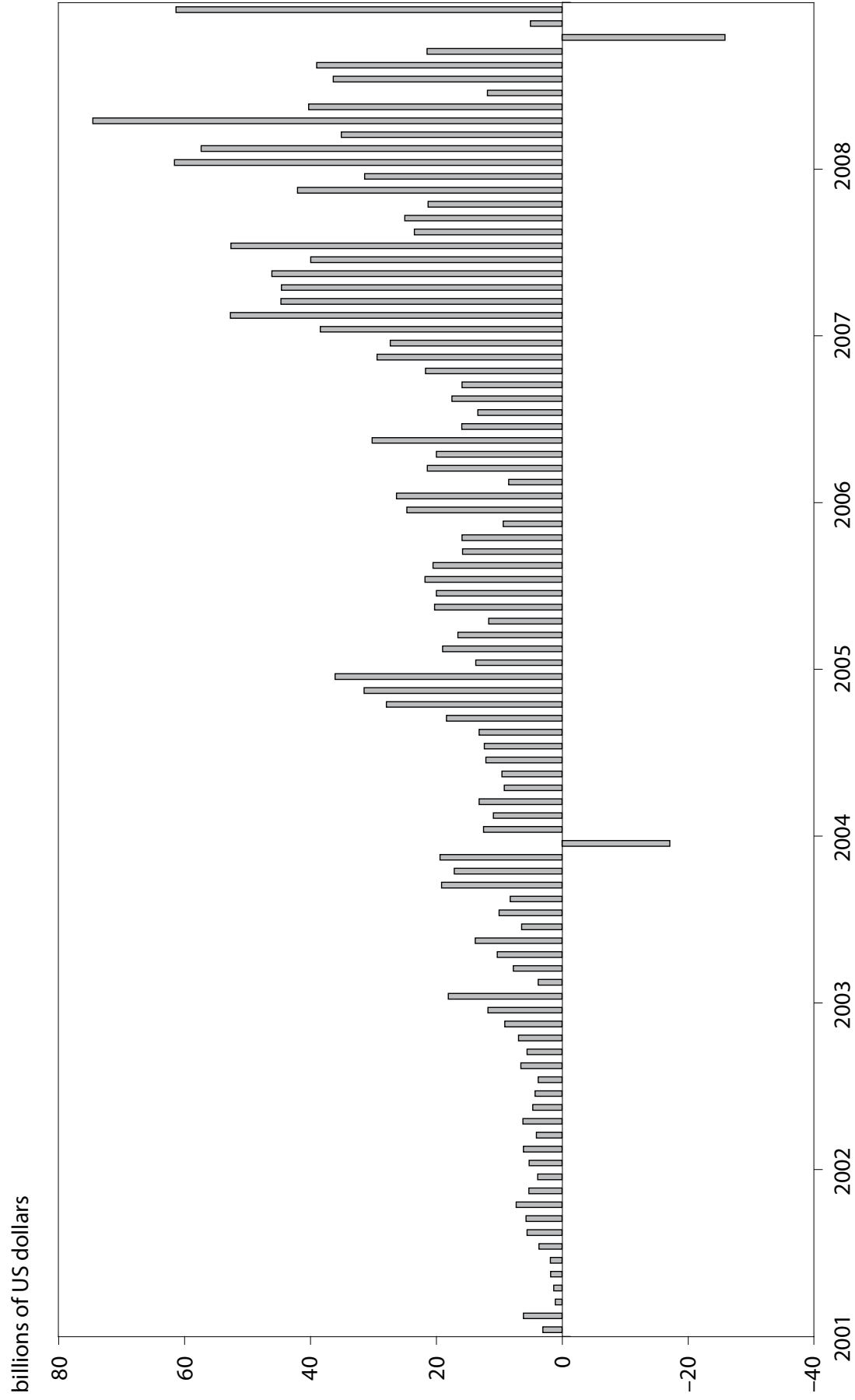
Note: The bars show additions to the foreign exchange reserves in billions of dollars (left axis) and the line tracks additions to reserves as percent of GDP (right axis).

Sources: State Administration of Foreign Exchange, www.safe.gov.cn; ISI Emerging Markets, CEIC Database.

absolutely and as a share of GDP in 2008. Figure 1.4 shows the monthly change in China's foreign exchange reserves from 2001 through 2008. Again, the strong upward trend in China's exchange market intervention is readily apparent, but so too is the fact that there is considerable month-to-month variation in this intervention activity. Also, it is worth noting that exchange market intervention fell off sharply in the final quarter of 2008; Stephen Green (2009) believes that this drop-off may be due to a combination of large short-term capital outflows, disruptions in trade financing, and possibly other transitory factors, suggesting that reserve buildup in 2009 might increase from the low levels observed in late 2008.

Some have claimed that the buildup of official holdings of foreign exchange reserves does not necessarily reflect an undervalued currency because it results primarily from capital account rather than current account transactions (Fang Xinghai 2005). This argument is not a persuasive explanation of the reserve buildup reflected in figure 1.3. It is true that the relative importance of the contributions of the current and capital accounts, respectively, to the reserve buildup has varied in recent years. In 2004, the capital account surplus was more than half again as large as the current account surplus and thus accounted for most of the reserve buildup. In 2005, however, the current account surplus was 2½

Figure 1.4 Monthly changes in foreign exchange reserves, 2001–08



Sources: State Administration of Foreign Exchange, www.safe.gov.cn; ISI Emerging Markets, CEIC Database.

times the capital account surplus (National Bureau of Statistics of China 2007b, 95), and by 2006 it was 25 times the capital account surplus and thus accounted for virtually the entire reserve buildup (State Administration of Foreign Exchange, Balance of Payments Analysis Small Group 2007).¹⁸ In 2007 the trend was reversed with the capital account surplus growing slightly to become the equivalent of a fifth of the current account surplus (State Administration of Foreign Exchange, Balance of Payments Analysis Small Group 2008a, 9). Thus the vast buildup of China's foreign exchange reserves since 2004 is explained overwhelmingly by current account rather than capital account surpluses.

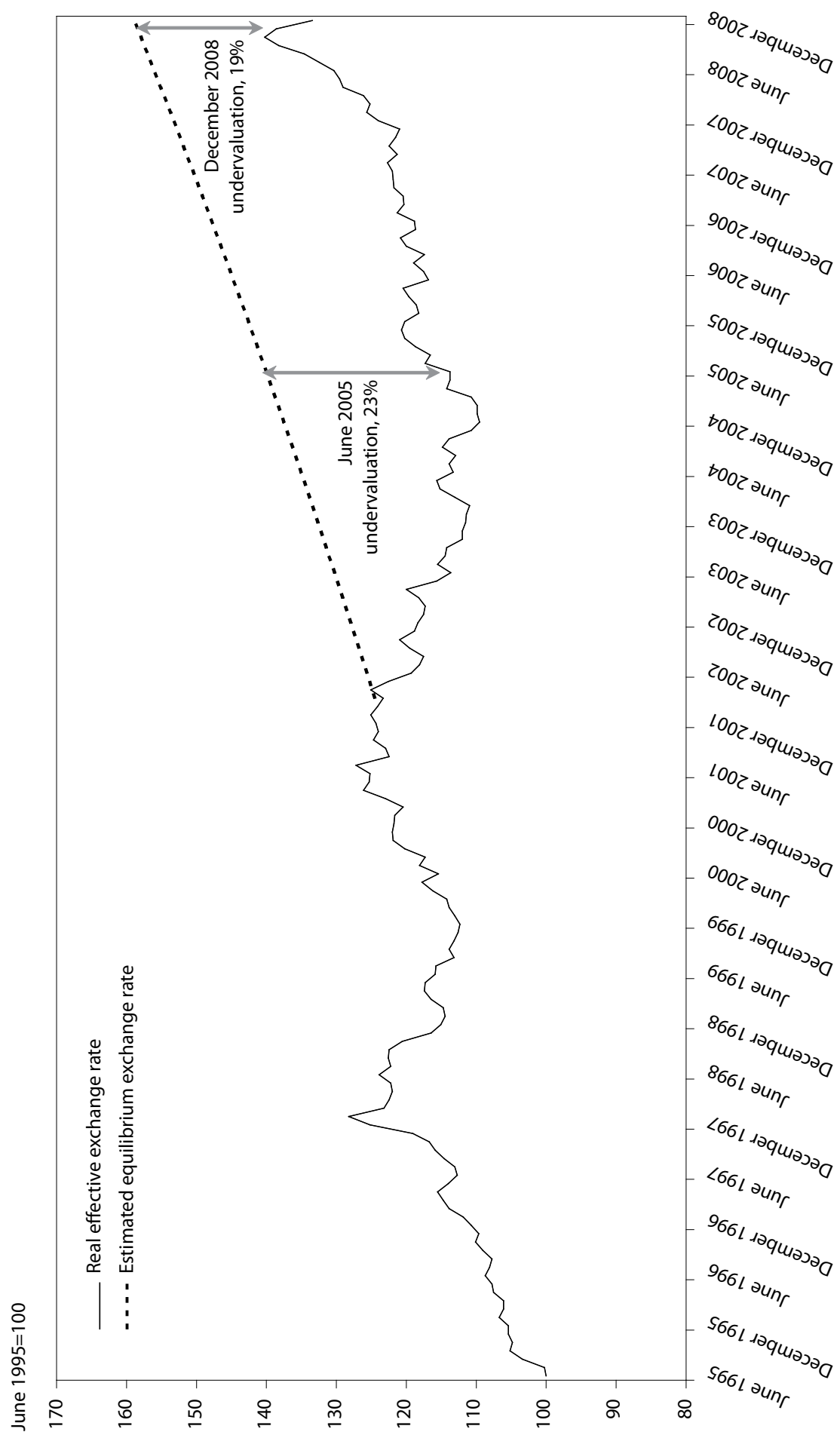
To sum up, China's management of its foreign exchange regime in the 1980s and 1990s is one of the least heralded economic successes of the reform period. The old regime, with its highly overvalued exchange rate and rigid exchange controls, was part and parcel of the economic planning system initially adopted in the 1950s. The handful of state trading companies, with their separate monopolies on imports and exports of well-defined commodity categories, could use their profits on the sale of imports to subsidize their losses on export transactions. But this cumbersome system was entirely unsuited to the more decentralized trading system the authorities began to introduce as early as 1979. Through a series of gradual steps between 1980 and 1995 the authorities devalued the currency by about 70 percent in real effective terms (Lardy 2002, 49) and by the mid-1990s had eliminated almost all exchange controls on trade transactions for domestic firms. These and other developments strongly suggest that by the mid-1990s the official exchange rate reached what could be regarded as an equilibrium level. This appears to have been confirmed in late 1998 when the authorities eliminated all remaining controls on foreign exchange for current account transactions of foreign-invested enterprises and came fully into compliance with the IMF Article VIII requirement on current account convertibility.

Perhaps through serendipity the fixed exchange rate regime that China adopted in the mid-1990s worked reasonably well for a number of years. Given the combination of the rigid peg of the renminbi to the US dollar and dollar appreciation, the renminbi on a real effective basis appreciated gradually from 1994 through much of 2001, apparently just offsetting differential productivity growth in the export sector. As a result China's average current account surplus was quite moderate.

But when the US dollar began to depreciate after February 2002, a nominal fixed exchange rate vis-à-vis the dollar took China on a very different path. As shown in figure 1.5, throughout 2002–04 China's currency depreciated on a real trade-weighted basis. Figure 1.5 also shows a simple extrapolation, through 2008, of the pace of real effective appreciation from

18. The capital account surplus was \$10 billion and errors and omissions reflected an unrecorded outflow of \$13 billion.

Figure 1.5 Undervaluation of the renminbi, 1995–2008



Source: JPMorgan, Real Broad Effective Exchange Rate Indices.

the mid-1990s through 2001. On the assumption that productivity growth in China's export sector from 2002 through 2008 was little changed from the pace from the mid-1990s through 2001, this is an approximation of the real equilibrium exchange rate.¹⁹ The gap between the two lines in the figure is an estimate of the undervaluation of the currency, which made Chinese goods ever more competitive in international markets.²⁰

In short, after 2001 China's currency became increasingly undervalued and thus its trade and current account surpluses began to soar. Although the authorities abandoned their "automatic pilot" approach to exchange rate policy in July 2005, figure 1.5 suggests that the pace of exchange rate adjustment initially was far too cautious. The estimated degree of undervaluation in mid-July 2005 was 23 percent. The initial appreciation of 2.1 percent and subsequent appreciation through the end of 2005 reduced the degree of undervaluation slightly, but the pace of real appreciation slowed dramatically in 2006 and 2007, widening the degree of undervaluation to 26 percent by November 2007. Thus China's trade and current account surpluses continued to expand and foreign exchange reserves skyrocketed to levels unprecedented for any country. These developments posed a series of policy challenges that are the subject of the next chapter.

19. Note that the estimate of the real equilibrium exchange rate reflected in figure 1.5 is not the rate that would be expected to lead to a zero current account position but rather the rate that would lead to the average current account position in the base period 1995–2001, which was a surplus of 1.9 percent of GDP.

20. Drawing on the pioneering work of Balassa (1964) and Samuelson (1964), Mussa (2008) concluded that the long-term equilibrium path for China's real exchange rate has a moderate upward tilt of about 2 percent per year. Like the results portrayed in figure 1.5, this exercise yields the conclusion that the renminbi became increasingly undervalued after 2001. In chapter 2 we present other estimates of the equilibrium exchange rate for the renminbi based on the proposition that the equilibrium rate would provide "balance" in the country's balance of payments, and especially in the current account.

Challenges Facing the Chinese Authorities under the Existing Currency Regime

An equilibrium exchange rate for the renminbi can be measured in a number of ways. It could be the exchange rate that produces a “balance” in China’s global current account position (i.e., in the sum of trade transactions, investment income, and transfers). It could be the exchange rate that produces a “balance” in its basic balance of payments (i.e., the sum of the current account and long-term capital flows). Or it could be the exchange rate that results in a balance in China’s overall balance of payments position (i.e., the sum of the current and capital accounts).

By any of these three metrics the renminbi is significantly undervalued and probably by an increasing margin at least through the end of 2007. As we noted in the introduction, an increasingly undervalued exchange rate, a rapidly expanding current account surplus, and the concomitant accelerating buildup of foreign exchange reserves pose several economic challenges for the Chinese authorities. In this chapter, we discuss those challenges for the independence of monetary policy, the rebalancing of the sources of economic growth, the continuing efforts to reform China’s banking system, and China’s external adjustment and its contribution to correcting global payments imbalances.

Independence of Monetary Policy

A fixed exchange rate regime typically imposes a substantial constraint on a country’s monetary policy for the simple reason that if domestic interest rates diverge too much from foreign rates, the country could be subject to destabilizing capital flows. This is particularly likely for small countries that are price takers in international goods and capital markets. Capital

controls, in theory, could prevent large inflows (outflows) when domestic interest rates are higher (lower) than foreign rates, but in practice it is difficult to maintain effective controls over time, particularly in an economy that is very open to trade.

Even when controls are effective in limiting capital inflows or outflows, a country with an undervalued exchange rate and thus a large current account surplus will face the challenge of sterilizing the incipient increase in the domestic money supply that results from the large-scale purchase of foreign exchange (i.e., the sale of domestic currency). Otherwise, the growth of liquidity in the banking and financial system leads eventually to inflation and an appreciation of the real exchange rate. Even when sterilization is used successfully to control the growth of domestic liquidity, the authorities need to sell greater quantities of sterilization bonds (reflecting the increasingly undervalued nature of the currency). This, in turn, eventually causes an increase in the interest rate the central bank must pay on these bonds. Eventually, that interest could exceed the earnings from the bank's holdings of interest-bearing foreign currency-denominated financial assets, imposing a substantial financial constraint on sterilization operations.

Views on the extent to which China's exercise of monetary policy is handicapped by its undervalued exchange rate vary widely. One school of thought is that China differs substantially from the small open economy model in which a fixed exchange rate means that a country's monetary policy is determined abroad. According to Jonathan Anderson (2004), "China can run an independent monetary policy under any renminbi regime." He believes China's capital controls are relatively effective and that sterilization, implemented mainly via the sale of central bank bills and increases in the required reserve ratio for banks, has been successful and can be maintained indefinitely. Thus, increases in China's international reserves—whether generated by a growing current account surplus, by the capital account (motivated variously in different periods by the expectation of currency appreciation, rising Shanghai property prices, or a booming domestic stock market), or by errors and omissions in the balance of payments—"have had virtually no impact on domestic liquidity conditions" (Anderson 2006a, 19).

Stephen Green of Standard Chartered Bank holds a similar view. He has carefully tracked the sterilization operations of the People's Bank of China and has shown that even in the first half of 2007, when inward capital flows through various channels increased dramatically, the central bank had little difficulty retaining control of the growth of the domestic money supply (Green 2007a, 2007b).

The alternative school of thought is that China's (quasi) fixed exchange rate already has diminished the effectiveness of monetary policy and that this erosion is likely to continue. Thus, increased currency flexibility is needed to reduce the risks of macroeconomic instability, whether

of domestic or external origin (Goldstein and Lardy 2006b; Lardy 2006; Prasad, Rumbaugh, and Wang 2005; Prasad 2008; Yu Yongding 2007b). There are several strands to this argument.

First, central bank control of the growth of monetary aggregates in some periods has depended on the imposition of quotas on the amount of loans banks could make and on various types of “window guidance” on bank lending, rather than on the use of interest rates. These much blunter instruments, rather than market signals, may lead to a much less efficient allocation of credit (Goldstein and Lardy 2004, 7–8; Goodfriend and Prasad 2006, 24). Moreover, this alternative school of thought believes that the resultant policy mix left China with an interest rate structure that was far from optimum. On the lending side, real interest rates were unusually low for a rapidly growing economy. For example, in late December 2007 the central bank adjusted upward the one-year benchmark bank lending rate to 7.47 percent. But inflation, as measured by the corporate goods price index, averaged 9.3 percent in the first quarter of 2008, making the real lending rate –1.8 percent in an economy expanding at more than 10 percent in real terms.¹ A low or, as in early 2008, a significantly negative real lending rate contributed to an underlying excess demand for credit. As a result, in 2008 the authorities were forced to resort to credit quotas to control the growth of lending from the banking system.

From the point of view of savers, deposit rates were also quite low. In 2008 the central bank fixed the ceiling that banks could pay on demand deposits at only 0.72 percent and on one-year deposits at 3.33 percent.² But headline consumer price index (CPI) inflation of 7.9 percent in the first half of the year and a 5 percent tax on interest income (reduced from the previous 20 percent rate in late July 2007) meant that the real, after-tax return on demand deposits was –7.22 percent and on one-year deposits –4.74 percent. Low or negative real returns on bank savings may have been a major factor contributing to the boom in the residential property market, as a growing share of housing was sold to “investors” rather than owner-occupiers. The authorities responded in September 2007 by doubling to 40 percent the required downpayment for an individual taking out a mortgage for the purchase of a second or third property.³

The more than fivefold increase in equity prices on the Shanghai stock exchange between July 2005 and October 2007 also may have been fueled

1. The corporate goods price index is a more relevant indicator of inflation for firms than the CPI, in which food has a weight of about one-third.

2. On October 8, 2008, the central bank announced adjustments that reduced the rate on one-year deposits to 3.15 percent, effective October 15.

3. The downpayment requirement was raised to 30 percent for all mortgages financing properties exceeding 90 square meters but remained at 20 percent for owner-occupied properties under 90 square meters (People’s Bank of China and China Banking Regulatory Commission 2007).

in part by negative returns on demand deposits. Before the inevitable equity market correction began after mid-October, companies listed domestically were trading at a relatively lofty 38 times estimated 2007 earnings. Even more problematic, half of the earnings growth of companies in the first six months of 2007 reportedly came not from company core operations but from profits from stock trading (Anderlini 2007).

In short, while the level of real interest rates in China can move significantly with large changes in the inflation rate and, albeit less so, with occasional changes in administered nominal interest rates (as, for example, in the second half of 2008), China is still a prototypical example of the general pattern that low exchange rates require low interest rates (Eichengreen 2004b). As in other countries maintaining an undervalued exchange rate, the Chinese authorities frequently have been slow to raise the general level of interest rates for fear of attracting higher levels of capital inflows that could prove more challenging to sterilize. But one consequence is periodic real estate and stock market booms that heighten financial risk.

A second strand to the argument that increased exchange rate flexibility would enhance the effectiveness of monetary policy concerns the hidden costs and risks in the central bank's successful sterilization of the increase in the domestic money supply associated with the buildup of foreign exchange reserves. These include the risk of a capital loss on dollar assets in the event of eventual appreciation of the renminbi (Goldstein and Lardy 2006b; Dunaway 2009, 11).

