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## *Is It 1958 or 1968? Three Notes on the Longevity of the Revived Bretton Woods System*

IT IS NOW widely accepted that the broad outlines of the current international monetary system are as we described them almost two years ago and labeled “the Revived Bretton Woods system.” This system’s main features are

—the emergence of a macroeconomically important group of economies that manage their currencies vis-à-vis the dollar to support export-driven growth

—the United States as center and reserve currency country, providing financial intermediation services for foreign, and particularly Asian, saving through its national balance sheet, and willing to accept large current account imbalances

—a group of poorer economies implementing export-led development policies and exporting large amounts of capital to richer economies, mostly the United States

—unusually low and even falling short- and long-term real interest rates as a result of this glut of mobile global savings, and

—a group of industrial and emerging economies with floating exchange rates, whose currencies are under incessant pressure to appreciate.

Not agreed and under vigorous discussion is how long this system can last. Will it be a meteoric flash with a spectacular end soon to come? Or

We are grateful to Daniel Riera-Crichton for his able and diligent research assistance in producing the empirical results of this paper.

will it last for the reasonably foreseeable future? We package these questions here in an analogous question: Is the Revived Bretton Woods system at the point in its development where the original Bretton Woods was in 1958 or 1968 or 1971?

In a series of publications we have provided a fundamental underpinning for why we believe the system will last—that the situation today is more like 1958.<sup>1</sup> We argue that the gains to the players from continuing their actions outweigh the costs that many have argued will arise in an endgame asset price shift or in unexploited benefits of portfolio diversification. Rather than characterize the situation with geopolitically charged rhetoric like “balance of financial terror,”<sup>2</sup> we think it more valid to think in the familiar economic terms of “mutually beneficial gains from trade,” such as might exist between any borrower and lender or between any purveyor of goods and its customer.

Here we further develop our argument in the form of three notes addressing particular issues that have cropped up in critiques of the Revived Bretton Woods view. These notes both respond to the critiques and continue to expand our ideas. The first note explains how we think about what is driving capital flows to the United States and keeping interest rates low. We view the fact of unusually low long-term real interest rates for this stage of the business cycle as a direct challenge to those who, exaggerating the importance of rumors about central bank reserve management practices, claim that the end is near.

The second note seeks to provide some information about the experience of those emerging economies with chronic current account surpluses since the breakdown of the first Bretton Woods system. A very large empirical literature evaluates the experience of emerging economies that have run chronic deficits, and the costs and frequency of associated financial crises. But we are not aware of any similar evaluations of the durability and stability of those foreign exchange regimes that have resulted in unusual sequences of current account surpluses and accumulations of international reserves. The widespread view that the surplus regimes at the core of the

1. Eichengreen (2004), in contrast, seems to favor 1968, that is, to allow the system a few years more to run, whereas Frankel (2005a) favors 1971. Roubini and Setser (2004) call for something even more immediate and apocalyptic, yet they acknowledge that the day of reckoning may be as long as two years off.

2. Summers (2004a, 2004b).

Revived Bretton Woods system will come to a quick and costly end has likely been inferred in part from the recent experience of debtor emerging economies. Our interpretation of the experience of these surplus regimes is that they have been and may well remain durable and immune from financial crises.

The third note addresses an issue that has been raised frequently in criticisms of our comparing the current system to the Bretton Woods system, namely, that the United States is running large current account deficits now, but it was not then. Of course, many aspects of the current system are different from what they were in the heyday of Bretton Woods: Konrad Adenauer is no longer chancellor of Germany, Charles de Gaulle is dead, the United States no longer guarantees gold convertibility, and there is now a serious pretender to reserve currency status. Our first reaction was that this difference was as superficial as these others and not at the heart of the comparison we wanted to draw.

But the United States did have a major balance of payments deficit during the Bretton Woods era, which was the proximate driver of the deterioration of the system. So we relate the U.S. balance of payments deficits under Bretton Woods to the U.S. current account deficits under the Revived Bretton Woods to show that there is a close analogy. This is something more than an exercise in the history of economic ideas, because it plays into our view that collateral is the key to opening sizable gross cross-border trade in assets in a system that is short on trust.

### **Real Interest Rates Say It Is 1958**

Why is the real interest rate in the United States so low and falling today, in the growth phase of the U.S. and global business cycles, even as the U.S. current account deficit reaches record levels? At the end of June 2002, about when the euro began its recent appreciation, realized ten-year real annual interest rates on U.S. Treasury securities were 3.70 percent on nominal notes and 3.07 percent on inflation-protected securities. The corresponding numbers at the end of December 2003 were 2.35 percent and 1.95 percent, respectively. One year later the respective numbers were 1.17 percent and 1.63 percent, and as we write in mid-May 2005, they are 1.02 percent and 1.65 percent. This fall in rates has come in a period when the media swirls daily with stories about foreigners losing confidence,

foreign exchange reserve managers diversifying portfolios, and imminent collapse as everyone tries to be the first out the door. If all this is true, the bond and credit markets have not noticed.

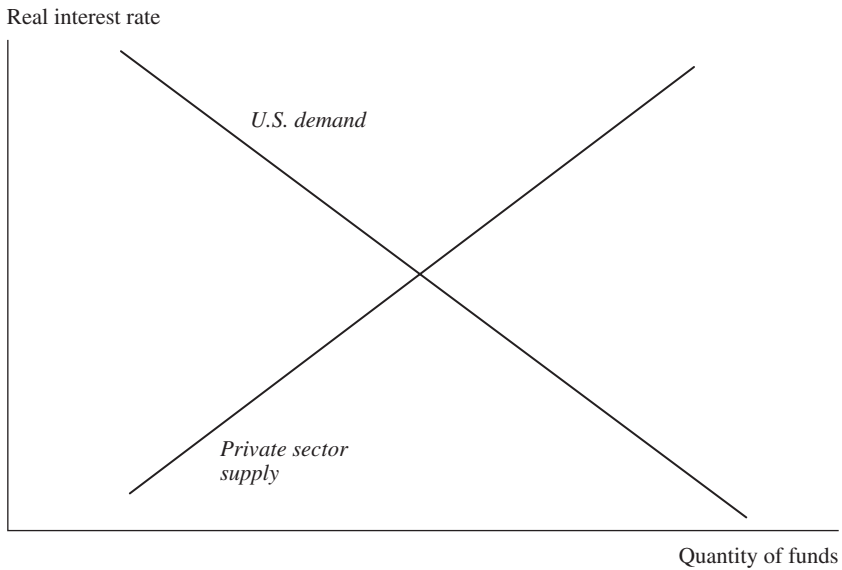
Three broad realities underpin our view of this global phenomenon, all of which we expect to continue into the foreseeable future:

*Reality 1:* About fifteen years ago, hundreds of millions of underemployed workers joined the world's market economies. They had no capital to speak of, but they had a desire to work in industry and to get rich. One might expect that such an increase in the global supply of labor would drive real interest rates up, but these workers came with an enormously high saving rate and lived under the yoke of a dead financial system, which had served them in the past as a capital destroyer, as it does to this day. They lacked modern technology and management. Theirs was a communist society that was and is problematic geopolitically, which might, in turn, make their access to cross-border credit problematic. This created a profound global disequilibrium for the industrial world, equal in magnitude to the global unemployment problem of the Great Depression although much more concentrated geographically. The industrial world's economic system has to resolve this fundamental imbalance over the course of time by absorbing these workers. To focus today on trade imbalances when in fact there is an enormous labor market imbalance is to make the same mistake that economists and policymakers made in the 1930s.

*Reality 2:* The emerging economies that have developed most successfully are those that export capital on net. Joshua Aizenman, Brian Pinto, and Artur Radziwill demonstrate, in a sample of forty-seven developing countries from 1981 to 2001, that the net exporters of domestic savings among them had significantly higher growth rates.<sup>3</sup> They conclude that "a rise in the self-financing ratio [the stock of tangible capital supported only by past national saving, divided by the actual stock of capital] from 1 to 1.1 is associated with an increase in the growth rate from 2.8% to 4.4%. Further, reducing the self-financing ratio from 1 to 0.9 is associated with a drop in the growth rate from 2.8% to 2.2%."<sup>4</sup> These estimates control for differences in institutional quality as well as in trade and financial openness. They clearly contradict the usual assumption that developing countries

3. Aizenman, Pinto, and Radziwill (2004).

4. Aizenman, Pinto, and Radziwill (2004, p. 9).

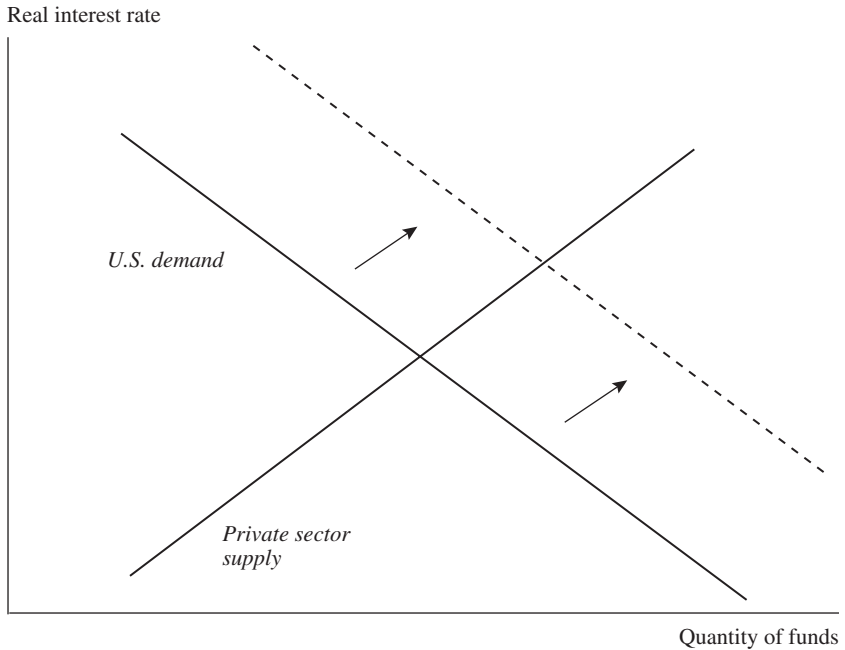
**Figure 1. Market Equilibrium for Loanable Funds**

Source: Authors' model described in the text.

have been successful in using net foreign saving to augment capital formation and economic growth. We argue below that their results are consistent with the idea that net exports of saving from poor countries support two-way trade in private financial assets that improves the quality and productivity of domestic capital formation.

*Reality 3:* The United States has a large and growing current account deficit, funded at this moment by the foreign private and official sectors at low and falling real interest rates. In recent years the official sector has taken up a large share of this deficit.

Let us focus on reality 3 for a moment. We like to think about the United States' external deficit problem in a simple loanable funds flow framework. After netting U.S. public and private investment demand from U.S. saving, the United States has a demand for saving from the rest of the world that is downward sloping when plotted against the real interest rate, as in figure 1: the lower the real interest rate that it faces, the less the United States wants to save and the more it wants to invest. Given a real interest rate, then, we

**Figure 2. Effect of Expansionary Fiscal Policy**

Source: Authors' model described in the text.

can read off the U.S. current account deficit. Meanwhile there is an upward-sloping supply of saving coming from the foreign private sector (we introduce foreign official flows below), perhaps from asset managers looking only at Sharp ratios and benchmarks, or perhaps from foreign industrial corporations interested in return on capital. The higher the real interest rate available in the United States, the more of this private foreign saving flows in. The intersection of these two curves determines the global real interest rate, the U.S. current account deficit, and the rest of the world's current account surplus.

A looser fiscal policy might shift the demand for foreign saving upward as in figure 2. This would bring in more foreign saving or, equivalently, increase the current account deficit. And it would cause the real interest rate to rise, as in the Reagan-era deficits of the early 1980s. Some of this may be going on today, but it is clearly not dominant. Since 2002, mar-

**Table 1. Marketable U.S. Government Debt, Interest Rates, and Fiscal Deficits, 2002–05**

<i>Item</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Marketable debt (billions of dollars) <sup>a</sup>	3,020	3,317	3,721	4,085
Average interest rate paid (percent a year) <sup>a</sup>	4.99	4.11	3.61	3.94
Fiscal deficit (percent of GDP) <sup>b</sup>	1.5	3.4	3.6	3.0

Source: Bloomberg data.

a. As of March 31.

b. In preceding fiscal year.

ketable U.S. debt has increased by more than one-third while nominal and real interest rates have declined (table 1). Moreover, relative to those of other industrial countries, the U.S. budget deficit is not unusually large (figure 3); it is hard to see why this factor alone would increase the U.S. current account deficit relative to the deficits or surpluses of other industrial countries, especially given the much more rapid GDP growth rate (real and nominal) in the United States.