Equally important, the sustained large-scale sale of low-yielding central bank bills and the repeated increases in required reserves both hinder the transition of China's banks to operation on a fully commercial basis (Yu Yongding 2007a, 18). In 2003, the central bank, having sold all of its holdings of treasury bonds, began to issue bills to sterilize increases in the domestic money supply associated with its foreign exchange operations. By the end of June 2008, total outstanding central bank bills held by banks reached RMB4.24 trillion (People's Bank of China, Monetary Policy Analysis Small Group 2008, 11). From mid-2003 through June 2008, the central bank also raised the required reserve ratio for banks by 50 or 100 basis points on 21 occasions, increasing the ratio from 6 percent of deposits to 17.5 percent. This increase compelled banks to deposit with the central bank RMB5.2 trillion more than if the required reserve ratio had remained at 6 percent.⁴

These changes imposed a substantial tax on banks. The average yield on central bank bills at end-March 2008 was only about 4 percent and the central bank pays only 1.89 percent on required reserves, a rate that

4. The increase in required reserves over this period was 11.5 percentage points. Total renminbi deposits at the end of June 2008 were RMB44.02 trillion (People's Bank of China 2008).

has remained unchanged since it was fixed in February 2002. From the perspective of the banks, the alternative use of these funds would be to finance additional loans. Because the benchmark interest rate on a one-year loan, the most common term, at mid-2008 was 7.47 percent and the actual average interest rate on a one-year loan was 8.47 percent, the RMB9 trillion increase in bank holdings of these low-yielding central bank bills and required reserves represented a huge implicit tax on Chinese banks, well in excess of RMB400 billion in 2008.⁵ Indeed, the estimated implicit tax on the banking system that stems from the massive sterilization campaign required to tightly control and limit the pace of appreciation of the renminbi approached the after-tax profits of the entire Chinese banking system in 2007.⁶

However, offsetting this large implicit tax is the banks' access to cheap deposits. As noted above, the central bank prohibits banks from competing for deposits by maintaining ceilings on the rates that banks may pay on deposits of various maturities.⁷ These nominal interest rates are generally low and, in periods of inflation, are adjusted upward by less than the increase in the price level. Thus, in effect, in periods of inflation households are particularly heavily taxed (we discuss this in some detail in the next section). The key point is that between 2002, when the CPI fell by 0.8 percent, and the first half of 2008, when it rose by 7.9 percent, the implicit tax imposed on households by the decline in the real interest rate on their bank savings deposits was RMB690 billion.⁸

Last but not least, it is one thing to argue that sterilization operations can be continued indefinitely because the interest rate on China's reserve assets exceeds that on its sterilization bills. It is another thing entirely to argue that sterilization can be continued indefinitely while simultaneously reducing China's large external surplus. Large-scale sterilization blocks the monetary, interest rate, and relative-price mechanisms that would otherwise operate (via their effects on the savings-investment balance and on

5. Abstracting from the issue of risk and assuming holdings of these two categories of assets by the banks at mid-year 2008 is equal to the average holding of these assets during the year, the implicit tax on the banking sector can be estimated as RMB4 trillion times 3.47 percent (the difference between the 7.47 percent benchmark lending rate and the 4 percent interest banks receive on central bank bills) plus RMB5 trillion times 5.58 percent (the benchmark lending rate minus the 1.89 percent interest banks receive on required reserves), or RMB418 billion.

6. The after-tax profits of the entire Chinese banking system in 2007 were RMB446.7 billion (China Banking Regulatory Commission 2008, 31).

7. Banks may offer demand as well as term deposits of three months, six months, one year, two years, three years, and five years. The central bank sets a separate ceiling rate that banks may pay on demand deposits and for each maturity of term deposits.

8. This tax fell by the second half of the year because CPI inflation fell by more than the reduction in the interest rate paid on demand deposits. The tax, however, remained significant since for the year as a whole CPI inflation was 5.9 percent and in November 2008 the rate paid on demand deposits was cut to 0.36 percent.

net capital flows) to reduce China's external imbalance. Michael Mussa (2008), for example, argues that when large-scale sterilization produces a negative growth rate in the net domestic assets of the People's Bank of China while the demand for base money is growing briskly, that demand will be satisfied solely through an increase in the net foreign assets of the central bank—and this is of course equivalent to an increase in international reserves.⁹ In short, China can either continue its large-scale intervention and sterilization operations or significantly reduce its large external surplus. It cannot do both.

There is no definitive method to measure which of the two views on the independence of monetary policy is correct. It appears to be a matter of judgment. Supporters of the status quo point to studies showing that capital controls provide some degree of independence to China's monetary authority (Ma and McCauley 2007). And they are not persuaded that the resulting interest rate structure leads to excess investment. Despite China's uniquely high rate of capital formation in recent years, some studies show no evidence of a decline in the rate of return to capital (Bai, Hsieh, and Qian 2006). Some go even further, arguing that financial repression is positive since it allows the low-cost bank financing of infrastructure and other strategic public investments that underpin China's economic expansion (Keidel 2007).

In contrast, those who believe China should allow greater exchange rate flexibility acknowledge that sterilization so far has limited the usual inflation and credit growth consequences of large and rapid reserve accumulation but emphasize the negative aspects of the resulting financial repression. Low interest rates associated with financial repression contribute to growing risks in property and stock markets and subsidize capital-intensive industries with adverse effects on the environment and the pace of job creation. They also note that although the rate of return on capital through the middle of the decade may have been high, this does not necessarily refute the charge that the rate of investment in China has been excessive. The years 2002–07 were an extraordinary boom era, the only five-year period in the reform era in which China's growth was continuously 10 percent or more and higher in each successive year; but the appropriate measure of the return on capital is not limited to periods of high and accelerating growth, when profits are invariably high, but over an entire business cycle, including both up and down years. Finally, as we discuss below, an insufficiently flexible exchange rate and the resulting financial repression make it more difficult for China to transition to more balanced and sustainable growth.

9. For further elaboration of "monetary approach" to the recent evolution of China's balance of payments, see the discussion later in this section on alternative explanations for the post-2003 surge in China's net exports.

Rebalancing Economic Growth

Since late 2008, China's top political leadership has embraced the goal of rebalancing the sources of domestic economic growth. They envision transitioning to a growth path that relies more on expanding domestic consumption and less on burgeoning investment and a growing trade surplus (Lardy 2006). Expanding personal consumption is consistent with President Hu Jintao's emphasis on creating a "harmonious society" and a "new socialist countryside" as well as on reducing the pace of growth of energy consumption (associated strongly with investment spending), thus curtailing emissions of greenhouse gases and sulfur dioxide.

Successful rebalancing of the sources of economic growth, away from investment and exports and toward consumption, would also be reflected in changes in the structure of output. Since investment goods, such as machinery and equipment, are produced in the industrial sector, a smaller role for investment in generating economic growth would imply that the share of GDP originating in the manufacturing sector would decrease. Similarly, since almost all of China's exports are manufactured goods, less reliance on the expansion of net exports would also imply that over time the share of GDP originating in the manufacturing sector would decrease.¹⁰ And since services account for about a third of personal consumption outlays, an increasing role for consumption in generating economic growth would suggest that the share of GDP originating in the services sector would increase over time as compared with an investment- and export-driven growth path.¹¹

China could use numerous policy instruments to promote domestic consumption demand as a source of economic growth. We focus on four domains: fiscal, financial, exchange rate, and price policy.

Fiscal policy options include cutting personal taxes, increasing government consumption expenditures (i.e., outlays for health, education, welfare, and pensions), and introducing a dividend tax on state-owned companies. Cutting personal taxes would raise household disposable income and thus, for any given household saving rate, increase consumption expenditures as well. Increasing government consumption expenditures would both raise consumption demand directly and, by reducing household precautionary demand for savings, lead indirectly to greater private consumption expenditure. A dividend tax would reduce corporate saving and investment, thus reducing the national rate of investment, and would provide additional budgetary revenues to increase government outlays on social programs.

10. In 2007 95 percent of China's exports were manufactured goods (National Bureau of Statistics of China 2008a, 164).

11. The estimate of the services share of household consumption expenditures is based on urban and rural household surveys conducted annually by the National Bureau of Statistics of China.

Financial reform would reduce financial repression in China by paying higher real deposit rates to savers, thus increasing household income and consumption as a share of GDP. Throughout the reform period the authorities have controlled interest rates in a manner that has led to a relatively low average real rate of return on household bank savings (Lardy 1998, 10). In effect depositors have been taxed so that borrowers, traditionally mostly state-owned firms, would have access to cheap credit. And the authorities have adjusted interest rates on bank deposits relatively slowly so that when consumer price inflation picks up the real rate of return (the nominal interest rate minus inflation) on savings falls.¹² The result is that household interest earnings are far less than they would be in a more liberalized financial environment where market forces play a greater role in determining interest rates. Since interest income is an important source of household income in China, financial repression means that the growth of household income has been less than that of a more liberalized financial environment.

Appreciation of the renminbi could contribute to China's desired transition to a more consumption-driven growth path in two ways. First, currency appreciation would reduce the growth of exports and increase the growth of imports, reducing China's external surplus.¹³ Second, as already discussed, a more flexible exchange rate policy in the short run would allow the central bank greater flexibility in setting domestic interest rates and would also pave the way for the introduction of more market-determined interest rates. These developments could lead to lending rates that are higher in real terms than in recent years, reduce China's extraordinarily high rate of investment, and thus contribute to the leadership goal of reducing China's dependence on investment as a source of economic growth. Greater interest rate flexibility would also allow the central bank to mitigate macroeconomic cycles by raising lending rates to moderate investment booms, thus reducing the cyclicalities of economic growth.

Price reform offers a fourth policy arena for rebalancing economic growth. Land, energy, water, and utilities are not priced in accordance with relative scarcities and the environment (He and Kuijs 2007). These inputs are more important for manufacturing than for services so more appropriate pricing, as well as enforcement of environmental standards, would reduce investment in manufacturing, particularly the most energy-intensive industries, and increase investment in services. Appropriate pricing at a minimum means full cost recovery; more ambitiously it would mean marginal opportunity cost pricing—including the cost of environmental

12. Exceptions to this pattern occurred in the late 1980s and again from mid-1993 through mid-1996 when the authorities indexed the interest rates for some types of savings deposits to the rate of inflation. See Lardy (1998, 106–15) for details.

13. See the discussion later in this chapter on the effectiveness of renminbi appreciation.

damage in both production and consumption as well as the opportunity cost of resource depletion (World Bank 2007b).

Chinese Policies for Promoting Consumption: The Record to Date

In the fiscal arena, the government has adopted a number of tax and expenditure policies to promote consumption. The authorities reduced the agricultural tax significantly in both 2004 and 2005 and eliminated it entirely by 2007.¹⁴ The monthly income level exempt from the personal income tax on wages was doubled from RMB800 to RMB1,600 in 2006 and then raised again to RMB2,000 in 2008. The authorities cut the tax on interest income households earn on savings deposits by three-quarters, from 20 to 5 percent, in August 2007 and then abolished it entirely in October 2008. These cuts together raised household disposable income by about 1 percent of GDP per year above the level it would otherwise have attained, contributing modestly to higher levels of household consumption than would otherwise have been achieved (Bergsten et al. 2008, 121).

The government also began to collect dividends from some state-owned companies in 2007, but the number of firms required to pay was so small and the rates so modest that the dividends scheduled for collection were only RMB17 billion, a trivial 0.07 percent of GDP. Moreover, the introduction of the dividend tax coincided with a reduction in the general corporate income tax rate. Domestic firms had long complained that they faced a tax burden of 33 percent while foreign firms and joint ventures enjoyed a preferential rate of only 15 percent. After years of debate the government decided to unify the rate paid by both types of firms at 25 percent. This reform reduced the corporate taxes paid by domestic firms in 2007 by RMB134 billion, an amount almost eight times the dividend tax imposed on some state-owned firms. The net result is that retained earnings of the corporate sector continued to expand in 2007. Thus the cumulative effect of tax reform in 2007 was to increase corporate retained earnings and thus corporate savings and investment, the opposite of what is needed to rebalance China's sources of economic growth. Unfortunately, this situation changed little in 2008 when the dividend tax was slated to rise to about RMB30 billion, a trivial 0.1 percent of GDP (Wang Ting 2008).

On the other hand, the increase in government expenditures on social programs has been far more robust (table 2.1). Combined fiscal outlays

14. The revenue category "agricultural and related taxes" includes six specific taxes: agricultural tax, livestock tax, farmland occupancy tax, tax on special agricultural products, deed tax, and tobacco leaf tax. The reforms of 2004–06 eliminated the agricultural tax, the livestock tax, and the tax on special agricultural products, but the government continues to collect the other three taxes.

Table 2.1 Government social expenditures, 2002-08 (billions of renminbi)

Year	Education	Health	Social security and employment	Total
2002	300.6	66.3	268.9	635.8
2003	335.2	83.1	271.2	689.5
2004	385.4	93.6	318.6	797.6
2005	452.8	113.3	378.7	944.7
2006	546.4	142.1	439.4	1,128.0
2007	712.2	199.0	544.7	1,455.9
2008	893.8	272.2	677.0	1,843.0

Sources: Xinhua News Agency (2008); National Bureau of Statistics of China (2008b, 264); Ministry of Finance (2009).

in 2008 on education, health, and social security and employment were RMB1,843 billion, well over twice the level of 2004. The growth of social expenditures increased sharply in 2007 and 2008. Thus two-thirds of the increase in these outlays between 2004 and 2008 came in 2007–08. That suggests that, after a somewhat slow start in 2005 and 2006, the government is now rapidly rebuilding the social safety net, which had frayed dramatically in the 1990s as the government drastically restructured state-owned firms and many workers lost access to company-provided social services.

In rural areas the most impressive gain has been the expansion of a new rural cooperative medical system, first introduced in some localities on a trial basis in 2003. This voluntary health insurance program, financed by contributions from individuals, local governments, and the central government, provides partial reimbursement of health care costs (about 30 percent for inpatient care) (World Bank 2008, 89). Central government outlays on this program rose to RMB11.4 billion by 2007, a twenty-fold increase compared with 2005, raising the number of rural residents covered by the program to 730 million by 2007, quadruple the number covered in 2005. By 2007 the program was available in 86 percent of China's county-level administrative units, a sevenfold increase compared with 2004 (Bergsten et al. 2008, 122). In addition to this initiative to improve rural health conditions, the government in 2006 and 2007 eliminated tuition and miscellaneous school fees for 150 million rural primary school students.

In urban areas the number of workers covered by basic retirement, health, unemployment, workers compensation, and maternity insurance in 2008 expanded by 35, 122, 17, 101, and 109 percent, respectively, compared with 2004 (National Bureau of Statistics of China 2008b, 896; 2009). These impressive increases resulted in a substantial rise in the share of urban

workers covered by these programs—for example, the share covered by the basic health program doubled from about a third to two-thirds.

The government unveiled a further commitment to provide health care in early 2009 (Chinese Communist Party Central Committee and State Council 2009, State Council 2009). This initiative, which will cost RMB850 billion over three years (2009–11), is designed to provide health insurance to an additional 400 million Chinese, bringing coverage to 90 percent of the population by 2011. Funding will also be provided to build 34,000 health clinics in towns and townships and 2,000 new hospitals in county-level administrative units. Per capita government contributions to the rural cooperative medical insurance scheme are to rise to RMB120 by 2010 compared with RMB80 in 2008 and RMB40 in 2007. Thus presumably the share of total costs of inpatient treatment that will be reimbursed will rise. The net result of this initiative is that the government will directly pay for half or more of all health outlays, up substantially from only 16 percent in 2001.

In addition to accelerating the rebuilding of the social safety net, the government is rapidly increasing transfer payments in both pensions and programs to support low-income households. For example, the State Council in August 2007 approved a three-year program to substantially increase old age pensions to those workers retired from enterprises; monthly pension payments, which averaged RMB963 in 2007, were raised to RMB1,063 beginning in January 2008 and to RMB1,173 in January 2009.¹⁵ The cumulative increase of 22 percent was twice that of consumer prices in 2007–08.

Another example of growing transfer payments is the government's minimum living standard guarantee program, which began in urban areas in the mid-1990s with the provision of a guaranteed minimum income to fewer than a million people. By the early 2000s the program had expanded to cover more than 20 million urban residents, and then it further expanded in two dimensions. First, the average monthly subsidy to eligible urban residents increased dramatically, from about RMB50 in 2002 to RMB140 by 2008. Second, the program was extended to rural areas and grew rapidly to cover more than 40 million individuals by 2008. As a result annual expenditures on this program in urban and rural areas rose to RMB60 billion in 2008, a vast increase compared with only RMB3.45 billion in 2000 (Ministry of Civil Affairs 2008, 8–10; 2009, 3).

The record is less encouraging in the financial arena. The government has discussed but not yet adopted financial and banking reforms to support the transition to consumption-led growth. From the perspective of households the financial system in recent years has become more—not less—repressive, a development that is evident in the decline in the real rate of interest that banks pay households on their savings deposits. We

15. "This Year Basic Old Age Pension Payments Are Planned to Rise by RMB110," <http://finance.sina.com.cn> (accessed on November 18, 2008).

measure the decline from 2002 for two reasons. First, the central bank set the rate that banks can pay on demand deposits in February 2002 and left it in place until November 2008. Second, the real rate of interest on bank savings deposits in 2002 was positive when measured in real terms; for example, the demand deposit rate was 0.72 percent while the consumer price index declined 0.8 percent in 2002, making the real rate of interest on demand deposits 1.52 percent.

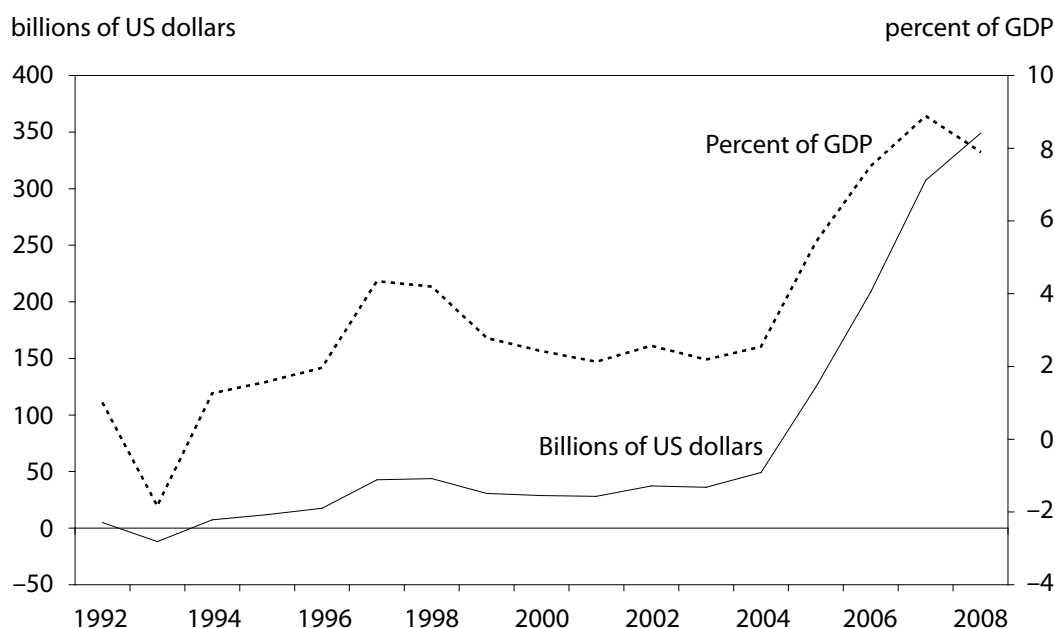
However, consumer price inflation rose after 2002 and nominal interest rates either were adjusted upward by only small amounts or, in the case of demand deposits, remained unchanged. In the first half of 2008 consumer price inflation was 7.9 percent, meaning that the real rate of return on demand deposits had fallen to -7.18 percent, a decline of 8.7 percentage points. The central bank did increase the nominal interest rate that banks could pay on term deposits of various maturities; for example, the rate on one-year deposits by mid-2008 was 4.14 percent, but in real terms that was -3.76 percent, a decline of 6.54 percentage points compared with the real return on one-year deposits in 2002.

An aggregate measure of financial repression faced by households in an environment where deposit rates rose much less than inflation is the calculation of how much more households would have earned on their savings if the real rates in the first half of 2008 had been the same as in 2002. Household savings in the first half of 2008 averaged RMB18,680 billion, almost two-fifths in demand deposits and the balance in term deposits of various maturities ranging from 3 months to 5 years.¹⁶ If these deposits had earned the same real rates as in 2002, total household income in the first half of 2008 would have been RMB690 billion greater than it actually was, an amount equal to 5.3 percent of China's GDP in the first half of the year. That means growing financial repression significantly retarded the growth of household income and thus reduced the contribution of household consumption to economic growth.

A third policy instrument to promote rebalancing is appreciation of the exchange rate of the currency. As noted in chapter 1, the Chinese authorities allowed the renminbi to appreciate 21 percent vis-à-vis the dollar between July 2005 and the end of 2008 (the currency appreciated only slightly less on a real, trade-weighted basis). However, after the 2005 change in currency policy, China's current account surplus continued to expand rapidly, more than doubling in absolute terms between 2005 and 2007 and then expanding more slowly (by 15 percent) in 2008. The more moderate expansion in 2008 appears to be as much due to the slowdown in growth in China's major export markets as to the appreciation of the renminbi. In short, compared with mid-2005 when the new currency policy was adopted, China's goods became significantly more competitive in global markets

16. This is the average of the end-December 2007 amount of RMB17,575 billion and end-June 2008 amount of RMB19,781 billion.

Figure 2.1 Net exports of goods and services, 1992–2008



Sources: National Bureau of Statistics of China (2008b); ISI Emerging Markets, CEIC Database; People's Bank of China, Monetary Policy Analysis Small Group (2009a).

and its currency became more undervalued through 2007. As suggested by figure 1.5, the degree of undervaluation probably lessened in 2008 as the currency appreciated more rapidly on a trade-weighted basis, but it is difficult at this point to disentangle the factors that contributed to the slowing of the current account surplus growth in 2008.

Given China's large and growing current account surplus (detailed in chapter 1), it is hardly surprising that through 2007 the country became increasingly dependent on the expansion of net exports of goods and services to sustain high growth.¹⁷ Net exports jumped from \$50 billion (2.5 percent of GDP) in 2004 to \$125 billion (5.4 percent of GDP) in 2005, \$210 billion (7.5 percent of GDP) in 2006, and \$305 billion (8.9 percent of GDP) in 2007 (figure 2.1). As a consequence, the contribution of net exports to economic growth increased dramatically, from an average of only 5 percent (0.35 percentage points of GDP growth) in 2001–04 to more than 20 percent (2.4 percentage points of GDP growth) in 2005–07 (National Bureau of Statistics of China 2008a, 36).

17. In recent years net exports of goods and services have accounted for the vast majority of China's net current account position while net foreign income and profit and net current transfers have been much smaller components. In 2007, for example, the shares of these three components in the net current account were 83, 7, and 10 percent, respectively (State Administration of Foreign Exchange, Balance of Payments Analysis Small Group 2008a, 9).

In 2008 net exports of goods and services expanded much more slowly to reach \$349 billion (8 percent of GDP) (State Administration of Foreign Exchange, Balance of Payments Analysis Small Group 2009, 10), and the contribution of expanding net exports to economic growth shrank to only 9.1 percent (0.8 percentage points of GDP growth). By the first quarter of 2009 net exports reduced China's growth by 0.2 percentage points.¹⁸

The fourth major policy arena for the government to facilitate a rebalancing of economic growth is the pricing of critical items such as power (fuels and electricity), water, and land. Underpricing of these inputs raises profitability in activities that use them intensively and, if it persists, will lead firms to invest more in these activities, even in an economy where the prices of goods and services are overwhelmingly market determined.¹⁹ To a remarkable degree the subsidies provided through underpricing of fuels and electricity accrue in China to the manufacturing sector rather than to transportation or to households. This is because industry accounts for almost two-thirds of final energy consumption, compared with about one-quarter in the United States (Bergsten et al. 2008, 142).

Energy is one of the most important areas in which the state has retained price-setting power. For example, in the 1980s the state set the price of crude oil at a small fraction of the world price, continuing a policy inherited from the prereform era. But at the end of the 1980s China moved gradually to raise the domestic price of crude to the international level. By 1998 convergence was complete and the government adopted a formal plan to adjust monthly the domestic price of crude to keep it in line with the international price. Retail prices gradually reflected the principle of full-cost pricing and in mid-2000 the government adopted a formal program to adjust these prices monthly as well so that refined product prices reflected the cost of crude (Lardy 1992, 90–94; 2002, 26). Thus while the prices of both crude and refined products were government controlled, they diverged only slightly from market prices.

But as the cost of crude on the global market began to rise rapidly in 2004, the Chinese government began to modify its pricing policies. The domestic price of crude oil was still adjusted monthly with the international price, but only part of the rising cost of crude was reflected in retail prices of major refined products such as diesel and gasoline. By 2005 the government was paying subsidies to Chinese refiners to partially compensate them for their refining losses.

This problem recurred on a much larger scale in the first half of 2008, when global oil prices rose further and retail prices in China for gasoline

18. Li Xiaochao, press conference on 2009 first-quarter economic situation, April 16, 2009, www.china.com.cn (accessed on April 16, 2009).

19. By the late 1990s 95 percent of retail commodities, 83 percent of farm products, and 86 percent of producer goods were sold at market-determined prices (Lardy 2002, 25).

and diesel fuel were the lowest of any oil-importing emerging market.²⁰ China Petroleum & Chemical Corporation (Sinopec), the country's largest oil refiner, saw its net profits plunge by three-quarters in the first half of 2008 as its profits in other lines of business together with government refining subsidies barely offset its massive refining losses.²¹ Although in June 2008 the Chinese government finally did raise the retail price of gas and diesel by almost one-fifth, that adjustment did not eliminate the operating losses of the refiners and left them with no return on capital employed in refining. This situation eased in the second half of the year as the international price of oil fell precipitously while the National Development and Reform Commission held the domestic price of gasoline and diesel fuel unchanged until mid-December, when it cut prices slightly. Thus by the closing months of 2008 the underpricing of gasoline and diesel fuel had ended.

More importantly, in January 2009 the government instituted fuel price reforms that partly restore the earlier full-cost pricing policy. Under the new regime, there will be full-price pass-through when the global price of crude is under \$80 per barrel (i.e., prices of gasoline, diesel, and other refined products will move in step with global crude prices). However, if the global price of crude rises above \$80 per barrel, retail prices of refined products will rise less than would be required under full-price pass-through (this will be achieved by cutting distribution margins); if it rises above \$130 per barrel, retail prices will likely be adjusted upward but with a lag and subject to ceilings (Stanway 2009). Thus, as long as the global price of crude remains below \$80 per barrel the state will not subsidize domestic users of fuel.

Initially, a similar pattern of government price intervention applied to electric power. Through mid-decade full-cost pricing was in effect, companies generating electric power were profitable, and few consumers of electricity were subsidized.²² But in 2007 and 2008, as the price of coal rose on the domestic market, coal mines were reluctant to fulfill long-term supply contracts that had been struck earlier when prices were much

20. The average retail price for gasoline and diesel for a group of 65 emerging-market countries in July 2008 was \$1.15 per liter; in contrast, the price in China was \$0.78 per liter, the lowest of all of the 47 oil-importing countries in the group (Anderson 2008a).

21. Sinopec lost RMB46.0 billion on its refining operations in the first half of 2008 compared with profits of RMB5.7 billion in the first half of 2007; and its overall operating profits plunged from RMB53.6 billion in the first half of 2007 to RMB7.2 billion in the first half of 2008. "Sinopec Corp. Announces 2008 Interim Results," available at <http://english.sinopec.com> (accessed on October 20, 2008).

22. Local governments reportedly provided subsidized electric power to some firms. It is not clear whether local governments covered this subsidy from fiscal revenues or forced the power-generating and/or power distribution companies to sell at prices less than the official tariff schedule.

lower. Generators therefore had to buy a growing share of their coal on the spot market, where prices were much higher than the contract price. But the price that the generating companies received for delivering power to the grid remained unchanged since 2006, leading to plummeting margins. To draw attention to their plight, some generating companies curtailed production, causing localized electric power shortages. In June 2008 the government responded by raising the price of power delivered to the grid by 5 percent.

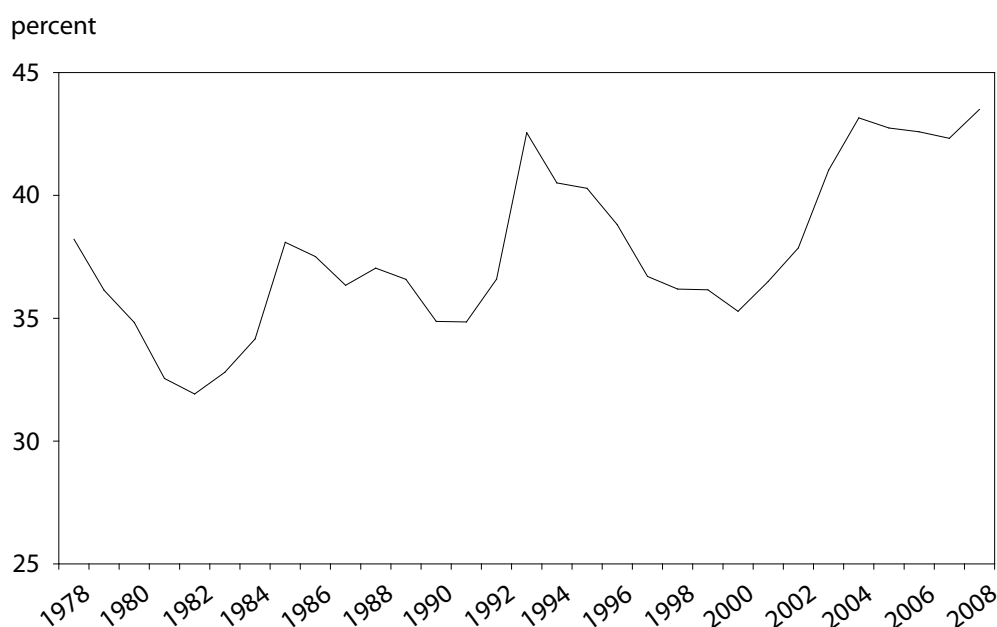
This price increase turned out to be far too modest. The price of coal fell in the second half of 2008 compared with the peaks of the first part of the year, but China's economic slowdown led to much slower growth in the demand for electricity, indeed in September, October, and November 2008 electric power production declined in absolute terms. Through the end of 2008, the lower usage rate more than offset the reduction in the price of coal. The result was that, in the first 11 months of 2008 the five largest power-generating companies, which account for about two-fifths of China's power generation, posted losses of RMB30 billion and the profits of the power industry as a whole fell 84 percent compared with 39 percent growth in the same period the previous year (Li Qiyan 2009). Moreover, China's grid companies were not allowed to pass the June 2008 on-grid price increase to consumers, so the price adjustment simply reduced the losses of the generators at the expense of the distributors. For example, the profits of the State Grid Corporation of China, responsible for the distribution of electric power in 26 of China's 31 provincial-level administrative units, fell by 80 percent in 2008 compared with 2007 (State Grid Corporation of China 2009).²³ Thus electric power remains subsidized for both household and industrial consumers.

Chinese Premier Wen Jiabao (2009), in his report to the National People's Congress in March 2009, indicated that more comprehensive reform of pricing of resources such as coal, electric power, and water would be undertaken in a timely fashion. Promised reforms, all of which would raise prices, would incorporate in power prices the cost of environmental damage in power production. Premier Wen also promised that China would carry forward market-based reform of interest rates, suggesting that the extent of financial repression would be eased and perhaps even eventually eliminated.

Thus the record to date on policies to promote increased domestic consumption is mixed. In the fiscal domain, tax cuts for individuals have been modest and tax increases on firms, in the form of the new dividend tax, inconsequential. But on the expenditure side, the government's fiscal initiatives to rebuild the social safety net are very impressive, particularly in health care. In recent years, increases in government transfer payments,

23. The sharp decline was the result not only of the margin squeeze but also of severe winter storms and the major earthquake in Sichuan Province.

Figure 2.2 Investment as a share of GDP, 1978–2008

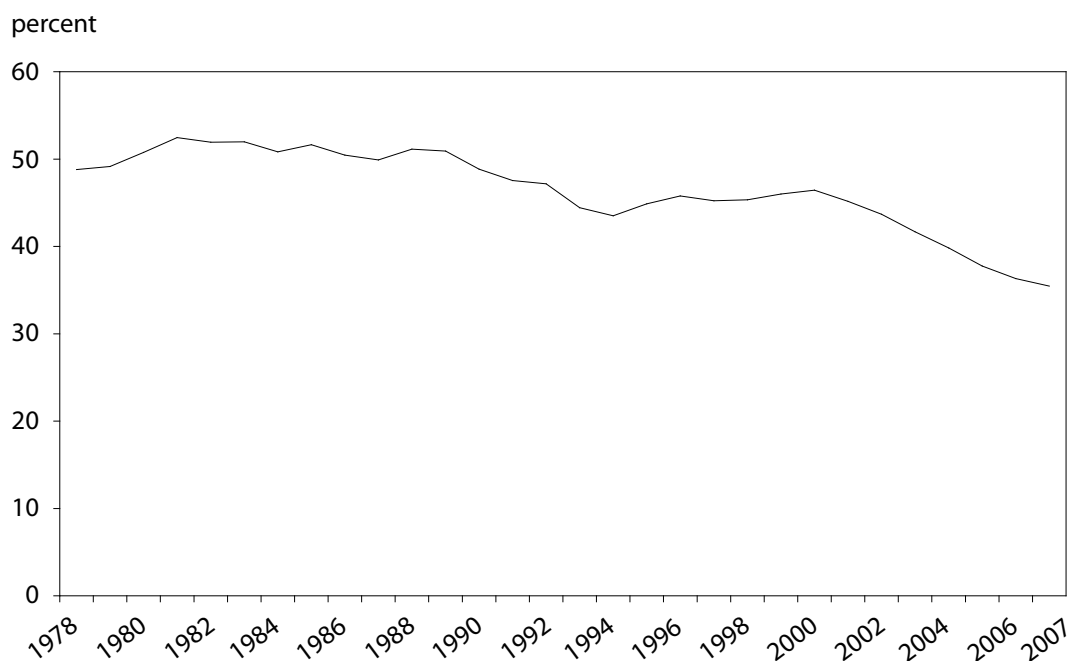


Sources: National Bureau of Statistics of China (2008b); People's Bank of China, Monetary Policy Analysis Small Group (2009a).

such as pensions and support for low-income individuals, have also been substantial. In the financial arena, policy thus far has been anemic, but Premier Wen's promised market-based reform of interest rates could ease the high implicit tax burden on households and thus contribute to increased consumption expenditure. The much more rapid appreciation of the exchange rate in 2008 compared with 2006 and 2007 is also a very positive development, which, if continued, will contribute significantly to rebalancing. Price reform is a mixed picture so far, but if Premier Wen's promised reforms of the pricing of water, electricity, and so forth are implemented, they will contribute toward rebalancing the country's sources of economic growth.

While China has taken a number of important steps toward more consumption-driven growth, the results of these efforts are not yet evident in China's GDP expenditure data. Investment growth did moderate somewhat in 2005–07, in line with the government objective of reducing the extraordinarily high share of resources going to investment. But the decline, shown in figure 2.2, was only slight and, according to preliminary data, was reversed in 2008. Thus since 2003, the share of China's GDP going to investment has been continuously above two-fifths of GDP, well above the share of GDP going to investment in Japan, Korea, and Taiwan during their high-growth periods. Moreover, the large increases in net exports since 2004 have meant that the consumption share of GDP has fallen significantly, as shown in figure 2.3. In 2008 government and

Figure 2.3 Household consumption as a share of GDP, 1978–2007



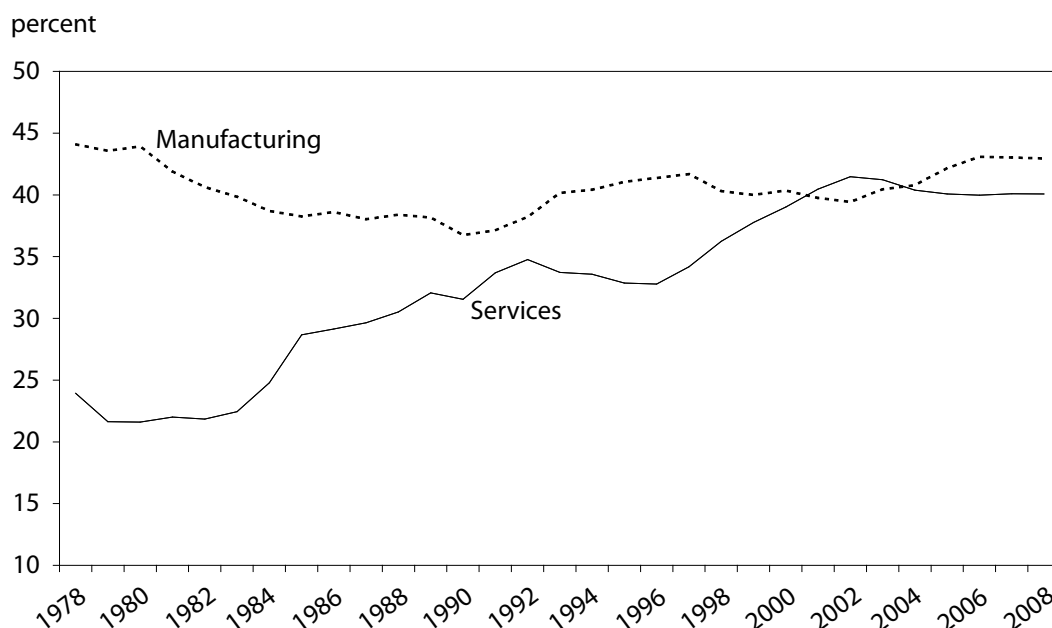
Source: National Bureau of Statistics of China (2008b).

personal consumption combined accounted for less than half of GDP, the lowest share of any economy in the world. China is particularly an outlier in terms of personal consumption, which in 2007 accounted for only 35 percent of GDP (National Bureau of Statistics of China 2008a, 35). In contrast, household consumption in Brazil and India in the same year accounted for a much larger share of those countries' GDP, 61 and 54 percent, respectively.²⁴

The efforts to rebalance the economy also are not yet reflected in the structure of output. As shown in figure 2.4, in the first two decades of economic reform the share of output originating in the services sector roughly doubled, from about 22 percent in the early 1980s to 42 percent in 2002. This trend conforms to the usual pattern of economic growth in which the services share of GDP increases in rapidly growing developing economies. But after 2002, the services share in China initially fell slightly and then basically stagnated at 40 percent in 2005–08. This six-year absence of growth in the services share of GDP in a fast-growing developing economy is extremely unusual, if not unprecedented. In contrast, after 2002 the manufacturing share of GDP rose by almost 4 percentage points to 43 percent in 2006–08, equal to the peak levels of the late 1970s and early 1980s. This too is an unusual pattern for a developing economy.

24. World Bank, *World Development Indicators*, available via subscription at www.worldbank.org/data (accessed on May 28, 2009).

Figure 2.4 Services and manufacturing as a share of GDP, 1978–2008



Note: Manufacturing includes mining, and utilities but not construction.

Sources: National Bureau of Statistics of China (2008b); ISI Emerging Markets, CEIC Database.

Potential Effects of Renminbi Appreciation on China's Banking System

There is considerable agreement both in and outside China about the evolution of the country's banking system and of efforts to reform it. Analysts recognize, for example, that the high share of bank deposits in household financial wealth and the dominance of bank loans in enterprises' external financing make the performance of the banking system in China more important than in most other economies—with significant impacts on, *inter alia*, the growth of total factor productivity, household consumption, the size of public debt, the transmission of monetary policy, and prospects for capital account convertibility. Most observers also believe the central elements of China's banking reform have moved the system in the right direction. These reform elements include:

- large-scale (over \$300 billion) public recapitalization of the state-owned commercial banks to remove a huge overhang of nonperforming loans from bank balance sheets;
- implementation of tougher asset classification and provisioning guidelines;

- creation of an energetic bank supervisor (the China Banking Regulatory Commission);
- large reductions in the number of branches and employees in China's four largest banks;²⁵
- increase in foreign participation in the banking system as a result of commitments to financial liberalization made as part of China's accession to the World Trade Organization (WTO);
- listing of four large state-owned commercial banks on stock exchanges;²⁶ and
- sale of bank shares to strategic foreign partners.

But the banking system still has some serious deficiencies and faces a number of formidable challenges going forward. Wendy Dobson and Anil Kashyap (2006) bemoan the still dominant (albeit declining) share of the state-owned banks in total bank lending and the continuing government pressure on these banks to direct too much credit to less profitable state-owned enterprises for the purpose of supporting employment. As a result, small and medium-scale enterprises are underserved by the formal banking system and rely on the informal credit market, where they must pay substantially higher interest rates (Li Jianjun 2008). Similarly, Richard Podpiera (2006) concludes that, despite the central bank's *de jure* removal of the ceiling on loan interest rates in the fall of 2004, pricing of bank loans remains largely undifferentiated and large state-owned banks do not appear to take enterprise profitability into account when making lending decisions. And Jonathan Anderson (2006b) emphasizes the still relatively low profitability of China's state-owned banks, the high dependence of bank profitability on the huge gap between lending and deposit interest rates, and the likelihood that this interest rate gap will narrow markedly in the period ahead as financial liberalization and globalization proceed.

There is much less agreement about how a more appreciated and more flexible exchange rate for the renminbi would affect banking reform. Moreover, the effects of currency reform have too often been confused with the effects of further capital account liberalization.

One popular view is that going much beyond the existing gradualist approach to currency reform would be too dangerous for the still fragile banking system. Mindful of financial crises in other emerging economies over the past dozen years, proponents of this view argue that a large renminbi appreciation could generate serious currency mismatches for banks and their customers. They worry as well that appreciation could bring in

25. The Industrial and Commercial Bank of China, the Bank of China, China Construction Bank, and the Agricultural Bank of China.

26. The Industrial and Commercial Bank of China, the Bank of China, China Construction Bank, and the Bank of Communications.

its wake a sharp reduction in growth (on top of the effect of the global financial and economic crisis), making it much harder to maintain the trend decline in banks' nonperforming loans. And they point out that China's financial infrastructure does not yet have hedging instruments adequate for protecting market participants against a marked increase in exchange rate volatility. Their bottom line is that further strengthening of China's banking system—and of its financial system more broadly—is a necessary precondition for bolder currency reform (Zhang 2004, 9–10, 19–20).

Others take a nearly opposite tack—seeing bolder currency reform as the ally rather than the enemy of banking reform. They observe that China's banks and their customers are much less vulnerable to currency mismatches than were their counterparts in earlier emerging-market financial crises (Goldstein 2007b). After all, China is a substantial net creditor, not a net debtor, in its overall foreign exchange position. Exporters have lower debt-equity ratios than firms in other sectors. Most of China's largest exporters are foreign owned and do not raise the bulk of their financing in the domestic market. Where the authorities require bank capital to be held in US dollars, reports indicate that the associated currency risk is hedged.²⁷

Currency reform advocates also emphasize that the excessive accumulation of international reserves that has accompanied the increasingly undervalued renminbi has put Chinese monetary authorities in a no-win dilemma, with increasing risk to the banking system.²⁸ If the authorities did not sterilize the large increase in reserves, the resulting explosion of bank credit and of monetary aggregates would probably have been so large as to generate a flood of nonperforming bank loans and domestic inflation. Indeed, even with the ambitious sterilization efforts of the past five years, there were costly bank credit booms in 2003, in the first quarter of 2004, and in the first half of 2006. In 2004, consumer price inflation also hit nearly 5 percent, while producer prices rose by 8 percent. With sticky nominal interest rates on deposits and loans, sharp increases in inflation translate into low (and sometimes negative) real interest rates, which in turn can fuel overinvestment, slow or even negative growth in bank deposits, and speculative runs in equity and property markets.

27. The Bank of Communications, the China Construction Bank, the Industrial and Commercial Bank of China, and the Bank of China all received capital injections from Central Huijin as part of their restructuring prior to public listing. The injections were in the form of foreign exchange and the banks were not allowed, at least initially, to convert these funds into renminbi. That could have meant that the banks would suffer a reduction of their capital if the renminbi appreciated, possibly reducing their capital adequacy below the levels mandated by the regulator, the China Banking Regulatory Commission. However, Central Huijin sold options to these banks giving them the right to convert their foreign exchange back into renminbi at a fixed exchange rate.

28. Yu Yongding (2007b) puts it succinctly: "In summary, to achieve simultaneously the objectives of the maintenance of a stable exchange rate, a tight monetary policy, and a good performance of the commercial banks is impossible."

Alternatively, the authorities can take the high sterilization route. But then the increase in inflation, which would otherwise appreciate the real exchange rate, is cut off. Similarly, if the growth rate of net domestic assets of the central bank is kept too low in a fast-growing economy, the excess demand for money will induce the very expenditure patterns and balance of payments inflows that will perpetuate the economy's external imbalance. Also, as suggested earlier, the need both to place large amounts of low-yielding sterilization bills with the banks and to repeatedly raise bank reserve requirements (which likewise pay low interest rates) imposes a "tax" on the banks that is not captured in standard calculations of the "cost of sterilization." If the banks absorb this tax themselves, then their profitability, which is already low by international standards, is further compromised; if instead they pass on the cost of sterilizing to depositors in the form of lower deposit rates, then depositors have an incentive to put their money elsewhere. Without adequate growth of bank deposits, bank loan growth will be unduly constrained. And if the authorities rely on window guidance instead of sterilization to control how much and to whom banks lend, then the longer-term objective of teaching credit officers how to evaluate creditworthiness and of developing a "credit culture" in China's banks would be undermined.