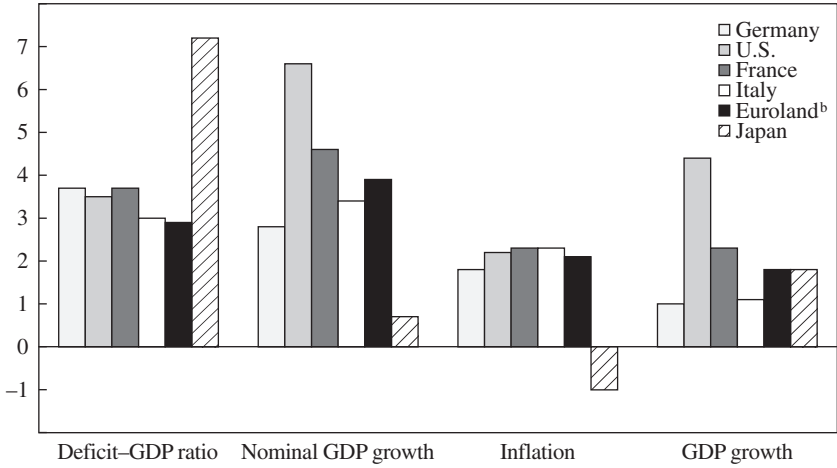
Instead consider figure 4, which adds a vertical official sector supply curve, reflecting the fact that policymakers have objectives other than a narrow risk-return calculus localized to this small portion of national saving. Their development goals require the export of domestic saving, and they will accept whatever interest rate the market determines. Adding, horizontally, this new public sector supply of foreign saving to the private sector supply shifts total supply rightward and brings down the interest rate that clears this global market for savings.

So, if a falling U.S. real interest rate is observed alongside a rising U.S. current account deficit, it can only mean that official capital is being pushed into the United States and private capital is being pushed out, but by a smaller amount than the official capital coming in. On net, capital is not being pulled in by U.S. demand shifts. This is the combination of facts that shows us that the United States is passive and that the foreign official sector is the active player in global imbalances.

This means that the typical denunciation of U.S. “profligacy” is worse than useless for understanding the situation: it is actually misleading. Usually, this rhetoric includes a reference to the role of the U.S. fiscal deficit in reducing net U.S. saving, but a larger fiscal deficit should increase the interest rate. Whatever the size of this effect, it has clearly been more than overcome by the effects of foreign official capital pushing in.

**Figure 3. Fiscal Deficits, Growth, and Inflation, Selected Countries, 2004<sup>a</sup>**

Percent of GDP or percent a year

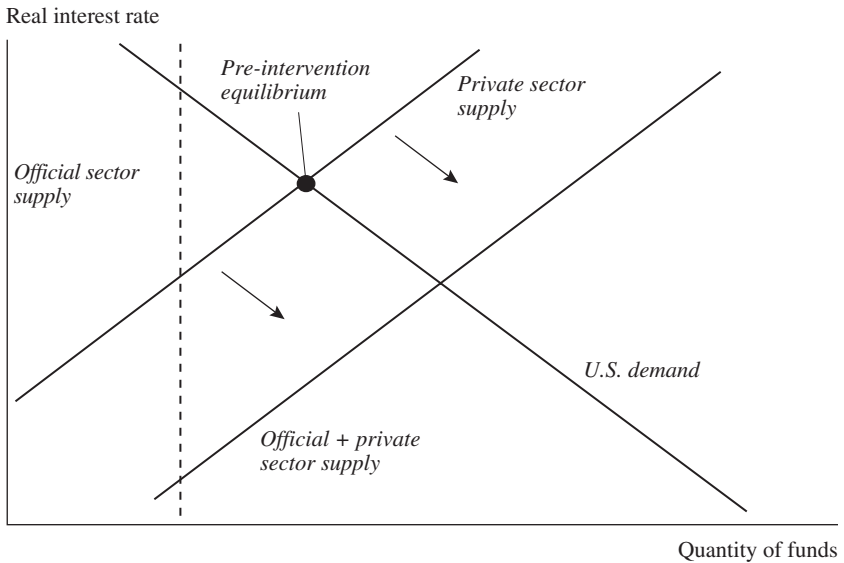


Source:--Bloomberg.

a. Budget deficit data are for fiscal 2004; all other data are for calendar 2004.

b. Countries that have adopted the euro.

**Figure 4. Effect of Adding an Inelastic Official Sector Supply**



Source: Authors' model described in the text.

One often hears that private saving flows to the United States are falling because of increased risks, stemming perhaps from the worsening U.S. international investment position. This would show up as a shift of the private supply curve in figures 1, 2, and 4 upward and to the left, and it would put further upward pressure on real interest rates. But this is exactly the opposite of what we observe. Rather, the evidence is far more consistent with a downward slide along a given private supply curve after the public sector supply is added. To be sure, foreign private saving is financing far less of the U.S. current account deficit than it did, say, five years ago. But the reason is that private investors are being driven out by official sector flows willing to replace them at much lower interest rates.

One should beware of making too much of a rising or falling fraction of official sector finance in any given quarter or year. A steadily growing flow from the foreign official sector to the United States year in and year out is not necessary to maintain the system. Official flows are necessary only when the foreign central bank must intervene to keep its currency undervalued. As in a target zone exchange rate regime, when the private sector is confident that the regime is durable and will be sustained by future interventions as the need arises, private inflows are sufficient to provide the deficit financing.

So far, so good. But it means that today's low real interest rate is a momentary flow effect that will evaporate should official sector lending to the United States dry up permanently. If this were to happen, the picture would snap back from figure 3 to figure 1, and interest rates would jump. If this is what the market expects, we should today see low short-term real interest rates and much higher long-term rates. But we do not see this. Long-term real rates are low—hence the conundrum that we are studying now. Implicit in the real yield curve is that the equilibrium of figure 3 should last a long time.

It follows that even a hint that Asian governments might reduce their flow demand for dollar assets will generate an immediate jump in the ten-year rate in the United States. Indeed, many observers doubt that foreign official interests in funding the U.S. current account deficit are sustainable.