As indicated earlier, low exchange rate flexibility—even with remaining controls on capital flows—also means that interest rate decisions will often be delayed beyond what would be desirable for domestic stabilization purposes, for fear that more decisive interest rate policy would trigger large capital flows that would put undue pressure on the exchange rate. Delaying needed decisions about interest rates is not good for banks. Effective central banking involves taking preemptive interest rate action to ward off both sharp growth slowdowns and inflation excesses. If, for example, the authorities wait too long to move interest rates in response to an overheated economy, monetary tightening may have to be much greater than if they acted earlier; the more volatile the operating environment facing banks, the higher the risk that bank credit growth will be too rapid or too slow. Similarly, if the monetary authorities constantly tinker with export taxes, restrictions on incoming and outgoing capital flows, and the pace and volatility of the exchange rate crawl—as substitutes for more independent monetary policy and a more market-determined exchange rate—it is unlikely that the need for banks and their customers to hedge against this policy uncertainty will be less costly than hedging against greater exchange rate volatility on its own.

Champions of the view that bolder currency reform should not be held hostage to the pace of financial-sector reform do not maintain that the remaining fragility of the Chinese banking system is irrelevant for the sequencing of other reforms. Rather they contend that it is capital account convertibility, not currency appreciation and flexibility, that should await further strengthening of the banking system (Prasad 2007, Goldstein

and Lardy 2003b, Williamson 2003). Here the argument is that so long as restrictions on capital outflows are reduced gradually rather than precipitously, the authorities will have adequate room for maneuver in countering, say, an unanticipated setback on banking reform or an unexpected large fall in China's growth rate. In contrast, if bank fragility is paired with the potential for large-scale capital flight, then, as other emerging economies have discovered, the management of such a crisis is inherently much more difficult. Yu Yongding (2007b) observes that if Chinese households and firms decided for whatever reasons—rational or irrational—to suddenly increase the share of their assets invested abroad, capital outflow could quickly grow to as much as \$500 billion, with very unpleasant consequences for the Chinese economy.

Under this view, the right sequencing of reform is to continue with banking reform and to move now to reduce significantly both the undervaluation and the inflexibility of the renminbi, but to wait until China's financial system is on stronger footing before opening up too widely the doors on capital outflows.

Looking ahead, the conundrum facing China's banking system can be summarized as follows. The authorities have indicated, quite sensibly, that they wish to expand the role of commercial paper, bond, and equity markets to diversify (away from banks) the sources of external financing available to firms. In addition, they have expressed an understandable intention to gradually lift restrictions on capital outflows, in part to offer savers a higher rate of return and in part, given China's large global current account surplus, to reduce upward pressure on the renminbi. But such moves in the direction of further financial liberalization and globalization are likely to have the competitive effect of reducing the 350 to 400 basis point spread between deposit and loan interest rates, since both Chinese investors and savers will then have more alternatives to domestic banks. As Anderson (2006b) points out, even a 100 basis-point decline in the deposit-loan spread would have wiped out all the profits of state-owned banks in 2005.

How, then, to square this circle? Yes, costs may be reduced further by larger cutbacks in the number of branches and bank employees. Yes, maybe Chinese banks can increase somewhat the share of profits from fees to partially offset the fall in interest income. But in the end, two things are probably required. First, credit allocation decisions will have to be improved further so less income is spent on dealing with bad loans. This in turn would seem to imply that the influence of political factors on loan decisions will have to be reduced vis-à-vis the influence of arm's-length commercial considerations. Can this be done without further reducing the share of state ownership? We doubt it. Second, it will be necessary to lower the burden increasingly imposed on bank profitability by the sterilization requirements of defending a seriously undervalued renminbi. Can this be

done other than by reducing the amount of intervention in the exchange market? Again, we doubt it.

External Adjustment, Global Imbalances, and the Rising Risk of Protectionism

China's exchange rate policy also carries important implications for the country's own external adjustment, the correction of global imbalances, public policy toward sovereign wealth funds, the operation of the international exchange rate system, and efforts to maintain forward momentum on globalization. In this regard, among the most interesting issues are the following:

- Given the wide range of estimates of renminbi misalignment, can one be confident that the renminbi really is seriously undervalued?
- If China did implement a sizable revaluation/appreciation of the renminbi, would it be effective in reducing substantially the country's large global current account surplus?
- Would the costs of a large renminbi revaluation be prohibitively high?
- What explains the large surge in China's current account surplus between 2004 and 2007?
- Would the effect of renminbi revaluation on global imbalances be larger (smaller) than sometimes assumed because it will (not) lead to sympathetic revaluations in other Asian and emerging-market currencies?
- With China's reserves topping \$1.9 trillion at the end of 2008 and with the establishment of its own sovereign wealth fund, what will be the impact and what principles should guide the fund's operations?
- Should the International Monetary Fund (IMF) have regarded China's large-scale, prolonged, one-way intervention in exchange markets since 2003 as currency manipulation and how should IMF exchange rate surveillance be conducted going forward?
- Were several currency bills introduced in the US Congress a serious threat to open markets or are they a "third-best" policy response to a beggar-thy-neighbor exchange rate policy?

Renminbi Undervaluation

Some argue that China should not have been expected to appreciate the renminbi earlier and more forcefully because no one really knows the "right" or "equilibrium" exchange rate.²⁹ They note that studies yield a

29. Some in this camp (Mundell 2004) also maintain that a fixed exchange rate has served

wide range of estimates of misalignment. An IMF study by Steven Dunaway and Xiangmin Li (2005), for example, maintains that estimates of renminbi undervaluation range from zero to nearly 50 percent. Furthermore, in a subsequent study these authors, together with Lamin Leigh, argue that a more definitive answer is unlikely to emerge soon because of data problems, instability in the underlying economic relationships, and lack of consensus on the proper methodology (Dunaway, Leigh, and Li 2006).³⁰

Others (e.g., Goldstein 2004, 2007b) find the evidence in support of a large renminbi undervaluation increasingly robust and, by 2007, simply overwhelming: China's global current account surplus grew without interruption from 1 percent of GDP in 2001 to 11 percent in 2007 before falling to a still large estimated 9.8 percent of GDP in 2008 (figure 1.2); China's net capital account position also has been in surplus throughout this period; the real trade-weighted value of China's currency through the end of 2007 (on all three indices shown in table 1.2) was less (i.e., more depreciated) than in early 2002; China's intervention in the foreign exchange market has been persistent, one way, and through the third quarter of 2008 very large; and through 2007 China's domestic economy was growing at or above its potential.

Taking these developments together, any reasonable back-of-the-envelope calculation to determine the level of the renminbi that would eliminate China's global current account surplus would generate a large (and growing) estimate of renminbi undervaluation. Given that studies suggest that each 10 percent change in China's real effective exchange rate is associated with a 2 to 3.5 percent change of GDP in the country's global trade balance (Goldstein 2007b),³¹ a reasonable "ballpark" estimate is that a 2.5 percent GDP reduction in China's global current account is linked to each 10 percent real effective appreciation of the renminbi.³² Thus, for example, eliminating China's 2007 global current account surplus of 11 percent of GDP would require about a 45 percent real effective appreciation of the

China well, that it could continue to do so, and that claims of "overheating" of the economy are misguided.

30. Dunaway's view seems to have evolved. In 2009, after he retired from the IMF, he characterized China's exchange rate as "increasingly undervalued" and acknowledged that the resulting competitive pressure China poses caused other Asian countries to seek to limit appreciation of their own currencies (Dunaway 2009, 10).

31. Similarly, Ahearne et al. (2007) find that renminbi appreciation of 5 to 25 percent would be required to reduce China's global current account surplus by 3.5 to 6.5 percent of GDP.

32. Cline (2008) uses an impact multiplier of 3 percent of GDP for each 10 percent real effective appreciation of the renminbi. We prefer the lower figure of 2.5 because we regard the high import content of Chinese exports as reducing the size of the impact multiplier relative to Cline's estimate.

renminbi.³³ Just to cut the surplus in half from its 2007 level (say, reducing it by 6 percent of GDP) would imply the need for an appreciation of about 25 percent. Of course, for earlier years (e.g., 2003 and 2004) when China's global surplus was much smaller, the implied undervaluation would be lower, but still not small.

The IMF's most recent projection for China's global current account surplus (expressed as a share of its GDP) in 2009 is 10.3 percent (IMF 2009b). If we again assume that each 10 percent real effective appreciation of the renminbi would reduce China's current account surplus by 2.5 percent of GDP, then elimination of the 2009 surplus would require roughly a 40 percent appreciation of the renminbi. But one should also take into account recent movements in the renminbi that have not yet had time to be fully reflected in the observed current account figures; after all, exchange rates operate on trade with a lag. In this connection, suppose that we assume that none of the 15 percent real effective appreciation of the renminbi observed between February 2007 and February 2009 has yet been reflected in the published current account data; by the same token, let us assume that all of the observed 5 percent real effective appreciation of the renminbi between June 2005 and February 2007 has been so reflected. Because of the 15 percent effective appreciation of the renminbi that is still "in the pipeline," this would imply that instead of requiring a 40 percent appreciation of the renminbi to eliminate the 2009 surplus, a 25 percent real effective appreciation would do the job (that is, 40 percent otherwise needed real effective appreciation minus the 15 percent real effective appreciation in the pipeline). By analogy, if we used a multiplier of say 3.3 (instead of 2.5) for the effect of each 10 percent real effective appreciation of the renminbi on the current account, appreciation in the pipeline would reduce the needed real effective appreciation from 30 to 15 percent.³⁴

The conclusion that the real effective exchange rate of the renminbi remains significantly undervalued in 2009 by somewhere between say 15 and 25 percent does not of course tell one how much the renminbi needs to appreciate vis-à-vis individual currencies, particularly the US dollar. To answer that question, one requires a multilateral model that imposes consistency of current account targets across countries as well as consistency across needed changes in bilateral and effective exchange rates. For example, if China revalues the renminbi by 20 percent against the dollar but other Asian countries follow suit, then the real effective appreciation

33. The same type of calculation suggests that almost a 40 percent real effective appreciation is needed to eliminate the estimated global current account surplus of 9.8 percent of GDP in 2008.

34. By the same reasoning, pipeline effects also help to explain why the estimated undervaluation of the renminbi was likely larger in 2007 than in either 2008 or 2009; not only did China's current account surplus hit a peak (relative to GDP) at 11 percent in 2007 but there was also relatively little renminbi appreciation in the pipeline.

of the renminbi will be substantially smaller than the renminbi's appreciation against the US dollar since the renminbi will not have appreciated (much or at all) against some of China's trading partners.

Fortunately, William R. Cline and John Williamson (2009) have undertaken such a consistent multilateral exercise for 30 non-oil exporting countries—including China. Although Cline and Williamson employ different assumptions than we do about, *inter alia*, the target change in China's global current account surplus, the pipeline effects of earlier renminbi appreciation, and the impact multiplier of changes in the renminbi on China's current account, they too find that the real effective exchange rate of the renminbi remains significantly undervalued—by 21 percent—as of March 2009. They also find that the real effective exchange rate of the US dollar was significantly overvalued—by 17 percent—as of the same date. Because Cline and Williamson conclude that the US dollar needs to go down (depreciate) against practically all US trading partners and that simultaneously the renminbi needs to go up (appreciate) on average against China's trading partners, their model yields the conclusion that the renminbi should appreciate much more against the dollar—by roughly 40 percent—than against other currencies—if the called for 21 percent real effective appreciation of the renminbi is to be achieved.³⁵ In short, the Cline and Williamson message is that if the dollar does go down over the next few years to help reduce the US current account deficit, China should not ride the dollar down if China expects to achieve the real effective appreciation of the renminbi that would be consistent with reducing substantially (much less eliminating) China's still very large global current account surplus.³⁶

Recall that until the second half of 2008 China's large current account surpluses occurred when the domestic economy was booming, which means that China was in what James Meade (1951) called a “nondilemma” situation, where exchange rate appreciation moves the economy simultaneously closer to both external and internal balance. As argued in chapter 3, one notable consequence of the sharp decline in growth in 2008 is that this long period of a “nondilemma” situation for exchange rate appreciation has ended—that is, additional real effective appreciation of the renminbi would still move China closer to external balance but farther from internal balance (since the Chinese economy in late 2008 and early 2009 was operating far below potential growth).

35. Using March 2009 as their base, Cline and Williamson (2009) calculate that this 40 percent appreciation of the renminbi against the US dollar would result in a bilateral exchange rate of RMB4.88 against the dollar (versus a bilateral rate of RMB6.83 to the dollar at the time of this writing).

36. As noted earlier, the magnitudes of the real effective and nominal bilateral (*vis-à-vis* the US dollar) appreciations of the renminbi have been quite similar over the June 2005–March 2009 period as a whole, albeit not for some other periods.

Those who claim that the renminbi is clearly undervalued concede that the relevant empirical literature has spawned a wide range of estimates but argue that this reflects largely a lack of comparability across studies. Some studies (Goldstein and Lardy 2006b) assume that the objective is to eliminate entirely China's external imbalance while others (Ahearne et al. 2007, Cline and Williamson 2008b) assume that only part of this imbalance should or could be eliminated within the specified period. Some studies (Goldstein and Lardy 2006b) assume that the adjustment of the trade balance in response to exchange rate changes is spread out over a year or two while others (Cline and Williamson 2009) implicitly assume that the adjustment is more rapid. Some analysts assume that exchange rate revaluation would be undertaken on its own, while others assume that revaluation would be paired with macroeconomic policy that maintained a constant level of aggregate demand. In the former case, the contractionary effect of revaluation reduces the demand for imports in the second round, while in the latter case there is no second-round effect on import demand.

Some studies explicitly model the high import content of China's exports, while others ignore it; when the import content of exports is taken into account, renminbi revaluation leads to a smaller export-price increase than when it is not so assumed. Some studies assume higher export and import price elasticities of demand for China's trade than do others. Because China's imports and exports have been growing faster than the GDP, its traded goods sector is much larger now than it was even half a dozen years ago. Therefore, *ceteris paribus*, a smaller exchange rate change will be needed to achieve a given trade balance target than when the traded goods sector was smaller. This, in turn, can produce different estimates of renminbi misalignment when the studies are done at different points in time (even when the same methodology is employed).

Some authors obtain point estimates that show very large renminbi undervaluation but do not regard the confidence level on that estimate as sufficiently strong to warrant a conclusion of undervaluation (Cheung, Chinn, and Fujii 2007); others obtain similar estimates and accept the point estimates. And finally, there are several methods for inferring exchange rate misalignments—ranging from the macroeconomic balance approach, to various structural models of exchange rate determination, to a whole family of purchasing power parity models—and different authors have not always chosen the same method, even if some approaches are regarded as more reliable than others.³⁷

The contention of the large undervaluation school is that if one “standardized” the misalignment exercise and restricted attention to the better methods and more reasonable assumptions, the large undervaluation

37. See IMF (2006b) for a discussion of different methods for assessing misalignment of exchange rates.

verdict would emerge even more clearly. Cline and Williamson (2008a) in a survey found that only one of 18 studies concluded that the renminbi is overvalued. The average estimate indicates substantial undervaluation—on the order of 20 percent for the real effective exchange rate and 40 percent for the nominal renminbi-dollar exchange rate. They also find that renminbi undervaluation was increasing over time, from 17 percent effective appreciation needed in studies using 2000–04 data to 27 percent for studies based on 2005–07 data.

The large undervaluation school also points out that some of the initial agnostics on renminbi undervaluation have come around. In its 2004 Article IV consultation report for China, the IMF (2004, 12) concluded that “it is difficult to find persuasive evidence that the renminbi is undervalued.” Two years later the Fund’s conclusion was quite different: “All of these developments point to the currency [the renminbi] as being undervalued and that this undervaluation has increased further since last year’s Article IV consultation” (IMF 2006a, 17). By 2008 the Fund’s Managing Director Dominique Strauss-Kahn went even further, publically characterizing the renminbi as “substantially undervalued.”³⁸

Finally, the large undervaluation school believes that appropriate policy direction for China does not depend on unanimity on the precise degree of undervaluation of its currency. All indicators show that since the early part of this decade the currency has needed to appreciate to reduce a large and growing external imbalance. The best approach is simply to adopt a genuinely more flexible regime and reduce the degree of official intervention so that the market can determine the equilibrium exchange rate. This, of course, is the policy the Chinese officially claimed to have adopted in mid-2005. But, as we have noted, the much advertised increased role for the market in the determination of the exchange rate of the renminbi has been substantially delayed.

Effectiveness of Renminbi Appreciation

Another issue is whether a renminbi appreciation would have much effect on China’s global current account position. Pessimists cite several factors likely to reduce the effectiveness of exchange rate action: low wages and high profit margins, which together would permit exporters to absorb the cost of appreciation without raising export prices; a high import content of exports; and low price elasticities of demand for imports and exports.³⁹

Optimists see it differently. They agree that manufacturing wages in

38. Reuters, “IMF’s Chief Says China Currency ‘Significantly Undervalued’,” June 24, 2008, available at www.reuters.com (accessed on April 20, 2009).

39. Some (Bosworth 2004) also argue that there is no obvious channel by which a renminbi revaluation would correct China’s saving-investment imbalance.

China are very low relative to those in, say, the United States but point out that Chinese productivity is also very low vis-à-vis the US level—and it is the combination of the two (unit labor cost) that matters for competitiveness (Lardy 2006). If wages alone matter, why was Germany, with the highest wages, the world's largest exporter for so many years?⁴⁰ And why are some very low-wage countries, for example, most of the countries in Sub-Saharan Africa, extremely modest exporters? Profit margins in China's traditional export industries (e.g., textiles, electronics, machinery, toys, sporting goods, furniture) are modest (in the low to mid-single digits), reflecting strong competition in domestic and external markets. True, profit margins are higher in the newer and faster-growing export industries (e.g., aircraft parts, autos, ships, and telecom equipment), but there is so far little evidence that profit margins move systematically to offset the effects of nominal exchange rate changes on export prices. Anderson (2007b) observed that broad indices of China's export prices rose over the past two to three years, in contrast to falling export prices over the previous three-year period.

As mentioned above, the average import content of exports in China is high—on the order of 30 to 35 percent.⁴¹ Since renminbi appreciation will lower the cost of imported inputs (such as parts, components, and assemblies), a given amount of appreciation will produce a smaller increase in China's export prices than if exports had no import content. But this does not imply that renminbi appreciation would be ineffective—only that the exchange rate change needs to be larger to achieve a given trade balance objective. China's role as a regional processing center does distort the meaning of its bilateral trade imbalances with some industrial countries like the United States, since goods previously exported directly from other Asian countries now get assembled in China and thus show up in US trade data as imports from China. But these imported inputs wash out when looking at China's global trade imbalance.

Because the manufactured goods that China exports are typically quite price elastic (around the world) and because many of the goods it imports are also produced domestically, it is highly likely that the Marshall-Lerner condition for an effective revaluation is satisfied. Although econometric

40. China's exports, on a monthly basis, surpassed those of Germany starting in the fall of 2008.

41. In 2007 processed exports (i.e., export goods assembled from imported parts, components, and assemblies) were \$617 billion, accounting for 51 percent of China's total exports of \$1,218 billion. Processing imports (i.e., the parts, components, and assemblies used to assemble processed exports) were \$369 billion. Thus the import content of processed exports was 60 percent and that of all exports averaged 30 percent. The import content of processed exports has declined gradually as domestic suppliers have displaced imported parts and components. Processed exports as a share of total exports reached a peak in 1997 and 1998 when they accounted for 57 percent of total imports. Taking these factors into account, the import content of all exports in 2002, for example, was 38 percent.

studies of China's trade flows are still limited and have to contend with poor price data, relatively short sample periods, and large structural and cyclical changes, more and more researchers are finding significant price elasticities of demand, strongly suggesting that renminbi appreciation will reduce China's global current account surplus.⁴²

Optimists also make the point that if the demand for China's exports really was price inelastic, then the authorities should hardly be fearful of revaluation since higher export prices would then increase, not decrease, export revenue.

Costs of a More Appreciated Renminbi

Even if a significant renminbi appreciation/revaluation reduced China's large external imbalance, some analysts, including many in China, claim that the internal economic cost of such a policy would be too high (Fan Gang 2008). While the argument is usually couched in terms of the adverse impact of revaluation on China's overall economic growth, employment, and social stability, in some cases the arguments are advanced by sectoral interests that benefit from an undervalued exchange rate. Officials from the Ministry of Commerce, for example, fairly consistently emphasize that the profitability of export industries is very low and that the pace of renminbi appreciation should be limited. Bo Xilai, who was minister of commerce from 2004 through 2007, argued that "RMB appreciation has substantially lowered the profit of export-oriented enterprises, especially labor-intensive ones, whose profit was already very low."⁴³ His successor, Minister Chen Deming, has also spoken out against rapid appreciation of the Chinese currency.⁴⁴

The counterargument supporting more appreciation sooner has two parts. The first part of the counterargument is that defenders of an undervalued currency all too frequently exaggerate the costs of a large renminbi appreciation, but they rarely, if ever, acknowledge several important observations. First, the last time China's real effective exchange rate exhibited a

42. Kwack et al. (2007) estimate a consistent set of import equations for both China and trading partners. From these estimates they conclude that China's import price elasticity of demand is 0.5 while its export elasticity of demand is 0.7. Goldstein (2007b) provides a summary of price elasticity estimates. In view of the difficulties of estimating the price elasticities for China's trade, some analysts choose instead to simply assume reasonable values for those elasticities. For example, Cline (2005) assumes that the import and export elasticities of demand are each unity. Anderson (2006a) assumes that the sum of the elasticities is just slightly above one.

43. "How will RMB exchange rate affect trade?" *People's Daily*, June 2, 2006, <http://english.peopledaily.com.cn> (accessed on October 10, 2008).

44. "Rapid appreciation of RMB not good for world," *China Daily*, December 12, 2007, www.chinadaily.com.cn (accessed on October 6, 2008).