### *Back to Reality 1*

The stakes are high indeed. Why should Asian authorities remain willing to increase their claims against the United States? To answer this, we have

to focus on the strategy that Asia (notably China) has chosen to solve the development and unemployment problems that are part of reality 1.

The problem for China is to mobilize its existing enormous domestic saving to create a growing, internationally competitive capital stock that can rapidly employ hundreds of millions of workers in productive activity. A serious constraint is the lack of a domestic financial system capable of channeling this saving into productive capital, technology, and management skills.

The solution, perhaps stumbled upon inadvertently, has been to engage in export-led growth, thereby providing an immediate global quality check on the goods produced. This avoids falling off the cliff of another Great Leap Forward. To get export markets open, part of the policy has been to offer a large incentive to potential industrial exporters, both domestic and foreign-based, in the form of low dollar wages and the expectation that wages will rise only slowly toward world levels. Slowly rising dollar wages could be associated with a gradual nominal revaluation of the renminbi or a slightly higher rate of inflation than in China's trading partners. For example, a 3 to 5 percent revaluation of the renmimbi later this year and the adoption of a carefully controlled float of the exchange rate would not signal the end or even a material change in the development strategy we have described.<sup>5</sup>

The typical problem in emerging economies is how *not* to offer *too* high an industrial wage relative to wages elsewhere in the economy: too-rapid industrialization could drive industrial wages sharply above agricultural wages, deterring investment in industry and triggering a flood of migration to the cities. By keeping wages low and relatively uniform, an initially low but rising currency helps both to induce resource transfers to industry and to restrain migration to a rate consistent with capital formation in the industrial sector.<sup>6</sup>

Foreign direct investors have been encouraged because they bring the discipline of international financial intermediation. Additional benefits include technology transfer and the proven political clout to keep export

5. In Dooley, Folkerts-Landau, and Garber (2004b), we treat the initial stock of labor as an exhaustible resource. In that context it is optimal for the government to absorb labor more rapidly at the beginning of the regime. It follows that dollar wages are initially set at a low level but rise over time to the world wage when the last worker is absorbed. See Salant (1976) for a more general discussion.

6. We thank Vincent Reinhart for this insight.

markets open. The importance of direct investment in keeping U.S. export markets open has been questioned on a variety of grounds. Eswar Prasad and Shang-Jin Wei argue that most foreign direct investment into China comes from outside the United States and is not likely a significant factor in keeping U.S. markets open to Chinese exports.<sup>7</sup> Leaving aside the inherent difficulty in determining the nationality of direct investors, we would point out that Asian direct investors in China also have an enviable record in penetrating U.S. markets and in dealing with the threat of U.S. protection. It seems likely to us that the building political pressure in the United States to do something about the bilateral trade deficit with China would be more effective if U.S. and other multinational corporations were not active in direct investment in China.

We are more than willing, however, to base our forecast of the durability of the system on the lasting inability of domestic credit markets in emerging economies to efficiently intermediate domestic saving. The difficulty in reforming financial markets in these economies, and the frequency and costs associated with crises in economies that have not been successfully developed, are in our view the primary lesson provided by the failures of development in Latin America.

But why does the need for international financial intermediation (two-way trade in financial assets) create saving-investment imbalances and a flood of net capital exports in the first place? After all, an export-based development policy need not imply a net export of capital. All that is needed is export growth, and this can just as well be balanced by import growth as not.

In general, the successful emerging economies have not needed net foreign saving; such inflows are generally small and unreliable relative to domestic saving (reality 2). Nevertheless, other things equal, even a small addition of net foreign saving should contribute to investment and growth in poor countries. A positive argument in favor of net exports of saving requires that some other important ingredient to growth not be available in equal measure.

Our hypothesis is that net exports of domestic saving are necessary to earn the *collateral* required for efficient international intermediation of domestic saving. Asian emerging economies do not need net foreign saving, but they do need efficient financial intermediation. We have emphasized

7. Prasad and Wei (2005).

foreign direct investment and other types of international financial intermediation because we are not optimistic about the rapid development of domestic credit markets. That is, residents of these countries can avoid these markets by placing some of their assets off shore. These will return if international investors are protected from political risk—especially important when private capital is flowing to and from a geopolitically problematic country in large amounts. The government can relax this credit constraint by keeping its balance sheet very strong versus the rest of the world, that is, by building net reserves.

The government's net reserves then provide protection for private international financial intermediation against various geopolitical risks. In effect, the emerging economy's government promises to stay on the sidelines by becoming a net creditor to the rest of the world. Note that a government cannot borrow this credibility; it has to earn it by placing goods and services in the rest of the world on net. And placing more goods and services in the rest of the world than one is taking in means a current account surplus.

Imagine that foreign direct investment flows are matched by official sector reserve growth in the balance of payments accounts and that the current account is balanced. Then the capital account is balanced in terms of both net and gross flows. But the country sending the foreign direct investment is taking an unbalanced risk position, effectively buying equity and borrowing in fixed-interest securities. Usually, in private markets, this requires some collateral from the lesser credit. The way an emerging economy delivers collateral is by running a current account surplus. The faster the gross positions in the capital account grow, the faster must the current account imbalance grow to support the unbalanced risk positions. We believe that this view of current account surpluses as collateral provides a first explanation of the connection between net and gross capital flows, currently a noteworthy lacuna in models of international finance, which ignore gross trade in assets.

### *Other Asia and Japan*

A reasonable objection to our argument is that it does not fit the more developed countries in Asia, especially Japan, that have been the most eager buyers of U.S. assets. In fact, it is useful to consider China and Japan as spanning the problems facing Asia. Both Japan and China have an employment problem, but in Japan it is the result of a very long cyclical downturn, whereas in China it is a long-term development problem. Both governments

look to export growth as a solution to this problem, and both have a long history of managing the exchange rate.

For quite different reasons, both countries have been able to sterilize very large reserve accumulations. In deflationary Asian countries, notably Japan, it is difficult to understand why there might be some limit on the ability or motivation of the authorities to create yen in stemming an attack on the currency. With interest rates at zero, it is costless to create as much yen cash as is demanded, whereas dollar reserves produce a positive yield. Normally, a limit on foreign exchange acquisition is reached when the resulting monetary expansion causes excessive overheating and inflation. But such an expansion is still not in sight for Japan and would not, in any case, be the appropriate monetary policy.

The lessons of attacks on weak currencies and fixed exchange rate regimes seem to be the ones being applied by the global private financial sector here. The authorities in such regimes face a limit on reserves or credit or the amount of pain they are willing to put the economy through, and so each attack on the currency is simultaneously a ratcheting up of the probability that the currency will indeed collapse. Some observers seem to be holding a case study of a typical speculative attack against a mirror and thinking that private capital inflows likewise ratchet up the pain in Japan. Yet quite the opposite is true in deflationary Japan. Japan has ceased its massive intervention since the first quarter of 2004, and the yen has actually depreciated somewhat against the dollar. Our expectation is that the authorities will return to the market if private flows to the United States again decline and the yen again appreciates, especially if it is tested in another attack.

In China financial repression has allowed the authorities to place domestic assets generated by sterilization without much increasing domestic interest rates, and it has been very successful in containing inflation. The People's Bank of China currently places three-year domestic currency debt in the banks at an annual interest rate of about 3 percent and is experiencing positive carry on its foreign exchange.<sup>8</sup> Other emerging economies in Asia with relatively open capital markets have followed a middle course of trying to stay competitive with China but allowing some appreciation of their currencies against the dollar, although still with heavy currency management and accumulation of reserves. The success and durability of these efforts

8. This in contradiction to the continual alarmist statements from Goldstein and Lardy (2004), among others.

are a matter of intense debate, but we doubt there is much to be gained from continuing the debate at the theoretical level. We turn to the empirical debate in the next section.

### **How Do Episodes of Reserve Accumulation End?**

In a series of papers,<sup>9</sup> we have argued the case for a meaningful distinction between countries that allow private international investment decisions to determine important macroeconomic variables such as the real exchange rate and the current account balance, and countries for which government investment decisions determine these magnitudes. We have referred to these as “capital account countries” and “trade account countries,” respectively.

Trade account countries repress private financial flows and overwhelm with official flows those that slip through the repression. Capital account countries, in contrast, do not block cross-border flows or significantly intervene in foreign exchange markets. It is often assumed that the conventional analytical framework developed to understand the behavior of capital account countries applies also to trade account countries, because capital and foreign exchange controls are mostly ineffective. In our view this is entirely an unresolved empirical issue.

The opinion that the U.S. current account deficit is unsustainable flows from a conviction that private international investors will be unwilling to continue to accumulate net claims on the United States. In this view, moreover, either the official capital flows that have partly financed the U.S. current account deficit will be overwhelmed by private sector flows, or governments will come to their senses in time to avoid a crisis. The usual dark warning is that the longer it takes the official sector to realize the inevitable truth, the harsher will be the consequences. The phase diagrams of the speculative attack models dance in our collective heads.

We fully agree with half of this prediction. Two years ago we predicted that private investors would become more reluctant to finance the U.S. current account deficit as official sector capital flowed in.<sup>10</sup> We also predicted the very large appreciation of the euro and other currencies whose trade in foreign exchange markets is dominated by private capital flows. This was

9. Dooley, Folkerts-Landau, and Garber (2003, 2004a, 2004b, 2004c).

10. Dooley, Folkerts-Landau, and Garber (2003).

not unusual in itself. But we also argued that governments of a group of what we called “trade account countries” (countries where repression of private financial flows determine the real exchange rate and the current account balance) had good reasons to continue to invest in the United States for an extended period and that this would keep U.S. interest rates low, contrary to then-prevailing opinion.<sup>11</sup> The length of this period is derived from an optimal rate of absorption of those countries’ unemployed labor. In our view of the real forces behind this system, this suggests a decade at least.

So it is important to understand why nonresidents are supplying net saving to the United States at very low expected yields and why this may or may not continue. To us, it is irrelevant to the overall picture whether the net foreign investment is in Treasury securities, agency securities, private fixed-income securities, equity, or something else. It is irrelevant whether private or official foreigners take larger or smaller shares of the foreign investment in the United States in any given year. It is mostly irrelevant how the spreads across different classes of financial instruments in the United States might be affected. This is not a discussion of investment strategy or asset allocation; it is entirely directional.

### *Historical Evidence*

One way to begin to evaluate the durability of the Revived Bretton Woods system and the likely consequences of its demise is to study the experience of economies that have had unusually long sequences of current account surpluses and accumulations of official reserves. Doubts about the durability of the system have generally centered on the ability and willingness of surplus economies to maintain an undervalued currency for an extended period. Does historical experience suggest that periods of reserve accumulation are followed by speculative attacks that generate a real appreciation (through either inflation or a nominal appreciation), losses on dollar reserves, and painful recessions as resources are transferred from traded goods industries?

The experience of emerging economies with chronic current account surpluses since the breakdown of the original Bretton Woods system in 1971

11. The logic was that an increasingly indebted United States, with an interest rate effectively underwritten by the trade account countries, would attract less private funding from other (capital account) countries. Smaller net capital flows meant smaller net current account flows, which would be accomplished through appreciation against the dollar.

has not attracted much attention, perhaps because until recently they have been quantitatively unimportant. An alternative possibility is that observers assume that such regimes cannot last for long and will end badly, because of the evidence provided by emerging economies with chronic deficits. Assumptions are necessary because past empirical work on crises and current account reversals has considered only episodes identified by large depreciations or swings in current accounts from deficit to surplus.<sup>12</sup>

The theoretical symmetry between speculative attacks on undervalued currencies and those on overvalued currencies is well known.<sup>13</sup> In an attack on a strong currency, anticipated capital gains generate private capital inflows when speculators believe the regime can be overwhelmed. Intervention to limit nominal appreciation takes either of two forms, both with unfavorable side effects: an increase in the monetary base, which raises the domestic price level, or sterilization, which increases reserve assets and the government's domestic currency liabilities. The regime can appear to be stable for a time, but the government's tolerance for inflation or reserve accumulation is limited, and a speculative attack will bring the regime to an end.