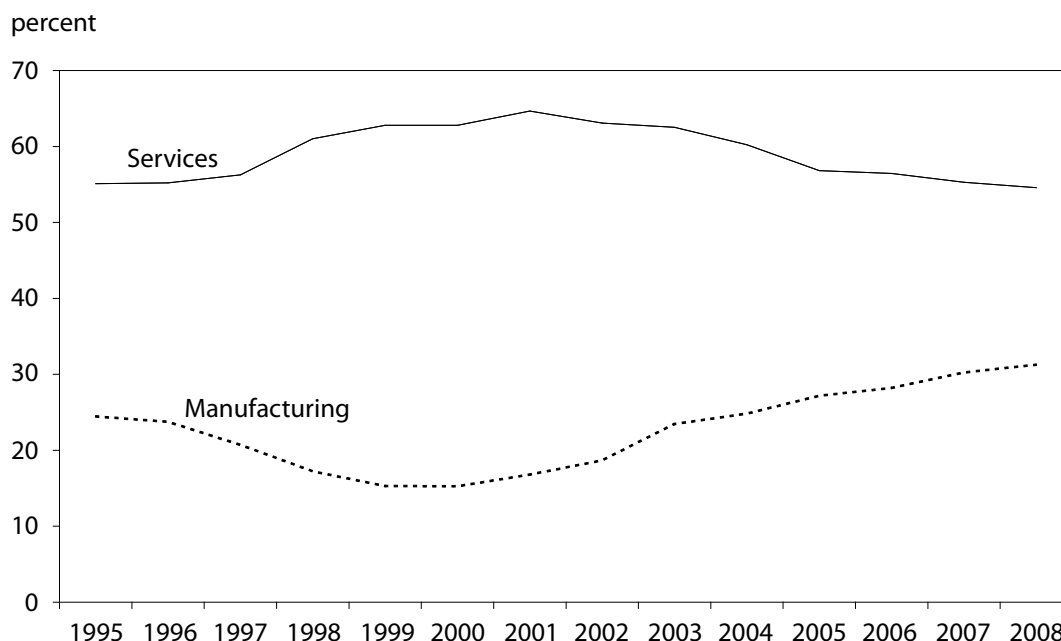
large appreciation, namely, between 1994 and early 2002, when it appreciated by 30 percent, the country's growth did fall but still averaged 9 percent per year and in no single year did it drop below 7.5 percent. Estimates point to a 10 percent real effective revaluation of the renminbi lowering economic growth by roughly 1 percent a year over a two- or three-year period (Shu and Yip 2006, Anderson 2006a). If this modest decline in growth were seen as too contractionary, revaluation could be paired with a further increase in the rate of growth of government expenditures for health, education, and pensions. This would reduce the need for precautionary savings and contribute to a reduction in China's external imbalance.

Second, while domestic opponents of more rapid currency appreciation cite job losses as a potential cost of rapid appreciation, they fail to note that employment growth in China has been noticeably slower during the present decade, when investment and export-led growth have been most pronounced, than when China's economic growth was oriented more toward consumption (Lardy 2007). China's export industries employed an estimated 45 million workers in 2007, about a third of manufacturing employment (Anderson 2007d, 4); but this accounts for only 6 percent of China's workforce, not 30 or 40 percent. Tens of millions of Chinese workers lost jobs when state-owned enterprises were reformed in the mid- to late 1990s; if there was no social meltdown then, why should there be one after a renminbi revaluation? If the concern is with income losses by workers in low-margin traditional export industries, why not introduce a trade adjustment assistance package to assist displaced workers in industries that are contracting because of a renminbi revaluation?

Third, defenders of the status quo argue that more rapid appreciation will adversely affect the incomes of more vulnerable elements of Chinese society or may even exacerbate income inequality more generally. But if the concern is that farmers and other rural inhabitants will be hurt by the lower cost of food imports after a revaluation, why can't the authorities take fiscal measures to cushion the impact on that sector's standard of living? And since China's exports are produced primarily in the high-income coastal provinces rather than elsewhere, exchange rate action that reduces profitability in export industries should not exacerbate income inequality—indeed it is more likely to ameliorate it.

The second part of the counterargument to the "go slow" approach to currency revaluation is that there are potentially high costs to appreciation but excessive delay almost certainly makes the ultimate costs of adjustment even higher. The reason is that currency undervaluation is a price distortion that affects the allocation of investment resources. The longer the price distortion persists, the more investment resources are misallocated. An undervalued exchange rate tends to raise the profitability of producing tradable goods, which in China's case are overwhelmingly manufactures rather than raw materials or agricultural products. Simultaneously, undervaluation reduces profits in the sector that produces nontradable

Figure 2.5 Investment in manufacturing and services in urban China, 1995–2008



Note: Manufacturing does not include mining, utilities, and construction.

Sources: National Bureau of Statistics of China, *China Statistical Yearbook 2005, 2006, and 2007*; ISI Emerging Markets, CEIC Database.

goods (i.e., services). Other things being equal, one would thus anticipate that renminbi undervaluation would increase the share of investment going to manufacturing and reduce the share going to services.

Figure 2.5 shows this is precisely what happened as China's currency became increasingly undervalued after the very early part of this decade. The share of investment in urban areas going to manufacturing doubled from 15 percent in 1999–2000 to 31 percent in 2008.⁴⁵ Over the same period the share of investment flowing to the services sector declined from 63 percent to about 55 percent. Some of the increase in the manufacturing share of investment was due to cyclical factors, rather than the increasing

45. The coverage of these data is manufacturing, narrowly defined (i.e., exclusive of the mining, utilities, and construction subsectors, which generally do not produce traded goods). Ideally, this analysis should be based on the shares of investment in the entire country, not just in urban areas, but surprisingly, data for the whole country do not appear to be available for the years prior to 2003. For 2003–07, when data are available for both urban areas and the whole country, investment in manufacturing in the entire country was 2.2 to 3 percentage points above the share in urban areas. The increase between 2003 and 2007 in the manufacturing share was 6.0 percentage points in the entire country and 6.75 percentage points in urban areas. Thus the sectoral distribution of investment in urban China appears to be a very good proxy for the sectoral distribution of investment in the entire country.

undervaluation of the currency that emerged after the early part of the decade. Average GDP expansion slowed to an average of only 8 percent during China's growth slump of 1998–2001. But the slowdown was particularly pronounced in manufacturing, presumably depressing manufacturing investment proportionately more than investment in services.⁴⁶ But some portion of the doubling in the manufacturing share of investment and the decline in the services share is due to currency undervaluation, which raised returns to manufacturing investment at the expense of services. This helps to explain the rise in the share of manufacturing and the slight decline in the share of services in GDP after 2002 (figure 2.4).

Because China's manufacturing sector is heavily exposed to international trade, significant further currency appreciation, which would reduce both export and import prices measured in terms of domestic currency, would reduce profits in manufacturing and would push some, perhaps many, firms into bankruptcy.⁴⁷ This is hardly a persuasive argument for indefinitely delaying appreciation of an undervalued currency since the longer currency undervaluation persists, the longer investment flows are biased toward manufacturing and the greater the potential cost of future adjustment when the exchange rate moves toward equilibrium.

Explaining the Surge in China's Global Trade Surplus

One of the mysteries on the external front is what was primarily responsible for the upsurge in China's global trade (and current account) surplus between 2004 and 2007? What is the explanation for an almost quadrupling of net exports of goods and services as a share of GDP, from 2.5 percent in 2004 to 8.9 percent in 2007?⁴⁸ Several hypotheses—not mutually exclusive—have been put forward, with different implications for China's exchange rate policy.

One hypothesis is that differential growth in total factor productivity between traded and nontraded goods may have made Chinese goods more competitive in international markets than is suggested by conventionally calculated real effective exchange rates (Lardy 2007).

46. Peak to trough, the pace of real growth of manufacturing fell by three-fifths, from 21.2 percent in 1992 to 8.7 percent in 2001, whereas the decline in the real growth of services was only a third, from 12.4 percent in 1992 to 8.4 percent in 1998 (National Bureau of Statistics of China 2007b, 59). Thus the slowdown in manufacturing was both more severe and more prolonged than that in services.

47. In 2006 manufactured exports and imports of RMB7.336 trillion and RMB6.043 trillion, respectively, accounted for one-quarter and one-fifth, respectively, of the gross value of manufactured output of RMB27.457 trillion (National Bureau of Statistics of China 2007b, 502, 724, 726–27).

48. As noted earlier, the explosion of the global current account surplus was similar, from 3.6 percent of GDP in 2004 to 11.0 percent of GDP in 2007.

The “real” adjustment in the JPMorgan index of the real effective exchange rate of the renminbi is based on the rate of inflation of core prices for finished manufactured goods (excluding food and energy) in China compared with the same prices in its trading partners. But this method may be a poor measure of the change in the prices of China’s exports. Despite an 18 percent appreciation of the renminbi vis-à-vis the US dollar between June 2005 and March 2008, the price of Chinese goods imported to the United States rose only 2.5 percent (US Department of Labor, Bureau of Labor Statistics).⁴⁹ The available evidence does not support the view that Chinese firms producing exports cut their margins in order to avoid passing through the renminbi appreciation to US consumers. If anything, profit margins in Chinese industry, which produces almost all of China’s exports, increased (World Bank 2007a, 7).

The most likely explanation is that productivity growth in industries that export to the United States was sufficiently large that firms could absorb the adverse effect of the rising value of the renminbi. The combination of a nominal appreciation of the renminbi vis-à-vis the dollar of 18 percent and a 2.5 percent increase in the price of Chinese imports in the United States suggests that total factor productivity growth in China’s export industries was 15 percent between June 2005 and March 2008. Over that period, prices in China’s major trading partners rose about 8 percent. Thus the Chinese currency would have had to appreciate in nominal terms by almost a quarter to maintain the initial level of competitiveness of its exports. But the rate of nominal appreciation of the renminbi against its trading partners was only 7 percent, so Chinese goods became much more competitive. This calculation suggests that taking into account the rapid productivity growth in export manufacturing, China’s real effective exchange rate depreciated by about 15 percent over this period. In contrast, the standard calculation in indices of the real exchange rate is based on either consumer prices (Citi and BIS indices) or a broad index of manufactured goods (JPMorgan index) and hence shows appreciation of the renminbi of 11 percent between June 2005 and the end of March 2008.

The alternative approach outlined above is certainly more consistent with the rapid increase in China’s current account surplus in 2005–08. It is also worth noting that a key implication of this “differential Chinese export productivity” story is that if positive differential productivity growth in the export sector were to continue, the renminbi would need to appreciate by a much larger degree than in the recent past if exchange rates are going to contribute to a deterioration in China’s global competitive position and a substantial reduction in its external surplus.

Some analysts find this differential productivity story unpersuasive because it is based only on prices of China’s exports to the United States

49. These estimates by the BLS International Price Project are not based on unit values of imports but take into account the changing composition and quality of import goods.

(about a fifth of total exports) and these may not be representative (e.g., on product mix) of total Chinese exports. In particular, Jonathan Anderson (2007b) notes that China's export prices for both traditional exports (like clothing and toys) and information technology (IT) electronics have been rising by 3 to 4 percent a year since 2004, whereas they were falling by 3 to 4 percent a year in 1995–2003.⁵⁰ He also wonders why, if rising productivity is responsible for the net export surge, there hasn't been more of a continuous move toward increased domestic sourcing in labor-intensive export industries. He speculates that China's now large export market share in some products (toys, footwear, and other low-end products) permits Chinese exporters to pass on their increased costs to overseas buyers. This cannot go on indefinitely if rising wages and renminbi appreciation persist, but he thinks it was a factor in the middle part of the decade.

A second hypothesis is that the large and growing trade surplus was primarily cyclical, with little relation to exchange rate developments. Anderson (2007c) argues that any good theory about China's surging trade surplus has to confront several facts: The shift in the trade balance occurred primarily in the heavy industrial sector, it involved more of a collapse in imports than a jump in exports, the net export shift was highly correlated with domestic demand swings, the swing was concentrated in metals and industrial materials, and profit margins in heavy industry fell during the initial increase in the trade surplus.

His explanation is as follows: The 2000–03 period witnessed a boom in property, housing construction, and auto sales, brought on by rapid structural changes in homeownership and new consumer finance instruments; and with sharply rising profits in industrial materials and machinery sectors, local governments and state enterprises invested heavily in smelting, refining, and machinery production. The boom soon turned into a bubble, and by early 2004, the authorities drastically curtailed lending for real estate and construction; but the central government could not slow the pace of investment in heavy industry. As a result, productive capacity grew much faster than domestic demand for the next three years; as profits fell, China began to aggressively absorb its surplus capacity by cutting way back on imports and by becoming a sizable net exporter in a few industrial categories. It was as if a large stock of new excess capacity had sprung out of the ground and played havoc with China's balance of payments. Anderson expected the excess capacity problem to abate quickly; indeed, in March 2007 he argued that "China's trade surplus is already peaking and should begin to fall by the latter part of the year" (Anderson 2007a, 35). He saw China returning to a more balanced trade position in the course of 2008 and 2009.

50. Anderson's analysis is based on Chinese export price data and Hong Kong data on prices of goods of Chinese origin that are reexported from Hong Kong. Unlike the price data analyzed in Lardy (2007), both of these are calculated from unit values.

But questions also arise about this “cyclical, excess capacity” view of the surge in China’s trade balance. Most fundamentally, unless one understands what is driving investment decisions in industries that end up with excess capacity, it is difficult to either forecast when excess capacity will contract/expand or to apportion influence among many plausible factors. Thus, for example, Anderson (2007c), writing in July 2007, acknowledged that there was no sign of stabilization of the trade balance, that excess capacity in the steel industry (which accounted for about a quarter of the trade surplus surge) showed no sign of a slowdown, and that after-tax profit margins in overall heavy industry had risen, in part because Chinese firms were doing a better job of exploiting export opportunities. Furthermore, even though the exchange rate allegedly had practically no role in the origin of the net export surge, Anderson (2007b, 9) recommended renminbi appreciation “as the only real tool left available to the authorities to offset the effects of excess capacity creation....”

But how do we know that Chinese producers didn’t take the expected level of the exchange rate into account when making investments in tradable goods industries? As already noted, an undervalued exchange rate raises the profitability of tradable goods by offering the safety valve of better access to overseas markets if domestic demand proves less buoyant than expected. Similarly, doesn’t an increasingly undervalued exchange rate and the spur it gives to exports help explain why investment and profits at least through mid-2008 slowed much less in this investment cycle than in earlier ones? And why should the same Chinese producers who Anderson alleges paid no attention to the exchange rate in 2004–06 in making investment decisions begin to do so in 2007?

Yet a third explanation for the post-2003 net export surge comes from Mussa (2008). He notes that China operated under a fixed exchange rate regime until July 2005 and that it has been in a quasi-fixed regime since then. He maintains that application of the monetary approach to the balance of payments can help to explain not only the net export surge but also the corresponding and seemingly bizarre improvement in China’s national savings-investment imbalance despite exceptionally rapid growth in investment, as well as the large and undesirable bias of investment toward tradable goods—i.e., manufacturing—and the resulting surge in the share of manufacturing in GDP.

Mussa observes that China has an exceptionally high ratio of base money to GDP, about 37 percent of GDP in 2006 (compared with about 7 percent in the United States). With nominal GDP growing at a very rapid rate of 16 percent, annual growth in demand for base money in China was large, about RMB1.24 trillion in 2006 (almost 7 percent of GDP); in contrast, the increase of base money in the United States amounted to less than 0.1 percent of GDP. Unlike the United States and many other countries, however, the Chinese central bank does not expand its holdings of net domestic assets to meet the rising demand for base money. Instead, it

reduces its net domestic assets (to more negative levels) in order to “sterilize” the monetary effect of a substantial fraction of foreign exchange reserve inflows and to keep the domestic money supply from exploding. The result is that Chinese residents are forced to reduce their spending below their income by an amount corresponding to the central bank’s accumulation of foreign exchange reserves less private capital inflows. For 2006, this amounted to 9 percent of GDP.

The reduction in spending, however, is not uniformly distributed over the Chinese economy. Businesses, especially in the tradable goods sector, may experience little or no constraint on their investment spending because they enjoy favorable access to domestic credit and to foreign capital inflows. In contrast, Chinese consumers (and many of the businesses that serve them) do not enjoy such favorable access and their spending is seriously constrained. The result is that overall domestic spending is suppressed and the spending that does take place is strongly tilted toward investment, particularly in tradable goods. Favorable access to capital operates as a subsidy to output and investment for firms that enjoy it, especially for capital-intensive firms in the tradable goods sector. Strong investment by these firms translates into rapidly rising labor productivity and falling unit labor costs. This, in turn, means (as emphasized above in the hidden productivity hypothesis) that the real effective exchange rate of the renminbi is significantly more depreciated than appears from standard indices that use relative consumer price levels rather than the economically more meaningful comparisons of relative unit labor costs in tradable goods industries. And this exchange rate effect is further enhanced by policies that keep domestic energy prices low and impose limited controls on pollution, thereby creating effective subsidies to energy-intensive, pollution-generating enterprises, which account for a substantial portion of the tradable goods sector.

The main policy implication of the monetary approach is that as long as the authorities continue to engage in heavy sterilization while economic growth and demand for base money are increasing rapidly, they will perpetuate the large external surplus by creating a monetary disequilibrium.⁵¹ If they want to reduce the large surplus, they should cut back both on sterilization and on their massive exchange market intervention.

This monetary explanation too leaves some questions unanswered. Would the predictions of the monetary approach be consistent with reserve, current account, and investment behavior in China over a longer period? Would this monetary approach be helpful in explaining the variation in international reserves in other Asian economies, some of which

51. The thrust of the argument here is similar to the conclusion that large-scale sterilization of reserve increases perpetuates external disequilibrium for a country with a large capital inflow because it prevents that inflow from lowering the interest rate and thereby discouraging further capital inflows.

have had even larger sterilization operations than China's? If an excess demand for base money in China led to a weakening of consumption demand during the last few years, why was the lower rate of import growth concentrated in heavy industrial sectors? Is this postulated excess demand for base money in China consistent with the observed saving behavior of the corporate sector over this period?

Renminbi Revaluation and Global Imbalances

There is lack of agreement about the contribution a renminbi appreciation could or should make to the correction of global payments imbalances, particularly the large US current account deficit, which peaked at \$788 billion (6 percent of GDP) in 2006 and then moderated somewhat, falling to \$673 billion (4.7 percent of GDP) in 2008. The IMF forecasts a further fall to 2.8 percent of GDP in 2009 (IMF 2009b).

One school maintains that China's potential and fair contribution to this international problem is quite limited. After all, China's weight in the Federal Reserve's trade-weighted index for the dollar is about 15 percent. A unilateral 20 percent renminbi appreciation by itself would thus translate into only a 3 percent depreciation in the trade-weighted dollar, a move that would perhaps reduce the US global current account deficit by \$40 billion to \$55 billion, hardly a major contribution. The United States should instead adopt policies to raise its own low national saving rate—and particularly decrease government dissavings over the medium to long run—if it wants to significantly reduce future US current account deficits and net foreign indebtedness (Roach 2007). Claims that foreigners will tire of adding dollar assets to their portfolios underplay the decline of "home bias" in investment decisions, the attraction of the US capital market, and the moderate size of the US external financing needs relative to the large stock of financial wealth in US trading partners (Cooper 2005).

The large bilateral US trade deficit with China should not be a matter of concern since it is a country's global current account position that matters. Also, the share of the US global trade deficit with emerging Asia has fallen over the past several years: The share with China has increased significantly while the share with other Asian economies has fallen more sharply, a pattern consistent with China's emergence as a major regional processing center. A renminbi revaluation will merely induce a substitution away from Chinese products toward other low-cost producers, with little effect on total US imports.

China's large global current account surplus and the current renminbi exchange rate cause no major damage to either the US or global economy. Indeed it was once argued that the United States benefited from China's large surplus since it provided the funds that China in turn lent back to the United States, helping to finance the large US external deficit. Until the subprime and credit crisis began in mid-2007, the US economy was

operating at full employment; the trend decline of employment in US manufacturing was long running (beginning well before any evidence of renminbi undervaluation); US consumers were benefiting from low-cost imports from China; and US borrowers were benefiting from low interest rates that would be higher if China were not purchasing as many US government and other dollar-denominated securities in its exchange market intervention operations (Corden 2009).

If renminbi appreciation had generated a wider and more rapid depreciation of the US dollar in 2005 and 2006, there would not have been enough slack in the economy to accommodate the expansion in US net exports without generating inflationary pressures. If there is a competitive benchmark for currencies in Asia, it is more apt to be the Japanese yen than the renminbi (Park 2007). Other countries benefit from the rapid growth of their exports to China. And China also benefits from this “Bretton Woods II” arrangement since the low value for the renminbi assists China in dealing with its formidable employment problem and in attracting enough foreign investment to build a world-class capital stock for tradable goods (Dooley, Folkerts-Landau, and Garber 2003).

Chinese exchange rate policy had very little influence on the US credit crisis, the primary origins of which were in the excessively loose US monetary policy in the run-up to the crisis (Taylor 2009); grossly inaccurate assumptions about the future path of US housing prices (Baily 2008); shifts in the composition of bank mortgage lending toward less creditworthy borrowers (Gramlich 2007); a major failure of US financial regulation and supervision, along with too much of a hands-off policy by central banks toward the pricking of asset-price bubbles (Goldstein 2008); excessive complexity in a class of securitized instruments, along with incentive problems in the originate-and-distribute model (Calomiris 2008); and unwarranted optimism about the continuous availability of borrowed liquidity (Counterparty Risk Management Policy Group III 2008). Neither China’s share of the total balance of payments surplus for all surplus countries (Corden 2009) nor its share of total purchases of US government securities by foreign central banks (Bergsten et al. 2006) are high enough to support claims that China’s exchange rate policy significantly pushed down US interest rates in the run-up to the US crisis. Likewise, the shortage of perceived investment opportunities in emerging economies (associated with the “savings glut” hypothesis) and “search for yield” in industrial countries go much beyond China’s macroeconomic and/or exchange rate policies.