#### *Data Methods: Identifying Precedents*

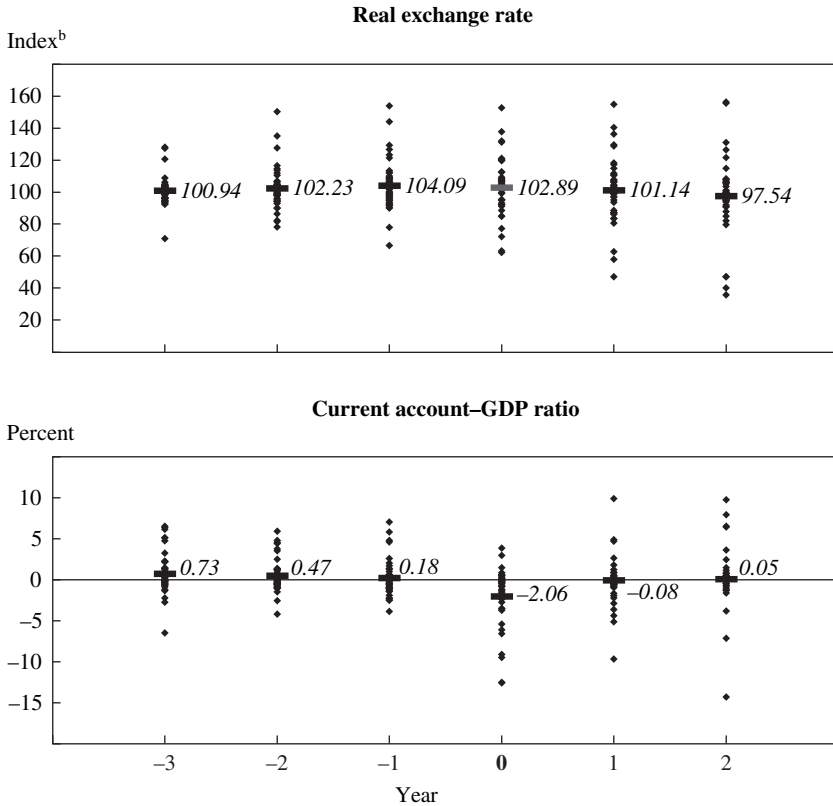
To identify historical precedents for today's surplus economies, we first identify sequences of reserve accumulation that might provide a typical pattern for emerging economies that accumulate net reserves for an extended period. We then examine the behavior of other variables in the years during and after the accumulation sequence.

For a sample of 115 developing and industrial economies, we examine yearly data from 1970 to 2004. We first identify sequences of consecutive years in which the economy experienced current account surpluses on average *and* the government increased its net foreign asset position. For surplus economies the change in the government's net foreign asset position is usually dominated by changes in international reserve assets, but our measure of net reserve accumulation also includes changes in government debt and other official sector capital flows. We are interested in the consolidated government contribution to financing the change in national net foreign assets or its mirror image the current account balance. To further restrict attention to episodes in which the government was an important

12. Frankel and Rose (1996); Razin and Milesi-Ferretti (1998).

13. Grilli (1986).

**Figure 5. Real Exchange Rate and Current Account Balances during and after an Episode<sup>a</sup>**



Source: International Monetary Fund, International Financial Statistics; International Institute of Finance; World Bank, World Development Indicators; Organization for Economic Cooperation and Development.

a. Year zero refers to the first year after the end of an episode. An episode is defined as a sequence of years (three or more) in which the official sector increases its stock of international assets, runs a current account surplus (on average), and generates more than 25 percent of the change in national net foreign assets. Each observation denotes the real exchange rate or current account ratio of an economy at the specified point in its episode. Numbers in italic are means.

b. The index equals 100 three years before the end of an episode.

participant in international financial markets, we exclude episodes during which the government generated less than 25 percent of the change in national net foreign assets.

The typical experience of surplus economies during the three years before the end of a sequence of net reserve accumulations and the three years that followed is summarized in figure 5. Definitions and data sources

are reported in appendix A, and detailed data for all accumulation episodes in appendix C.

During periods of reserve accumulation, several regularities stand out. First, with very few exceptions, the current account begins in surplus, and the surplus increases during the period of net reserve accumulation. The average *increase* in the surplus was 0.73 percent of GDP in year  $t - 3$ , 0.47 percent in  $t - 2$ , and 0.18 percent in  $t - 1$ , the final year of net reserve accumulation.

In  $t - 0$ , the first year following the sequence of reserve accumulation, the current account surplus declines by an average of 2.06 percent of GDP. This certainly suggests that some important shock has occurred. Moreover, the shock typically persists, with little further change in the current account balance in the two years that follow.

In the final three years of net reserve accumulation, the currency typically appreciates in real terms each year; the average cumulative increase (we define the real exchange rate such that an increase represents an appreciation) is about 4 percent. The behavior of the exchange rate before the official sector leaves the market is not surprising and is fully consistent with the conjecture that the growing current account surplus, appreciation of the currency, and reserve accumulation reflect a growing fundamental disequilibrium in the real exchange rate and the current account. This sequence is supposed to end with a jump (appreciation) in the real exchange rate and a gradual decline in the current account balance. Instead, in the average case, the government retreats from the market, the currency *depreciates* in real terms in the following year by 1.2 percent,<sup>14</sup> and the depreciation continues for two more years. The real exchange rate ends more than 3 percent below its level five years earlier, and the government enjoys a substantial capital *gain* on its reserve accumulation.

The behavior of the macroeconomic variables when the government stops accumulating net reserves clearly does not fit with the standard model of a speculative attack on a strong currency. With the government out of the market, there is a “sudden start” of private capital inflows, as the model predicts. But these inflows are associated with a persistent real depreciation of the currency, not an appreciation. Economic growth is above trend

14. At the end of the original Bretton Woods system, Germany experienced a three-year episode of reserve accumulation and currency appreciation followed by depreciation in 1974. In this case, however, the cumulative appreciation was larger than the depreciation in the following and subsequent two years. The usual assumption that reserve accumulation ends with large capital losses on reserves is probably influenced by this episode.

during the reserve accumulation episode and generally moderates thereafter. In most cases growth remains positive and recovers in a year or two.

A variety of shocks to the world economy could account for these empirical regularities. For example, a decline in foreign demand for the country's exports could explain the swing in the current account and the decline in growth. The deterioration in the national net foreign asset position is consistent with a decline in the real exchange rate. Indeed, such a decline may create the expected yield differentials necessary for the sudden start in capital inflows. The deterioration of the national net foreign asset position would be consistent with a real depreciation.

Another possibility is that intended or unintended financial liberalization allows residents to diversify away from domestic assets toward international assets. For example, if China suddenly opened its capital markets, residents' desire to diversify into foreign currency assets would suggest a depreciation of the renminbi rather than the appreciation currently expected. In this context it would be fully rational for the authorities to build a stock of dollars now in anticipation of private demand when financial markets are liberalized. Moreover, it makes no sense to allow the renminbi to appreciate now only to depreciate sharply later.

### *China, Japan, and Korea*

Seven economies accounted for two-thirds of worldwide international reserve holdings at the end of 2004 and for three-quarters of the \$600 billion growth in international reserve assets in that year. Three economies—Japan, China (excluding Hong Kong), and Korea—held 45 percent of the global total and acquired 60 percent of the 2004 increase. The general sequence of current account imbalances, reserve gains, growth, and real exchange rate changes described above holds even more clearly for this group of economies. Several are in the midst of a stretch of reserve accumulation today and have experienced two or three similar episodes in the past. All seven have in the past experienced unusually long episodes of net reserve accumulation relative to our complete sample: the champion to date is Singapore with its twenty-seven-year run from 1974 through 2000.

It seems particularly relevant, in evaluating how the current episode of reserve accumulation might end, to look at the previous experiences of these seven economies. In this section we review the recent experience of the "big three." For each we present charts comparing, for each reserve

accumulation episode, current account deficits and net reserve accumulation on the left-hand side, and economic growth and the real effective exchange rate on the right-hand side. Appendix B provides similar figures for the other four economies: Hong Kong, India, Singapore, and Russia.

*Japan* has experienced three extended episodes of net reserve accumulation in the post-Bretton Woods era: a three-year sequence from 1986 to 1988, a five-year sequence from 1992 to 1996, and a six-year sequence that began in 1999 and continued through 2004 (figure 6). What might the first two episodes suggest for the current episode in Japan? We look first at the current account. In each episode the current account surplus (in billions of dollars) is growing before the net reserve accumulation begins. The surplus moderates during the accumulation, then declines in the year before and the year in which the accumulation ends. In the first episode reserve accumulation accounted for about 28 percent of the current account surplus during the period of reserve growth, and in the second about 26 percent.

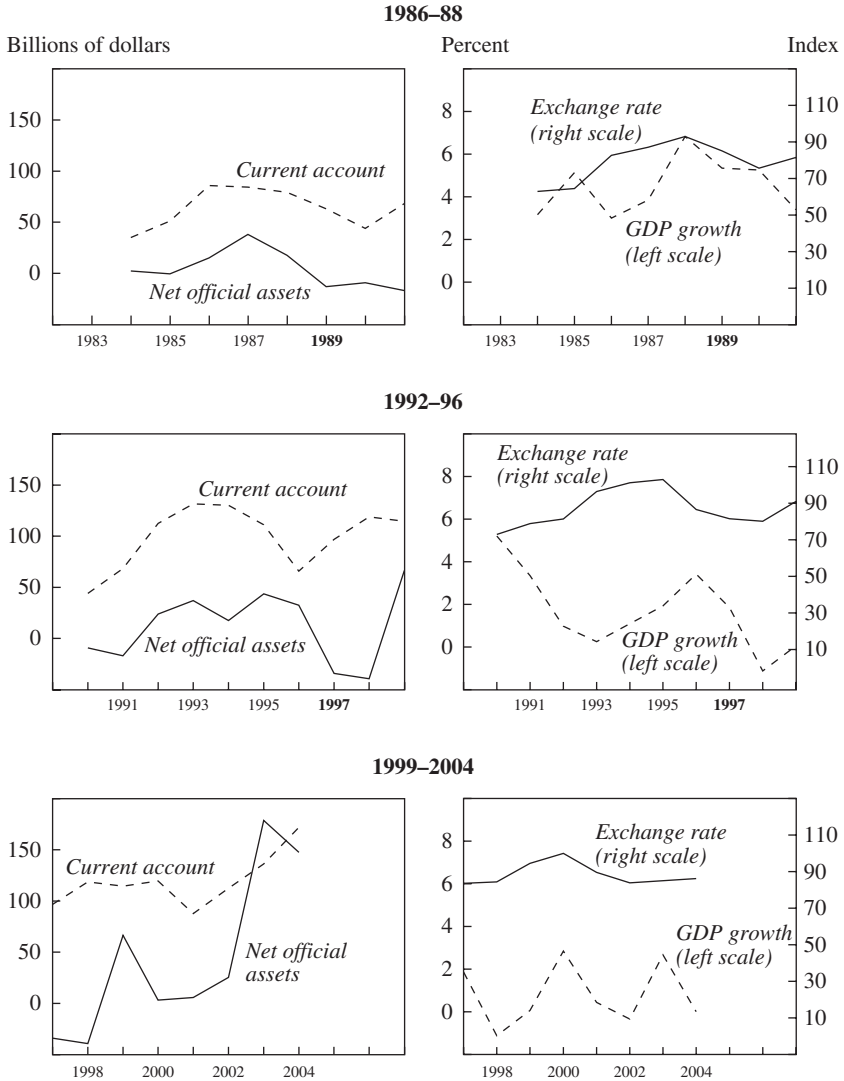
In the present episode the current account surplus has continued to grow. Reserve accumulation absorbed about half of the surplus through 2004. Considering just these data, one might expect a moderation in the rate of reserve accumulation going forward, but not an end to the sequence of net reserve gains.

In the two previous episodes, the real effective exchange rate and the growth rate behaved as described above for the typical experience. The exchange rate rose before and during the reserve accumulation but then fell sharply for two or three years. In the first episode the real exchange rate fell in the year following the end of the accumulation and in 1986, the year the authorities withdrew from the foreign exchange market. As is typical for the larger sample, in both episodes the GDP growth rate rose during the accumulation sequence and then turned down, for three years in the first episode and two years in the second.

During the recent episode both the real exchange rate and the growth rate have departed from the norm. Growth increased in the first year of the recent episode, and the real effective exchange rate rose as would be expected, but growth collapsed in 2001 and 2002, and the real exchange rate fell. Since then there has been a recovery in output and a small rise in the real exchange rate.