The opposing view sees much less justification for complacency about global payments imbalances or the undervalued renminbi. True, a unilateral revaluation of the renminbi wouldn’t much affect the real effective exchange rate of the dollar. But China is a competitive benchmark for many others and if other Asian economies had followed China’s lead by revaluing their currencies, the effects on the dollar and on the US current account deficit would be anything but trivial. Emerging Asia plus Japan

has roughly a 40 percent weight in the Fed's trade-weighted dollar index. A 20 percent real appreciation in all Asian currencies would translate into an 8 percent real depreciation of the dollar and probably a \$100 billion to \$140 billion improvement in the US current account deficit (Goldstein 2007b). This is not small if the objective in 2006–07 was to cut the US deficit, say, roughly in half. If China and Japan hadn't acted to correct the large undervaluation of their currencies, the worry was that other Asian economies that had allowed their currencies to appreciate significantly (e.g., Korea) might reverse course and use large-scale intervention to lower the value of their currencies (Park 2007). Besides, the dollar was still regarded as overvalued to a considerable degree (Obstfeld and Rogoff 2006, Cline and Williamson 2008b).

More specifically, Cline and Williamson (2008b) estimated the US dollar to be overvalued by about 10 percent in February 2008; but according to the JPMorgan index of real effective exchange rates, by the end of the year the dollar had strengthened about 14 percent. All such calculations, however, are now more difficult to interpret given the very strong short-term cyclical effects of the ongoing financial and economic crisis on current account positions. Implicit in the view that the dollar is still significantly overvalued—despite the recent narrowing of the US current account deficit—is the expectation that the US external imbalance will widen again after the US recovery from the crisis is firmly established. A similar methodology concludes that the renminbi is probably still undervalued (though clearly less so than in, say, October 2007) despite the large cumulative appreciation of the renminbi's real effective exchange rate since July 2005.

If the aim is to eliminate China's estimated global current account surplus of 9.8 percent of GDP in 2008, then (using the rule of thumb that each 10 percent real effective appreciation reduces China's global current account by 2 to 3.5 percent of GDP) even the 20 percent real effective appreciation of the renminbi since July 2005 would be insufficient to eliminate the undervaluation. For example, suppose one assumes that each 10 percent real effective appreciation reduces China's current account surplus by 2.5 percent of GDP, then it would take a 40 percent appreciation to eliminate China's 9.8 percent of GDP global surplus—and the cumulative real effective appreciation of the renminbi since July 2005 would still leave about 20 percent appreciation to go. This probably understates the degree of undervaluation since the current account effects of some of the earlier exchange rate changes had already run their course by the end of 2008. For example, if we only considered real exchange rate changes that occurred over the past two years as having effects on the current account that were still "in the pipeline" (that is, not yet reflected in the published current account figures), then the relevant cumulative real effective appreciation of the renminbi would be about 15 percent, not 20 percent, and the estimated undervaluation would be 5 percent higher than suggested

above (25 percent instead of 20 percent). Moreover, one might argue that a good part of the particularly rapid rate of renminbi appreciation in 2008 might be reversed once some of the key currencies that have depreciated strongly vis-à-vis the renminbi over this period rebound from the cyclical and confidence effects of the global financial crisis.

Alternatively, if one posits that only about half of China's 2008 global current account surplus should be eliminated as part of any further cooperative effort to reduce global payments imbalances (as in Cline and Williamson 2008b) and that the rapid renminbi appreciation in 2008 is not likely to be reversed any time soon, then, depending on which index of real effective exchange rates one chooses, one may conclude that the renminbi at the end of 2008 was much less undervalued. For example, Cline and Williamson (2008b) estimated that the renminbi was undervalued in real effective terms by 19 percent (as of February 2008). Using the data in table 1.2, one can calculate that the renminbi appreciated from 3 to 7 percent between February 2008 and the end of 2008, implying that by year end the renminbi was undervalued by only 12 to 16 percent.

Failure of Asian currencies to share appropriately in the needed real effective depreciation of the dollar would imply one of two undesirable scenarios: Either other currencies (e.g., the euro, the Canadian dollar, and the Australian dollar) would have to appreciate unduly when by the late summer of 2007 they already had made an important contribution (having risen in real effective terms since the dollar peak in February 2002 by 26, 20, and 48 percent, respectively)⁵² or the total amount of dollar depreciation would be too small to produce a meaningful reduction in the US global deficit (Truman 2005). The heavy reliance of the United States on official lenders and on short maturity instruments to finance its global current account deficit—with much of the proceeds going to stoke consumption rather than investment—was also regarded as worrisome (Summers 2004).⁵³

Another popular position, again before the financial crisis, was that the United States should implement a credible medium-term plan for fiscal consolidation to help raise the low US national saving rate. But satisfactory resolution of the global imbalance problem should not be an “either-or” choice. Both US fiscal action and a better alignment of key exchange rates, including the renminbi, were needed to correct global pay-

52. According to the JPMorgan index, between February 2002 and December 2008 the euro appreciated in real effective terms by 32 percent and the Australian dollar by about 20 percent; in contrast, the Canadian dollar depreciated by 5 percent in real effective terms. The recent behavior of the Canadian and Australian dollars reflects the general decline in currencies of primary commodity-producing countries since the advent and intensification of the global economic and financial crisis.

53. Setser (2007), writing in early October 2007, reported that almost all of the financing of the US current account deficit over the previous four quarters was financed by central banks in developing countries.

ments imbalances in the least costly way in terms of economic growth or inflation for deficit and surplus countries alike (Mussa 2005).

The market for US government securities is very large, deep, and liquid. When Japan suddenly ceased its exchange market intervention in the second half of 2004 after having intervened (cumulatively) to the tune of about \$320 billion in 2003 and the first quarter of 2004, there was no major run-up in US interest rates.⁵⁴ Emerging economies that have an export basket broadly similar to that of China do suffer a competitive disadvantage from the “export subsidy” (to echo Federal Reserve Chairman Ben Bernanke’s 2006 characterization) that a highly undervalued renminbi imparts to China; some US industries are adversely affected as well. Seeking to maintain a highly undervalued renminbi as an investment and export-led growth strategy is not a sensible development plan for China (Lardy 2007), and many of the assumptions made in support of the Bretton Woods II story (e.g., about the importance of the export sector in growth and employment, the role of FDI in financing total investment, the US share of China’s total trade, the ownership of export industries) simply do not fit the specifics of the Chinese economy (Goldstein and Lardy 2005a).

The 2002–07 experience with the effect of the renminbi on other countries’ exchange rates in Asia would seem to contradict two polar assumptions. The Bretton Woods II thesis is that Asian economies as a group share a strong self-interest in maintaining an undervalued fixed exchange rate (since, among other benefits, it supports employment in their export industries). But if one looks at the evolution of real effective exchange rates for Asian economies from the dollar peak in February 2002 to late summer 2007 the record was diverse.⁵⁵ Whereas Indonesia (35), Singapore (29), Korea (22), Thailand (22), and the Philippines (19)—call them the “movers”—registered large appreciations in their real effective rates, Hong Kong (–25), Japan (–15), Malaysia (–14), Taiwan (–4), and China (–3)—the “stickers”—recorded real effective depreciations. If self-interest is revealed by behavior, the “movers” must have decided that the benefits of resisting real exchange rate appreciation, emphasized in Bretton Woods II, were considerably less than the costs.

At the same time, the diversity of real exchange rate behavior in Asia also casts doubt on the assumption that unless China allows its currency to appreciate, nobody else in Asia will do so. Clearly, there must be other factors (e.g., the strength of domestic demand, pressures from capital inflows, inflation threats, costs of sterilization) besides remaining competitive with China that affect Asian exchange rate policy.

Global payments imbalances, including the recycling of China’s large global surplus into investment in US assets, may not have been the

54. See Ito (2004) for a full discussion of the motives for Japan’s large intervention during this period.

55. This diversity in real exchange rate behavior continued through 2008.

primary cause of the US credit crisis but they contributed to it. In this connection, a recent IMF (2009c, 8) study on the initial lessons of the crisis concluded that “global imbalances played a role in the buildup of systemic risk. They contributed to low interest rates and to large capital inflows into US and European banks. As we argued earlier, these two factors then contributed to a search for yield, higher leverage, and the creation of riskier assets.” It has been estimated that the 10-year US Treasury yield would have been 90 basis points lower (in 2006) had there been no foreign official flows into US government bonds over the previous year (Warnock and Warnock 2006). If US long-term interest rates had been higher, the US housing bubble may not have reached such a dangerous proportion; similarly, it will be much harder to prevent excessive leverage from arising in the future if timely exchange rate adjustments are not made to smooth the elimination of large and unsustainable payments imbalances—and particularly, to rein in large capital outflows from surplus economies. Its other achievements notwithstanding, the recent London G-20 summit was a failure in addressing the global imbalance problem (Setser 2009).

The Bretton Woods II thesis about the long-term mutual benefits for Asia and the United States of large Asian surpluses, undervalued Asian exchange rates, and large US net capital inflows now lies in tatters, confirming the misgivings of skeptics (Goldstein and Lardy 2005a). The Bretton Woods II model did not last for decades; it endured three to five years at most. As documented in this volume, China has not clung to a policy of resisting any sizable appreciation in the real effective exchange rate of the renminbi. The Bretton Woods II strategy has not prevented an unprecedented decline in Asian exports over the past year, along with associated employment declines in export industries. And, as the current credit crisis illustrates vividly, the United States does not have an unambiguous interest in having large capital inflows from Asia push down US long-term real interest rates.

Management of China's International Reserves

In September 2007, China formally established the China Investment Corporation (CIC) to manage a portion of the country's massive foreign exchange reserves, which at the time stood at US\$1.3 trillion. Many questions have been raised about the implications of CIC's management of cross-border assets (Truman 2008). Will CIC be motivated by political considerations rather than conventional risk and rate of return?⁵⁶ Because of its potentially large size and method of operation, could CIC contribute to uncertainty and turmoil in international financial markets? These concerns prompted a leading economic official of the European Union to warn in

56. Summers (2007) contrasts the investment motives of sovereigns and private investors and discusses the problems that this could generate.

September 2007 that the European Union was likely to take steps to restrict investments by sovereign wealth funds that are not transparent.

Although CIC could become the world's largest sovereign wealth fund, initially it is smaller than the sovereign wealth funds of the United Arab Emirates, Singapore, Norway, and Kuwait. Since it is investing primarily within China, CIC is probably more accurately described as a holding company than a sovereign wealth fund (the latter typically invests entirely offshore) since it has incorporated Central Huijin Investment Limited (Central Huijin) as a subsidiary.⁵⁷ Central Huijin is the conduit through which the government has transferred foreign exchange reserves to domestic financial institutions as part of their recapitalization and restructuring. By the time CIC was created, these injections of capital in domestic banks and securities firms amounted to \$66.4 billion (see chapter 1, note 17). In December 2007 the government, via Central Huijin, injected \$20 billion in the China Development Bank. And on November 20, 2008 the government injected, again via Central Huijin, \$19 billion in the Agricultural Bank of China as part of its restructuring and presumed eventual public listing. Since the initial funding of CIC is only \$200 billion, these domestic investments by Central Huijin absorbed about half of CIC's initial financial resources.

In addition, CIC created Stable Investment Corporation, responsible for both strategic and portfolio international investments. Direct strategic investments will presumably be concentrated in energy, resources, and commodities. Some strategic investments may take the form of loans to Chinese domestic companies seeking to expand abroad. The management of some if not most of the portfolio investments is likely to be outsourced. The magnitude of these international investments is likely to be limited since there are no concrete plans to transfer additional funds from the state's official reserves to CIC and the ongoing flow of foreign exchange purchased by the central bank since the creation of CIC has been added to state official reserves rather than going to CIC.

Those who worry about the prospective size of CIC argue that to limit potential economic and political conflicts with its trading partners, CIC should reject the approach (taken by many state-controlled investors in Asia and the Middle East) of keeping information secret and should instead adopt the Norwegian model of full transparency and accountability.⁵⁸ Such an approach would ensure both that political intentions are known and fully communicated and that financial and economic disturbances are minimized.

57. China Jianyin Investment (Limited) was taken over and became a part of Central Huijin in September 2004, before the creation of CIC.

58. El-Erian (2007) argues that in encouraging transparency and disclosure for sovereign wealth funds, politicians in industrial countries should focus on issues of governance, process, and risk management.

Others argue that transparency is only secondary and could even pose a threat to other priorities as the disclosure of essential information about assets, investment strategy, or performance could sacrifice some control over the administration of a sovereign wealth fund. Furthermore, CIC management may be concerned that, despite the success of the Norway Pension Fund, full transparency could lead to inferior returns or greater volatility in domestic financial markets. These kinds of arguments have been made by similar state-owned investment firms like Singapore's Government Investment Corporation (GIC). Senior officials at GIC have maintained for years that "it is not in the nation's interest to detail our assets and their yearly returns"⁵⁹ and that "publishing this information would make it easier for would-be speculators to plan their attacks."⁶⁰

In this connection, Edwin Truman (2008) has proposed a set of best practices for sovereign wealth funds that would cover four elements: structure, governance, transparency and accountability, and behavior. He has also developed a scorecard that rates 32 sovereign wealth funds according to those criteria. The maximum score is 25 points. The average score was just over 10 points, with Norway's sovereign wealth fund at the top (with 24 points) and two Abu Dhabi funds at the bottom (with a 0.5 score). China Jianyin Investment scored well below average (6 points); there was not enough public information on CIC to assign it a score.

Currency Manipulation and IMF Exchange Rate Surveillance

Another issue is whether China, a member of the IMF, is living up to its obligation (as contained in Article IV, Section I of the Fund's charter) to "avoid manipulating exchange rates or the international monetary system in order to avoid effective balance of payments adjustment or to gain unfair competitive advantage over other member countries." But there is also a question of whether the IMF itself is living up to its obligations to "oversee the compliance of each member country with its obligations" and to "exercise firm surveillance over the exchange rate policies of members."

Some observers have answered one or both of those questions with a resounding "no." C. Fred Bergsten (2005, 2007), Desmond Lachman (2007), Goldstein (2004, 2006a, 2006b, 2007a, 2007b), Goldstein and Mussa (2005), Mussa (2008), and Ernest Preeg (2003), among others, have argued that China's persistent, large-scale, one-way intervention in the exchange market—while its global current account surplus was large and growing and while the real value of its currency remained below that of February

59. Interview with Lee Kuan Yew, *Wall Street Journal*, April 26, 2001.

60. Lee Hsien Loong, speech at the Parliament, Singapore, May 16, 2001.

2002 (through 2007 or well into 2008 according to the indices shown in table 1.2)—constitutes strong evidence of currency manipulation. Here, currency manipulation can be interpreted to mean persistent policy efforts either to push the real effective exchange rate away from its equilibrium or to prevent it from returning to equilibrium. Those same authors, along with Timothy Adams (2006), David Dodge (2006), Mervyn King (2006), and the IMF's Independent Evaluation Office (IEO 2007), among others, have also suggested that the IMF has been found wanting or worse ("asleep at the wheel," to use Adams' characterization) in its implementation of exchange rate surveillance. In some analyses, the criticism of the Fund explicitly or implicitly focuses on the China case, while in others it is more wide-ranging.

Other economists—including Anderson (2006a, 2007c) and Jeffrey Frankel (2006)—regard the renminbi as misaligned (undervalued) but do not regard China's exchange rate policy as meriting a "manipulation" finding. In its semiannual *Report to the US Congress on International Economic and Exchange Rate Policy*, the US Treasury has become increasingly critical of China's exchange rate policy but has refused to name China a manipulator because it could not establish "intent" to manipulate. In its consultation reports on China the IMF has moved from criticizing China's currency regime as insufficiently "flexible" to acknowledging that the renminbi is also "undervalued" (IMF 2004, 2006a), but it has never accused China of manipulating the value of the renminbi.⁶¹ This view is consistent with IMF Managing Director Rodrigo de Rato's (2006) repeated statements that he does not think it would be appropriate for the Fund to serve as a global "umpire" for the exchange rate system and that the Fund should not operate as a special pressure group. Some commentators (Eichengreen 2007) concede that IMF exchange rate surveillance has probably been too timid but emphasize that there are limits to how much leverage the Fund can exert on large, surplus countries that do not borrow from it.

In June 2007, the Fund obtained agreement from its membership to revise its 1977 Principles for the Guidance of Members' Exchange Rate Policies (IMF 2007a, 2007b), which the Fund felt were out of date and did not give it enough authority to be more activist in discouraging antisocial exchange rate policy. While the antimanipulation principle was maintained without alteration as a membership obligation, a new principle was added, recommending that members avoid exchange rate policies that re-

61. The IMF did name China as a currency manipulator in 1992–94; see Lardy (1994, 86–90), Frankel and Wei (2007), and Henning (2007). We cannot yet say anything about the characterization of China's currency policy in the Fund's 2007 Article IV report on China. In the normal course of events that report would have been considered by the Executive Board of the IMF in the early fall of 2007 and been made public shortly thereafter. However, apparently because of objections by the Chinese government, as of mid-2009 the report had not been presented to the Executive Board.

sult in “external instability.” This new principle was regarded as helpful because it is based on outcome, not intent, and because it would give the Fund the latitude to label a currency as “fundamentally misaligned” without going the full monty to call it manipulation.

While the ongoing debate on the consistency of China’s exchange rate policy with IMF surveillance guidelines has many facets, the main lines of argument can be summarized as follows.

China’s exchange rate policy is being unfairly singled out for criticism. China is not the only country either to have recorded large percentage or absolute dollar increases in reserves in recent years, or to have a large global current account surplus relative to its GDP, or to have had a depreciation in its real effective exchange rate (Keidel 2005). Analysis by the US Treasury Department (2005, appendix) shows that different single indicators produce different orderings of manipulated currencies. The problem is not with Chinese policies that have led to a strong renminbi but rather with US policies that have led to a weak dollar (Fan Gang 2006, 2008). The Fund’s charter permits members a wide choice of currency regimes, including fixed exchange rates, and defense of a fixed exchange rate can involve heavy exchange market intervention. A country that maintains exactly the same parity over an extended period, as China did from October 1997 to July 2005—even resisting pressures to devalue during the Asian financial crisis—can’t be “manipulating” since it hasn’t taken any active measures to obtain an unfair competitive advantage. Requiring China to undertake a large revaluation of the renminbi would risk social instability and would infringe unduly on China’s national sovereignty. Bowing to international pressure and agreeing to an excessive revaluation would condemn China to the same mistake Japan made in the 1980s, with a consequent lost decade of negligible economic growth (McKinnon 2007). The concept of currency manipulation itself is ill defined and nonoperational since many government policies affect exchange rates and the intent of these policies cannot be identified clearly.⁶² If a question arises on policy intent, the strong benefit of the doubt should go to the country.

After having weighed the evidence, neither the IMF nor the US Treasury has found China guilty of currency manipulation.

The IMF was timely in its criticism of the inflexibility of the renminbi, and labeling China as a currency manipulator would only have discouraged reform. Unlike the WTO, the IMF has no penalties (other than the extreme and unlikely one of expulsion) for noncompliance with a member’s obligations. No country has been found in violation of its Article IV obligations since the second amendment of the Fund’s Articles of Agreement in the early 1970s, and the requirement to prove intent under the 1977 guidelines on exchange rate surveillance would not have supported

62. Crockett (2007) argues that the macroeconomic policy mix can affect the exchange rate, just as exchange market intervention can.

a more activist stance on China's exchange rate policies. The term "manipulation" has a conspiratorial connotation that makes it unworkable for negotiations involving sovereign nations. The Fund needed to rebuild relations in Asia after the Asian financial crisis and a confrontation with China over exchange rate policy would not have been well received in the region and might even have renewed calls for an Asian Monetary Fund as an alternative to the IMF. The Fund means the Fund's Executive Board, and there was no consensus among the Fund's major shareholders for a more aggressive stance toward China's exchange rate policy. On a broader level, the Fund should not seek to serve as global "umpire" for the exchange rate system because such a role would conflict with its role as trusted adviser to its members. In any case, charges of manipulation and fundamental misalignment of the renminbi are now moot since China has permitted its real effective exchange rate to appreciate significantly since October 2007, bringing the cumulative appreciation from July 2005 to end-2008 to 17 to 20 percent (table 1.2).

Critics of both China's exchange rate policy and Fund surveillance of that policy do not find the arguments summarized above to be persuasive.

China's exchange rate policy came under international criticism because it thwarted external adjustment, because it ran counter to China's international obligations as a Fund member, and because until 2008 China was moving too slowly to change it. It is unprecedented for a country of China's size to run a global current account imbalance (of either sign) of 10 percent or more of GDP. There was no other case of a systemically important country that met all four of the following criteria: It had intervened in the exchange market to the tune of roughly 10 percent of its GDP for several years running; its global current account surplus relative to GDP over this period had almost quadrupled to reach 11 percent; the value of its currency was less than in the base period; and its domestic economy had been booming (Goldstein 2007b). Unlike major oil exporters, China's rapidly rising international reserves do not reflect the conversion of wealth from nonrenewable resources underground into financial assets above ground (Truman 2008).

The IMF charter and guidelines do not prohibit exchange market intervention, but they do discourage prolonged, large-scale, one-way intervention because it is symptomatic of a disequilibrium exchange rate that is costly to both the home country and its trading partners.

Depending on what is happening to a country's balance of payments, a misalignment of the real exchange rate can occur just as easily from nonmovement as from excessive movement of the nominal exchange rate; similarly, a given level of the nominal exchange rate may be fine when a country's global current account is in deficit or in small surplus but can be problematic when there is a persistent, very large surplus. Blocking needed real exchange rate movement by intervening to keep the nominal

rate fixed or quasi-fixed can therefore legitimately be classified as currency manipulation (Goldstein 2004, 2006c, 2007a).

Accepting the argument that currency manipulation should be permitted for domestic employment reasons would make it impossible to have meaningful international guidelines discouraging competitive depreciation. Japan's lost decade of the 1990s had little to do with the fact that the Plaza Accord led to a 70 percent appreciation of the yen over three years and a lot to do with too much fiscal and monetary stimulus and weak banking supervision, both of which led to property and equity price bubbles that subsequently burst (Kuroda 2004, Kanamori and Zhao 2005).

One of the key indicators of manipulation is prolonged, large-scale, one-way intervention in exchange markets and this pointer (unlike some others) does not carry the qualification of "for balance of payments purposes" because there is no plausible non-balance of payments reason for such a policy (Mussa 2008). More generally, if one accepted the Fund's (or the US Treasury's) standard of proof for "intent" to manipulate, there could never be a violation, short of a confession by the manipulating country, and surely this cannot be what the framers of Article IV had in mind. Judging whether China's exchange rate policy qualifies as manipulation is not a close call that involves giving the benefit of the doubt to the country. It is, in contrast, as clear a case of manipulation as arises outside of textbooks.

The Fund has done serious damage to its reputation both by not identifying earlier the growing undervaluation of the renminbi and by failing to enforce its regulatory responsibility for discouraging currency manipulation.⁶³ Had IMF management and staff been warning the Chinese authorities, say since 2003, that their persistent, large exchange intervention was thwarting external adjustment and was in danger of breaching China's obligations, the Fund would have enhanced its credibility both in and outside China, as evidence mounted of the internal and external costs of an inflexible and increasingly undervalued renminbi. Major IMF shareholders (not just the United States) could perhaps have been persuaded to support this policy line if Fund management and staff had made the effort. But Fund leadership on the China exchange rate issue was not there (Mussa 2008). Indeed, Managing Director de Rato gave the game away early on by characterizing the issue not as potential manipulation violation but instead solely as a difference of opinion on the optimal speed of renminbi appreciation.

Whereas the WTO, through its rulings, has helped to define what is and what is not internationally acceptable trade policy, the Fund, by rejecting its regulatory role, can claim no such clarification on exchange rate

63. In recent years, the Fund's forecasts for China's global current account surplus have also been systematically too low, seemingly damaging the Fund's diagnosis and policy prescription for exchange rate policy.

policy. “WTO compatibility” means something; no one speaks of “IMF compatibility” because no one knows what it is. A finding of manipulation by the Fund would exert more pressure for a change in Chinese exchange rate policy than has “a difference of opinion” between China and the Fund on the optimal speed of adjustment to greater exchange rate flexibility—both because countries are sensitive to alleged breaches of their international obligations and because such a finding from the Fund could aid chances of success for cases taken to the WTO for exchange rate–related reasons (e.g., Article XV frustration cases).⁶⁴

There was nothing missing in the 1977 guidelines for exchange rate surveillance that would have prevented the Fund from enforcing its principle against currency manipulation. The June 2007 revision added a new principle on avoiding “external instability,” but unlike the antimanipulation guideline (which comes directly from the Fund articles), the new guideline is only a recommendation, not a membership obligation, and hence may have little effect. The term “currency manipulation” comes from the IMF Articles of Agreement and accurately describes what has been going on in Chinese exchange rate policy; but one could easily substitute another (more neutral-sounding) term for it—say, destabilizing exchange market intervention—without changing the substance of Fund surveillance. The Fund will not rebuild its image in Asia by refusing to supply one of the key public goods in its mandate: an internationally agreed code of conduct for exchange rate policies. Two-thirds of China’s exports go outside Asia; it would make no sense for China to withdraw from the international institution that sets the rules on international monetary relations with some of its most important trading partners.

Last but not least, the critics assert that by rejecting its regulatory role as global umpire for exchange rates and by not enforcing its guidelines on exchange rate surveillance, the Fund has set the stage for national legislatures (e.g., the US Congress) to step in to fill the breach, with a higher risk of tit-for-tat protectionist trade policy. Under this argument, perceived “fairness” in exchange rate policy is a *sine qua non* for a win-win “grand bargain” between the industrial countries and the emerging economies on market access and power sharing in the governance of the international economy—but this perceived fairness will not take root without the Fund serving as an unbiased, competent global umpire (Goldstein 2006a).

Congressional Currency Bills

Increasingly frustrated with the uninterrupted rise in China’s bilateral (with the United States) and global trade surpluses as well as the failure of bilateral negotiations to produce a faster and larger appreciation in the

64. See Subramanian and Mattoo (2009) on how the Fund and the WTO could cooperate against currency manipulation.

renminbi, the US Congress has from time to time threatened to pass currency laws that would penalize any US trading partners that have “manipulated” and/or “fundamentally misaligned” currencies. These bills would replace the part of the Omnibus Trade and Competitiveness Act of 1988 that requires the US Treasury to issue biannual reports to Congress on whether US trading partners are manipulating their currencies, with new legislation that both has more “teeth” to induce compliance and limits the discretion of the US Treasury to avoid a designation of manipulation by arguing that there is insufficient evidence to prove intent to manipulate.

The first such currency bill to gain attention was introduced by Senators Charles Schumer (D-NY) and Lindsey Graham (R-SC) in the fall of 2003. This was a China-specific bill that would have authorized a 27.5 percent tariff on imports from China if negotiations were unsuccessful in eliminating the undervaluation of the renminbi. While 67 senators expressed their intention to vote for Schumer-Graham, its sponsors never brought the bill to a formal vote, delaying a vote several times to see if new bilateral negotiations with China would produce evidence of greater progress and finally, in early 2007, agreeing to join with Senators Max Baucus (D-MT) and Charles Grassley (R-IA) in sponsoring new legislation.

Since then, three prominent currency bills were introduced. The Senate Finance Committee bill (S. 1607) was sponsored by Senators Schumer, Grassley, Graham, and Baucus (hereafter, the SGGB bill), and the Senate Banking Committee bill (S. 1677) was sponsored by Senators Christopher Dodd (D-CT) and Richard Shelby (R-AL) (hereafter, the DS bill). There was also a House bill (H.R. 2942), sponsored by Representatives Duncan Hunter (R-CA) and Tim Ryan (D-OH) (hereafter, the RH bill).

The SGGB bill was voted out of the Senate Finance Committee by an overwhelming 20–1 vote; similarly, the DS bill was endorsed by the Senate Banking Committee by a 17–3 margin. In March 2007, testifying before the Senate Finance Committee, Senator Schumer predicted that the SGGB bill would garner bipartisan support in this session and would be “veto proof.” In the event, however, none of these three bills were voted on in Congress during the Bush presidency.

The main features of these three bills are discussed in Hufbauer and Brunel (2008). Here, it is sufficient to note that

- the US Treasury would continue to provide biannual reports to Congress, identifying countries with manipulated or fundamentally misaligned currencies;
- the criteria for judging a currency to be manipulated draw heavily on the pointers identified in the 1977 IMF guidelines on exchange rate surveillance (and in the US 1988 Omnibus Act), with the exceptions that proof of intent is not required and that the US bilateral trade imbalance with that country is an additional pointer;

- where fundamental misalignment replaces manipulation, a distinction is made (in the SGGB bill) between misalignment attributable to a list of specific government policy actions (like those used to identify manipulation) and misalignment attributable to other causes (presumably, including market failure), with penalties much greater for the former than the latter;
- penalties for noncompliance are usually graduated (as the period of noncompliance gets longer); for example, they may begin with negotiations with the US Treasury and a call on the IMF to initiate a “special consultation” with the country; later (e.g., after 30 or 180 days), the US Executive Director at the Fund would be asked to oppose any rule change that benefits the country (e.g., an increase in its quota, any IMF financing), the country would not be able to qualify for “market economy” status, and the country’s goods would not be eligible for purchase by the US federal government; further down the road (e.g., after 270 or 360 days), trade policy measures of various kinds would kick in (e.g., the Treasury could file a WTO Article XV frustration case, or a misaligned exchange rate would be actionable as a countervailing subsidy, and/or the United States would initiate a WTO dispute settlement case and would consider remedial intervention); and
- there may be a presidential waiver of the penalties in cases of vital economic and security interests, although some bills (e.g., the SGGB bill) provide for a congressional override.

Not surprisingly, the bills provoked a heated debate about their desirability and likely effectiveness both within the United States and abroad. Those opposing the bills offered the following arguments. Such legislation would usurp the authority of both the IMF and the US Treasury (the Executive Branch) to deal more effectively and less confrontationally with international disputes involving exchange rate policy. The IMF revised and strengthened its guidelines on exchange rate surveillance and those new guidelines should be given a chance to work. The Strategic Economic Dialogue (SED) with China has made progress the old-fashioned way, through consultation and discussion. The US Congress has neither the objectivity nor the expertise to render sound judgments on other countries’ exchange rate policies. Whatever their original intent, these currency bills would ultimately become instruments of protectionism—much like the US experience with antidumping legislation.

Including indicators like the bilateral trade imbalance in determinations of misalignment or manipulation illustrates the weakness of the underlying analysis. Econometric analysis by Jeffrey Frankel and Shang-Jin Wei (2007) found that “political” variables like the bilateral trade imbalance and the US unemployment rate (in presidential election years) have played as important a role in earlier Treasury manipulation findings as

have legitimate economic variables such as the global current account imbalance, the estimated degree of currency misalignment, and the size of changes in international reserves. Although the three currency bills (unlike the original Schumer-Graham bill) may be technically “WTO compatible,” the odds that the United States would actually win these cases before a WTO panel are low because the bills pursue arguments of dubious legal merit (Hufbauer and Brunel 2008). Inserting currency matters in the WTO adjudication process would risk politicizing the WTO dispute settlement process and weakening support for it around the world.

Moreover, these three congressional currency bills would not be effective in producing a faster and larger appreciation of the renminbi or in reducing the US global and bilateral trade deficits. Policymakers in China who favor bolder currency reform would find their influence weakened by US legislation because among the Chinese the reform would look like capitulation to the demands of the US Congress. The IMF would likewise find it harder to enforce its new currency guidelines because it would look as if it were acting as a surrogate for the US government rather than as an objective international umpire. These bills contain no measures to improve the US savings-investment imbalance. They also run the risk of igniting trade policy retaliation and copycat currency bills abroad; suppose, for example, China passed a bill imposing trade penalties on the United States if it didn’t meet some Chinese-imposed target for a reduction in the US budget deficit. If other countries enacted their own national currency bills, there would soon be a completely unworkable and inconsistent network of exchange rate policy guidelines.

Those defending these currency bills offered a different perspective. The currency oversight process was badly broken—both internationally and in the United States. The IMF hasn’t sent even one special consultation to investigate exchange rate policy abuses in 20 years—much less made a finding of currency manipulation. As indicated earlier, the Fund has been asleep at the wheel in identifying and discouraging currency manipulation in China. In a similar vein, the US Treasury did not enforce the currency manipulation provisions of the 1988 Omnibus Act in the face of overwhelming evidence that China has been thwarting external adjustment. The bilateral diplomacy championed by Treasury Secretaries John Snow and Henry Paulson produced insufficient renminbi appreciation. Yes, if both—or even either—the Fund and the US Treasury had exercised their currency oversight responsibly, congressional action would be unnecessary. But even a “third-best” policy response to a serious problem is better than no response at all. Congress was not attempting to usurp anything. The US Constitution gives Congress the authority over currency matters and Congress has seen fit to delegate that authority to the Executive Branch (the Treasury), but such delegation is conditional on the Treasury performing well (Henning 2007). If currency oversight is neglected, it is perfectly reasonable for the US Congress to reassert its authority in

this area—at least temporarily until the Fund and the US Treasury show signs of better performance. It is not “protectionist” for the US Congress to complain that another country (China) is not taking seriously its obligations on exchange rate policy as a member of the Fund, any more than it is protectionist for the United States to complain about China’s lack of enforcement of intellectual property rights. Condoning currency manipulation and allowing a “free for all” in the global exchange rate system is not the friend of open markets.

Defenders of these bills might also have argued that it remains to be seen whether congressional currency bills could be effective in inducing faster appreciation of the renminbi. The US government does not refrain from publicly criticizing China’s human rights abuses for fear it will slow reform; what is different about exchange rate policy? The United States also had conditions for supporting China’s entry into the WTO and those issues were solved in bilateral negotiation. Similarly, congressional currency bills were part of the negotiation on exchange rate policy and they may alter (in the desired direction) the cost-benefit calculations in Beijing about how fast to move on renminbi appreciation.

Policy Implications and Options

We illustrated in the preceding chapter the multiple considerations that bear on how China should conduct its exchange rate policy in the period ahead. In addition, the domestic and external environment in which exchange rate policy operates has changed significantly since the fall of 2007, when we last offered advice on this matter (Goldstein and Lardy 2008).

To begin with, the world economy in 2009 is facing a global recession, defined by the International Monetary Fund (IMF) as real growth of global GDP of 3 percent or less. The credit losses and financial-market turbulence that began in the US subprime market have intensified and spread along several dimensions—as well as across countries—and have extracted a heavy toll on real economic activity. In October 2007, the IMF (2007c) forecast global growth in 2008 of 4.8 percent, based on 2.2 percent growth in advanced countries and 7.4 percent growth in the emerging and developing countries. The actual 2008 outcome was 3.2 percent—0.9 percent in advanced economies and 6.1 percent in the developing world (IMF 2009b).

The fragility of the IMF's forecasts for 2009 was even more marked. In April the Fund (IMF 2008) saw 2009 global growth as 3.8 percent, with advanced-country growth at 1.3 percent and developing-country growth at 6.6 percent. Yet in late January 2009 the IMF (2009a) downgraded that forecast to 0.5 percent, with advanced-country growth of –2 percent and growth in the developing world at 3.3 percent, and in April reduced its projections still further to –1.3, –3.8, and 1.6 percent for global, advanced-country, and developing-country growth, respectively (IMF 2009b).

While most countries are in the process of implementing macroeconomic stimulus—both as regards monetary and fiscal policies—these measures will only cushion the growth slowdown, not eliminate it. Thus this

global growth slowdown means that China faces a considerably less buoyant outlook for external demand than before the crisis, as is already evident in the sharp decline in China's exports beginning in November 2008. In addition, economic growth in China has slowed materially since the second quarter of 2007 when it peaked at 14 percent. Measured year over year, China's growth has fallen for seven consecutive quarters, to a low of 6.1 percent in the first quarter of 2009, the slowest pace in nearly two decades. In April 2008, the IMF was forecasting 2009 growth in China of 9.5 percent; in January 2009 the Fund lowered its forecast to 6.7 percent, and in April 2009 reduced it further to 6.5 percent (IMF 2008, 2009a, 2009b).

One important implication of this marked slowdown in China's actual and prospective economic growth is that unlike in 2003–07, exchange rate policy is no longer in what James Meade (1951) characterized as a “nondilemma” situation in which exchange rate action (that is, real exchange rate appreciation in China's case) would move the economy closer to both internal and external balance. In that earlier period, not only did real exchange rate appreciation offer the promise of a smaller global external surplus, it also could be expected to reduce the overheating of the domestic economy. Now the situation is more complicated. Further real appreciation of the renminbi is an attractive policy option to reduce China's still large external imbalance but it would also, if sizable, move China farther away from internal balance—i.e., would push China's growth further below its potential.

At least through the first quarter of 2009, China's imports fell even faster than its exports, pushing the quarterly trade surplus up by half compared with the first quarter of 2008. While this pattern likely will become less pronounced over the balance of the year, it is likely that China's global current account surplus in 2009 will be 8 to 9 percent of GDP, smaller than the estimated 9.8 percent global surplus in 2008 but still high by international standards.¹ On the domestic side, in November 2008 the Chinese

1. There are three reasons to anticipate a moderation from the sharp increase in the trade surplus in the first quarter of 2009. First, much of the increase in the Q1 surplus appears to result from the sharp slowdown in processed exports (predominantly consumer electronics and information technology hardware), which account for half of China's total exports and are produced predominantly from imported parts, components, and assemblies. As export orders for these goods fell starting in late 2008, firms cut back sharply on their imports of the related parts and components. This inventory adjustment appears to have been largely completed in December 2008–March 2009. Thus the contribution of this inventory adjustment to falling imports is unlikely to be a significant factor beyond Q1. Second, another reason for the large Q1 drop in imports was the sharp decline, compared with the first quarter of 2008, in the prices of commodities (such as crude oil and iron ore) that China imports in large quantities. That terms of trade contribution to China's increasing trade balance in the first quarter of 2009 is likely to wane markedly in the second half of the year since prices of China's key commodity imports fell sharply in the second half of 2008. Third, as noted earlier in this study, about three-quarters of the cumulative appreciation of the renminbi from mid-2005 through the end of 2008 occurred in November 2007–2008; much of the impact of this

government announced a considerable fiscal stimulus package—with a headline figure of RMB4 trillion in investment—to cushion the slowdown in economic activity. Our reading of that fiscal stimulus package (sifting out the parts that were already in the pipeline) suggests that it will be in the neighborhood of 2 to 3 percent of GDP annually in 2009 and 2010. China also began to ease monetary policy in the fall of 2008, and in the final months of the year and the first months of 2009 bank lending increased significantly. In addition, as noted in chapter 2, the government is increasing transfer payments to low-income households and retirees and is working to bring a much larger share of the population into existing health insurance schemes. But even with such monetary and fiscal stimulus, we still expect China's growth in 2009 to decline to between 7 and 8 percent.

In our earlier recommendations (again, offered before the global financial crisis), we suggested that China adopt an immediate sizable revaluation of the renminbi along with a fiscal policy stimulus, in order to significantly reduce its external surplus while minimizing any adverse growth consequences of the revaluation (Goldstein and Lardy 2008). As we summarized in chapters 1 and 2, the Chinese authorities have taken such actions over the past 12 to 18 months, and we applaud them for doing so, even if the measures came later than they should have and even if it's too early to declare mission accomplished. Going forward, it is now apparent that it would be more difficult to use fiscal policy stimulus to counteract the growth effects of a further *immediate*, large real appreciation, so the case for undertaking a sizable real appreciation of the renminbi in 2009 is considerably weaker than it was in, say, October 2007. Thus if a further appreciation of the renminbi is still needed—and we think it is—the bulk of it would need to take place after the recovery from the present growth slowdown is firmly established.

A third big change from October 2007—again discussed in chapters 1 and 2—relates to the size of the real trade-weighted (effective) appreciation of the renminbi. In October 2007, the cumulative real effective appreciation of the renminbi since the currency reform of July 2005 was a modest 7 percent. The value of the currency in October 2007 was actually 2 percent less than in February 2002, when the US dollar peaked in value (both according to the JPMorgan index). We say “modest” because China's global current account surplus had risen sharply and without interruption from 1 percent of GDP in 2001 to an unprecedented 11 percent of GDP in 2007. For that and several other reasons, we characterized China's exchange rate policy as being well “behind the curve.”

But developments since October 2007 have altered that picture. By December 2008, according to the indices shown in table 1.2, the cumu-

relatively large appreciation had yet to feed through to the trade account by the first quarter of 2009.

lative real effective appreciation of the renminbi (from July 2005) had climbed to 17 to 20 percent. This can no longer be called “modest,” even if one’s updated calculations of the “equilibrium” value for the renminbi suggest (as ours do) that some further appreciation—say, on the order of 12 to 25 percent—would still be desirable. In other words, the Chinese authorities—assuming that they don’t allow the sizable real appreciation of the renminbi in 2008 to be undone—are not as far “behind the curve” as they were in October 2007. This in turn also means that the case for an immediate step revaluation of the renminbi (rather than for a further upward crawl) is also weaker than it was then.

Finally, the deterioration in the economic situation in the United States could alter the external pressure on China’s exchange rate policy. In the short interval between October 2007 and April 2008, the IMF lowered its forecast for 2008 US economic growth from 1.9 to 0.5 percent, and in January 2009 downgraded its forecast for 2009 from April 2008’s already modest 0.6 percent to –1.6 percent. In April 2009 the IMF further reduced its forecast to –2.8 percent (IMF 2009b). Furthermore, the United States is in the midst of what is widely expected to be its most severe postwar recession, with, *inter alia*, the cumulative real output decline and peak (monthly) unemployment rate expected to hit at least 5 and 9 percent, respectively—compared with the averages of 1.8 and 7 percent, respectively, during the ten previous postwar US recessions.²

The onset of the financial crisis and the accompanying US recession could well have conflicting effects on US attitudes toward China’s exchange rate policy. On the one hand, crisis management—especially the design of the 2009 fiscal stimulus bill and repeated massive interventions by the US Federal Reserve and US Treasury to bail out weak financial institutions and to maintain financial stability—has diverted attention away from the US external imbalance and the exchange rate policies of other countries, including China.³ Some would go farther and argue that the financial crisis has induced more and more members of Congress to recognize that China is the biggest official creditor of the United States and that sanctions could lead the Chinese to reduce their lending to us, perhaps leading to a rise in risk premia on US assets and to a disorderly decline in the dollar.

On the other hand, the longer the US recession persists, the greater the likelihood that Congress will take action against any economy whose currency policy smacks of beggar-thy-neighbor manipulation. Thus if China

2. By May 2009 the current recession had already gone on for 18 months (using the finding of the National Bureau of Economic Research that it started in December 2007); on this measure too the current recession already exceeds the postwar average of 10 months and could exceed it by a wide margin if it continues, as many expect, through the end of 2009.

3. The recession, by reducing US import demand, has (along with the earlier real depreciation of the dollar) also led to a sharp improvement in the US current account deficit, which may come in at less than 3 percent of US GDP in 2009, down from its peak of 6 percent in 2006.

were to allow its recent significant progress on real exchange rate appreciation to backslide, prospects for the revival of congressional currency bills aimed at China could be much greater.⁴

With these changes in the operating environment in mind, it is useful to clarify the options available to Chinese policymakers by framing the choice of exchange rate policy in terms of two competing strategies. The first, which we call “stay the course,” reflects the strategy that emerged in the second half of 2008. The second strategy, which would entail greater efforts to maintain and extend the recent progress on real effective appreciation of the renminbi, we call the (revised) “three-stage approach.”⁵

The Stay-the-Course Strategy

The stay-the-course strategy begins from the proposition that no one should care much about exchange rate policy for its own sake, that it is basically a facilitating mechanism for more fundamental objectives. From this bottom-line perspective, China’s existing exchange rate policy could be regarded by its supporters as quite successful. After all, the average annual rate of economic growth from the July 2005 currency reform through mid-2008 was above 10 percent. Core inflation was low. The rise in the consumer price index (CPI) starting in the second half of 2007 was mainly attributable to a temporary reduction in the supply of pork on the domestic market and was short-lived, as reflected in a marked slowing of CPI inflation in the second half of 2008. Bank credit growth, after running way ahead of central bank targets in 2003, the first quarter of 2004, and the first half of 2006, was back in a reasonable range by the first half of 2008. The listing of four large state-owned commercial banks and the sale of minority stakes to foreign strategic investors went well.⁶ The investment share of GDP had leveled off after several years of rapid increase (see figure

4. Note that progress on real appreciation of the renminbi could be undone in two (nonmutually exclusive) ways: There could be “active” efforts to drive down the value of the renminbi relative to the dollar by, *inter alia*, increasing the scale of official intervention in the exchange market; or, more “passively,” China could choose not to react to (that is, not try to offset) future appreciations in the currencies of its trading partners that have been driven low (depreciated) by the global financial crisis. Both of these effects would lead to a future depreciation in the real effective exchange rate of the renminbi.

5. We call it the revised three-stage approach to differentiate it from the original three-stage approach that we outlined in October 2007 (Goldstein and Lardy 2008).

6. The four are the Bank of Communications (listed in Hong Kong June 2005, in Shanghai May 2007), China Construction Bank (listed in Hong Kong October 2005 and in Shanghai September 2007), Bank of China (listed in Hong Kong June 2006 and in Shanghai July 2006), and the Industrial and Commercial Bank of China (listed simultaneously in Hong Kong and Shanghai October 2006).

2.2). Yes, there had been pockets of overheating but the central bank's series of increases in both interest rates (nine upward adjustments from October 2004 to December 2007) and reserve requirements (21 upward adjustments from mid-2003 to June 2008), along with the continuation of heavy sterilization and targeted window guidance on bank lending, mitigated this problem. The stock of outstanding sterilization instruments relative to GDP has, as indicated earlier, grown enormously in recent years but is still low relative to the shares in some other Asian economies such as Malaysia, Singapore, and Taiwan (Anderson 2007c).⁷

Contrary to the predictions of many outside analysts, it has been possible to implement a gradual appreciation of the renminbi vis-à-vis the dollar and still conduct a reasonably independent monetary policy without being overwhelmed by foreign capital inflows; when those inflows have gotten large, in some periods it seems to be more because of the attractions of the booming equity and property markets than because of strong speculation on further renminbi appreciation. Some progress has meanwhile been made both in liberalizing further the capital outflow regime and in strengthening the structure of the foreign exchange market.

External criticism of China's mushrooming global current account surplus and the only modest appreciation of the renminbi's real effective exchange rate was significant earlier. But the Bush administration opposed the currency bills cum trade sanctions introduced in the US Congress, preferring instead to negotiate within the Strategic Economic Dialogue framework. In any case, the deepening of the global financial crisis after the failure of Bear Stearns in the spring of 2008 dampened congressional enthusiasm for these currency bills, which as noted in chapter 2, were not voted on in Congress. And while candidate Obama talked tough on China's exchange rate policy, President Obama's first Treasury Department Report, issued on April 15, 2009, continued the policy of the Bush administration and declined to name China as a currency manipulator.⁸

The IMF issued a revised set of guidelines for exchange rate surveillance in June 2007. But, as mentioned in chapter 2, the new managing director, Dominique Strauss-Kahn, apparently did not wish to begin his term with a confrontation on China's exchange rate policy when he was trying to garner support for IMF reform in other areas. Indeed, the IMF board postponed considering the staff report on the Fund's 2007 Article IV consultation with China—it should have been taken up in the fall of 2007

7. Anderson's comparisons of sterilization debt do not take into account the sterilization accomplished by increasing the reserve requirement imposed on banks. In mid-2008 sterilization bonds outstanding in China were RMB4.2 trillion but the increase in the required reserve ratio immobilized an additional RMB5.2 trillion.

8. US Department of the Treasury, Office of International Affairs, *Report to Congress on International Economic and Exchange Rate Policy*, April 15, 2009.

but it was repeatedly bumped from the agenda and as of late spring 2009 the Fund's board had still not reviewed the 2007 staff report.

Seen from this perspective, some would say that the sensible strategy is to make only minor modifications to China's existing exchange rate policy, a view reinforced by the softening of China's growth, particularly after the first half of 2008.⁹ The slowdown in growth, to 9 percent in 2008 compared with 13 percent in 2007, was caused roughly equally by a smaller contribution of China's trade surplus and a slowdown in domestic demand (most likely largely a reduction in construction activity).¹⁰ Given the impending global recession, it appeared that further softening of the export sector might reduce China's growth by another percentage point or two. Absent an offsetting government policy adjustment, that would take the quarterly growth rate down to around 5 to 6 percent, a pace not seen since China's economic slump of the late 1990s.

The strategy going forward would then contain the following key elements. The authorities, by adjusting the scale of their exchange market intervention, would hold the renminbi virtually constant vis-à-vis the dollar, continuing the policy in place since mid-summer 2008. If the dollar continued the rapid pace of appreciation seen in 2008, the authorities might even allow their currency to depreciate vis-à-vis the dollar in order to limit the pace of renminbi appreciation measured on a trade-weighted basis. If, as anticipated by many economic forecasters, the global recession was severe, the authorities would slow considerably the pace of appreciation on a trade-weighted basis (compared with the annual pace of about 5 percent during the three years since the adoption of a more flexible exchange rate policy in mid-2005). Indeed, a vice-governor of the People's Bank of China at the meetings of the IMF/World Bank in Washington in the fall of 2008 explicitly endorsed this strategy (Beattie 2008). Some temporary depreciation in the real trade-weighted exchange rate might be considered on the grounds that the cumulative real appreciation since July 2005 was substantial enough to permit some small temporary change in the opposite direction, at least until China's growth returns to trend.

In addition, to further mitigate the potential reduction in the contribution of the external sector to economic growth, the authorities would reverse the pattern of 2006–07 and raise the rate at which the value-added tax (VAT) on exports is rebated. The first step in this direction was an

9. China's growth in 2008 was 10.6, 10.1, 9, and 6.8 percent in Q1 through Q4, respectively (with growth in each quarter calculated by comparison to the same quarter in 2007).

10. Analysis by the central bank attributes 9.1 percent of China's 9 percent growth in 2008 to the expansion of net exports (People's Bank of China, Monetary Policy Analysis Small Group 2009a). This implies that 0.82 percentage points of China's growth was due to the expansion of net exports, a reduction of 1.5 percentage points compared with the 2.3 percentage point contribution in 2007 (National Bureau of Statistics of China 2008b, 57).

announcement in July 2008 that the VAT rebate on a selection of textile and apparel products would be raised to 13 percent, an increase of 2 percentage points, effective August 1 (Ministry of Finance and State Administration of Taxation 2008a). The next step was in mid-October when the authorities announced that higher rebate rates would take effect November 1 on over 3,000 products, mostly labor-intensive traditional exports such as textiles and garments, where the rebates were pegged at 14 percent, but included some high value-added electrical machinery products (Ministry of Finance and State Administration of Taxation 2008b). Subsequently, four additional batches of products became eligible for increased rebates beginning in December 2008, January 2009, February 2009, and April 2009. Some less favorable export tax and tariff treatments, which the authorities had introduced after 2005, also were reversed. The increase in the VAT rebate rate reduced export prices for Chinese goods on average by about 5 percent in the first quarter of 2009 compared with the first quarter of 2008, thus making them more competitive on international markets and making exports more profitable.¹¹

After global growth began to recover, the authorities would reexamine their options and presumably allow the currency to resume a moderate rate of appreciation.

If all this is doable, what then are the objections to the stay-the-course option? First and foremost, China's external imbalance is much bigger than it was five or six years ago, and second, notwithstanding the more rapid pace of currency appreciation in 2008, the renminbi is still undervalued on a real effective basis. The stay-the-course option is therefore likely to mean that China's global current account surplus remains elevated for a longer period. Indeed, if China allows little currency appreciation over the coming quarters, continues raising export rebates, and global growth soon converges back toward long-term potential, the risk is that China's current account surplus would begin to expand once again, perhaps at the rapid pace observed in 2005–07.

Recall that in 2003, China's global current account surplus was about 3 percent of GDP and the undervaluation of the renminbi was probably 15 to 20 percent. At that point, it would probably have been possible to eliminate China's entire current account imbalance—albeit not its overall balance of payments imbalance—with a 15 percent step revaluation of the renminbi, without doing undue harm to the domestic economy; indeed, in late 2003, we recommended such action as the first stage of what we called two-stage currency reform, where the second stage entailed floating of the

11. In the first quarter of 2009 VAT rebates on exports totaled RMB186 billion, an increase of RMB42 billion compared with the first quarter of 2008. The average rebate rate (calculated by dividing total rebates into the value of exports) rose by 4.5 percentage points, from 6.6 percent in the first quarter of 2008 to 11.1 percent in the first quarter of 2009. Monthly data on VAT rebates since January 2007 are available from CEIC.

renminbi and a gradual lifting of capital account restrictions once China's financial sector was on a firmer footing (Goldstein and Lardy 2003b). By 2007, China's global current account surplus was 11 percent of GDP and renminbi undervaluation was much larger, 30 to 40 percent (conservatively). No longer could the exchange rate disequilibrium be eliminated in one step without a large contractionary impact on the domestic economy. And with such a large difference between the actual and equilibrium exchange rates, any "staged" approach to renminbi appreciation brought with it the challenge of coping with a "one-way bet" for speculators.

Keeping in mind that the degree of renminbi undervaluation in 2008 is not trivial, the stay-the-course strategy has a number of economic disadvantages. First, perpetuating an undervalued currency will continue to distort domestic investment decisions. As we discussed in chapter 2, currency undervaluation and the accompanying low lending rates lead to excessive investment in manufacturing and underinvestment in services. Thus industries such as steel, for example, which has experienced explosive growth since 2003, may continue to expand their exports as production exceeds domestic demand; in 2005 and 2006, the rise in China's net exports of steel accounted for two-fifths and one-third, respectively, of the growth in China's apparent steel usage (Anderson 2008b). The government's other non-exchange-rate attempts to slow the expansion of the industry, such as encouraging industry consolidation and using window guidance to slow investment in the steel sector, have not made much headway. Until China's growth dropped sharply in the last quarter of 2008, the undervalued exchange rate made steel production sufficiently profitable that its growth continued to outpace the expansion of domestic demand (Anderson 2007c). As a result, China is on track to add an additional 230 million tons of steel capacity between 2007 and 2009 (Anderson 2008b).

Second, the stay-the-course strategy undermines government efforts to transition to more consumption-driven growth. As we outlined in chapter 2, appreciation of the renminbi is one of several policies necessary to transition to more sustainable growth. With external demand now weakening, the need to generate more domestic demand has never been greater. In fact, the global financial crisis and recession have made even clearer to Chinese policymakers the risks of relying too much on external demand for sustaining economic growth. Given that the investment share of GDP has been quite elevated (over two-fifths of GDP) since 2003, the greatest potential for efficiently increasing domestic demand is in private and government consumption rather than increased investment.

Third, offering special treatment, in the form of increasing VAT rebates and potentially other preferential measures, to industries that are facing a profit squeeze undermines the government policy of fostering innovation, improving and upgrading China's industrial structure, and accelerating the development of service industries, all goals repeatedly endorsed by Premier Wen Jiabao and China's highest governmental bodies (Wen Jiabao

2008; State Council 2007, 2008). Maintaining an undervalued currency and offering preferential treatment for China's most labor-intensive industries will maintain investment and human resources in the lowest value-added industries, thus impeding the growth and expansion of both services and industries in areas that China seeks to develop, such as information technology, biology, aerospace, new energy sources, and new materials.

The fourth disadvantage of the stay-the-course strategy is that it is not fully consistent with the pledge of China's president at the G-20 meetings in November 2008 in Washington and April 2009 in London that China would resist protectionism. Raising the VAT rebate rate for an increasingly broad range of export products on six separate occasions between July 2008 and March 2009 is hardly consistent with either the pledges made by Hu Jintao or the public call by China's Minister of Commerce Chen Deming (2009) to avoid trade protectionism. The rest of the world may not accept the implicit Chinese view that only new barriers to imports or export promotion measures that violate World Trade Organization (WTO) rules can be said to be protectionist.¹² Export promotion measures such as raising VAT rebate rates on exports have exactly the same economic effect as import restrictions (i.e., a reduction in demand in trading partner countries) and thus are likely to be seen as beggar-thy-neighbor policies.

Thus in the global environment that emerged in the second half of 2008, the stay-the-course strategy could increase foreign pressure for China to move faster on renminbi appreciation. Recall that as the Chinese currency became increasingly undervalued after 2002 the world was just entering a five-year period of almost unprecedented global economic growth, prosperity, and low unemployment levels. Thus, although China's undervalued exchange rate did harm some sectors of manufacturing in the United States (and other countries), the strong macroeconomic growth and employment made it difficult for those proposing unilateral action on China's currency to gain much political support. But now, in an environment of rising unemployment and zero or perhaps negative real global growth, China's stay-the-course strategy—in which currency appreciation slows considerably or stalls altogether and in which the authorities promote exports through increasing VAT tax rebates for a broader range of export products—is bound to attract growing criticism as beggar-thy-neighbor policies.

The fifth disadvantage of the stay-the-course strategy is that perpetuating the undervaluation of the currency by large-scale intervention in the exchange market will need to be accompanied by continued sterilization of the resulting increases in the money supply.¹³ Failing that, inflation could

12. Rebate of the VAT on exported products is allowed under WTO rules. China, however, is the only country that periodically adjusts the share of the VAT that is rebated. Other countries do not use the VAT rebate rate as a policy instrument but rather rebate the entire amount.

13. As part of its policy of monetary easing adopted in early fall 2008, the central bank re-

eventually become a major risk—particularly if the recovery occurs relatively soon (in, say, the second half of 2009). Sterilization involves not only selling new bills/bonds to banks to mop up the increase in the domestic money supply caused by reserve accumulation but also rolling over the existing stock of such instruments. Changing the mix among sterilization tools from bill/bond sales to increases in banks' reserve requirements doesn't really solve the problem because the low interest rate for reserves held at the central bank acts as a "tax" on the banks in much the same way as it does on sterilization bills/bonds. In a liberalized financial system with market-determined interest rates and commercial (rather than state-owned) banks, the sterilization task would normally become more costly as banks would hold a growing volume of central bank bills only if they were compensated in the form of higher interest rates on those bills.

As explained in chapter 2, the Chinese authorities mitigate this rising cost of sterilization by requiring banks to place larger and larger amounts of reserves on deposit at the central bank, but they do not compensate the banks for their rising reserves by paying an interest rate competitive with what the banks could earn by lending. Rather they appear to compensate them indirectly, by controlling interest rates that banks can pay on household savings accounts. The ceiling interest rates set by the central bank for demand deposits in particular are extremely low and not infrequently negative in real terms. Thus a further downside of the stay-the-course strategy is that it does not ease the high degree of financial repression, which (1) makes it less likely that China will achieve its objective of rebalancing the sources of economic growth, since such repression reduces the rate of growth of household income and (2) impedes progress toward a truly commercial banking system.

Sixth, if exchange market intervention and sterilization continue at high levels, the Chinese authorities will continue to foster a monetary disequilibrium that will perpetuate China's large external imbalance. As Michael Mussa (2008) argued, when the demand for base money grows briskly in China, the supply has to grow briskly to accommodate that demand. But if the central bank's large-scale sterilization operations cause negative growth of net domestic assets, Chinese residents will reduce their spending and borrow from abroad to satisfy the growing demand for base money—generating the very current account surplus and net capital inflow that the authorities claim they wish to reduce. To correct that monetary disequilibrium, the amount of sterilized exchange market intervention has to be reduced. The relevant question is not whether sterilization (in isolation) can be continued indefinitely but whether large-scale sterilization can be continued simultaneously with a reduction in the huge external imbalance.

versed its sterilization policy. It cut the required reserve ratio, for example, four times, increasing the liquidity of banks, facilitating the rapid growth of credit that began in the closing months of 2008.

The Three-Stage Approach

If, based on the foregoing arguments, the stay-the-course strategy doesn't look so promising, what is the alternative? In our view, what is called for is an approach that would permit China to continue to reduce the undervaluation of the renminbi as well as its very large global current account surplus while keeping a lid on domestic social pressures.¹⁴ We call this the "three-stage approach" to currency reform. It would have the following broad outlines.

In stage one, during the global slowdown/recession, China should eschew competitive devaluation as a mechanism to deal with reduced external demand. Indeed, it should not only resist preferential policies to prop up its labor-intensive exports but also continue to appreciate the real value of its currency vis-à-vis its trading partners at a pace of 4 to 5 percent per year (i.e., more slowly than the pace of appreciation in 2008).¹⁵ It should also refrain from further increases in the VAT rebate rates on export products; otherwise, as explained above, domestic investment will continue to flow disproportionately into manufacturing, pushing its share of GDP to new heights, thus creating even larger costs of adjustment in the future. And the services sector, which has the greatest potential for job creation, will continue to suffer from underinvestment and its share of GDP will continue to stagnate. Difficulties in labor-intensive export industries as a result of continued appreciation of the renminbi should be addressed through trade adjustment assistance to redundant workers. That assistance would facilitate the shrinkage of industries that are no longer viable, as opposed to currency undervaluation and preferential tax policies, which impede needed structural adjustment. Any contractionary effects of renminbi appreciation could be minimized by increasing China's fiscal stimulus package.

At the same time the government should increase infrastructure expenditure along the lines already announced. That would offset, at least in part, the slowdown in construction investment that was evident in 2008 and the slowdown in manufacturing investment that likely will follow the further softening of export growth. Given massive investment in recent years in roads, ports, airports, and electric power generation, there are fewer opportunities for high-yielding infrastructure investment; but investment opportunities remain for the rail network, the power distribution (grid) system, urban subways, and water treatment facilities.

14. Prasad (2007, 3) also argues that China should abandon its incremental reform approach in favor of something bolder: "One key principle...is to recognize that there are inherent limits to the incremental reform strategy that has worked well in the past. At a certain level of development and complexity of an economy, the connections among different reforms become difficult to ignore."

15. In 2008 the renminbi appreciated by 9, 6, and 13 percent, respectively, according to the JPMorgan, Citi, and BIS data in table 1.2.

The government should also, as explained in chapter 2, continue to increase its own consumption expenditures and transfer payments to households. Increased government outlays for education, health, and pensions contribute directly to raising the consumption share of GDP and, by reducing the precautionary demand for savings by households, can eventually stimulate greater private consumption expenditures as well. Increased transfer payments to households will also contribute to increased private consumption.

During this first stage, the government could raise to 1 or 1.5 percent the daily fluctuation limit on the renminbi with respect to the major currencies, while retaining or only modestly liberalizing restrictions on capital outflows. Consistent with its repeated calls in October 2008 for international cooperation to resolve the global economic crisis on a cooperative basis, China would drop its insistence that the renminbi exchange rate is solely a matter of national sovereignty and would allow the IMF to complete the 2007 Article IV consultation and undertake an interim consultation as well.

Stage two begins when the global economy begins to recover and China converges toward its long-run sustainable growth.¹⁶ At this point China's current account surplus is likely to still be quite large in absolute terms though smaller as a share of GDP. As global growth recovers, the government should allow the renminbi to appreciate sufficiently rapidly that much of the remaining current account surplus would be eliminated over three to four years.¹⁷ Thus the government would reduce its intervention in the exchange market, along with its sterilization operations. Debate within China would accelerate on greater central bank independence and on the merits of an inflation targeting approach to monetary policy (Goodfriend and Prasad 2006). Gradual liberalization of restrictions on capital flows (both incoming and outgoing) would continue.

On the financial front, in stage two the government should resume the interest rate liberalization policy that was suspended in the fall of 2004. Market-determined interest rates on deposits would reduce the degree of financial repression faced by households, raise their real incomes, and thus pave the way for greater private consumption expenditure. Also in the financial sphere, the government should reduce the limits on foreign ownership of banks in an effort to improve the credit allocation process.

Finally, in stage three, when China's global current account surplus has been dramatically reduced, intervention in the exchange market, along with sterilization operations, should be curtailed still further and

16. We believe China's long-run sustainable growth is in the neighborhood of 9 to 10 percent, not the 12 to 13 percent pace of 2005–07.

17. The necessary pace of appreciation would have to take into account whether or not China continues to achieve rapid productivity growth in export industries, a phenomenon discussed earlier.

the daily fluctuation limit on the renminbi should be dropped, so that the renminbi would essentially be “floating.” Monetary policy should continue to evolve toward an inflation targeting framework. Depending on how much progress had been made on bank reform, restrictions on capital flows could then be liberalized much more substantially.

In our view, such a three-stage approach to renminbi reform would offer many advantages over the stay-the-course option. First, continuing appreciation of the currency in stage one during the global downturn, even if at a more modest pace, would be an important signal to the international community that China is prepared to work cooperatively and constructively to address the global recession. That, plus the agreement to work with the IMF more cooperatively, would go a long way to counter the view that China “[i]n numerous areas is pursuing strategies that conflict with existing norms, rules, and institutional arrangements” (Bergsten 2008, 58) and lessen the risk of protectionist trade policies against China.

Second, continuing appreciation would also be a critical signal to Chinese firms that they could no longer count on an undervalued currency to prop up profitability in manufacturing.

Third, the expansion/redirection of government expenditures and the introduction of a trade adjustment assistance program should help China weather the global slowdown, economically and in terms of social stability.

Fourth, the increase in the daily fluctuation limit for the renminbi in stage three would permit greater flexibility of the renminbi and provide increased room for maneuver in the implementation of monetary policy—maneuver that would also be enhanced by stopping well short of the elimination of existing restrictions on capital inflows. The greater independence of monetary policy would in turn allow the central bank to act more preemptively in its interest rate policy decisions.

Finally, the reduction in both exchange market intervention and sterilization operations in stages two and three would not only further push the real effective exchange rate of the renminbi in the right direction but also help to correct any monetary disequilibrium and reduce the strains on the banking sector. By slowly liberalizing the capital outflow regime, there would be a degree of insurance against large-scale capital flight if a large, unexpected negative shock occurred during the currency reform process. Discussions of greater central bank independence and of the merits of an inflation targeting framework would anticipate the need for a new nominal anchor, as the fixity of China’s exchange rate continued to decline.

By the end of stage three, China should have eliminated any remaining undervaluation of the renminbi. It should also be closer to achieving four of its stated long-term goals: a truly market-determined exchange rate, an effective framework for independent monetary policy, a more open capital account, and a more harmonious relationship with its trading partners.

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