If history is a reliable guide, reserve accumulation in this episode will moderate relative to the current account surplus but will continue until there is a significant decline in the surplus. Meanwhile the real exchange rate will continue to rise, but at a moderate rate, and output growth will

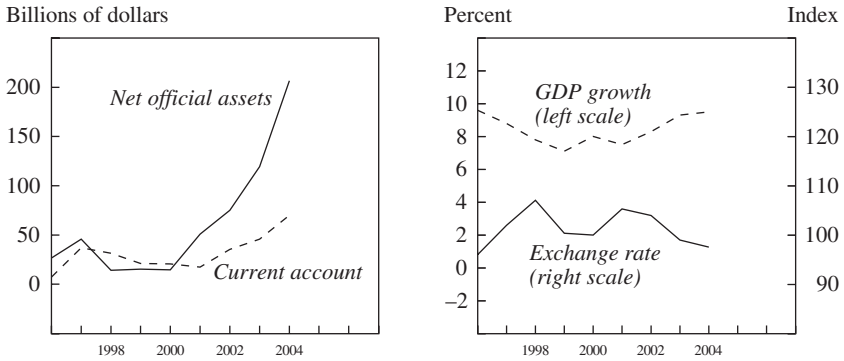
**Figure 6. Japan: Current Account Balance, Net Official Assets, Exchange Rates, and GDP Growth in Three Episodes**



Source: International Monetary Fund, International Financial Statistics; International Institute of Finance; World Bank, World Development Indicators; Organization for Economic Cooperation and Development.

a. Year in bold refers to the first year after the end of an episode. See footnote a of figure 5 for the definition of an episode.

**Figure 7. China: Current Account Balance, Net Official Assets, Exchange Rates, and GDP Growth in One Episode**



Source: International Monetary Fund, International Financial Statistics; International Institute of Finance; World Bank, World Development Indicators; Organization for Economic Cooperation and Development.

a. See footnote a of figure 5 for the definition of an episode.

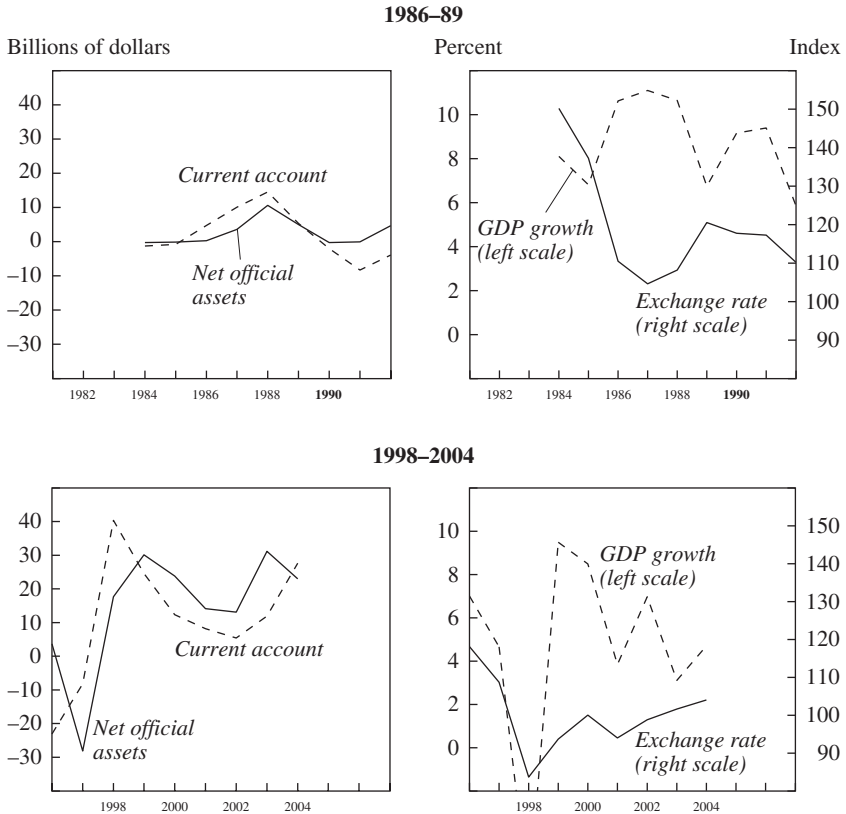
continue to improve slowly. When the current account deteriorates, reserve accumulation will end and the real value of the yen will fall.

China has the longest continuing sequence of net reserve accumulation in our sample. From 1990 to 2001 small current account surpluses were roughly matched by reserve accumulation, with little participation by the domestic private sector in international financial markets (figure 7). Since then the current account surplus has grown rapidly, and reserve accumulation has consistently been about double the surplus, as large net inflows of direct investment have been matched by reserve accumulation. Clearly, the reserve buildup since 2002 is unusual by historical measures. We have not seen a sequence of private capital inflows financing reserve accumulation on anything like this scale before.

Nor, as the right-hand panel shows, have we yet seen any of the predicted precursors of a successful speculative attack. The real exchange rate fell until 1999, when the nominal rate was fixed. Since then the rate has moved with the dollar, falling by about 4 percent from 1999 through 2003. Recall that this is a real effective rate, so that the standard model would predict a gradual erosion of the authorities' ability to control inflation. We have seen no evidence of this to date.

Finally, high growth rates during the sequence of current account surpluses are clearly a feature of this history. As in the case of Japan, our

**Figure 8. Korea: Current Account Balance, Net Official Assets, Exchange Rates, and GDP Growth in Two Episodes**



Source: International Monetary Fund, International Financial Statistics; International Institute of Finance; World Bank, World Development Indicators; Organization for Economic Cooperation and Development.

a. Year in bold refers to the first year after the end of an episode. See footnote a of figure 5 for the definition of an episode.

reading of history is that the reserve accumulation will continue until the current account surplus turns around for other reasons. In China’s case an interruption of direct investment inflows or liberalization of capital outflows might generate a real depreciation and an end to the sequence of reserve accumulations.

*Korea* experienced one sequence of net reserve accumulations that meets our criteria from 1986 to 1989, and a second episode started in 1998 and continues today (figure 8). During the earlier episode, reserve accumulations

roughly matched an increasing current account surplus and came to an end when the surplus declined. The real exchange rate rose in the final two years of the episode and declined the year following and for the next two years. In the familiar pattern, growth slowed in the final year of accumulation but then rebounded for the next two years.

The episode that started in 1998 is not unusual. Reserve accumulation has approximately matched a U-shaped sequence of current account surpluses, and the real exchange rate has risen.

### *Summary of Findings*

To conclude, we have looked at a large body of data to evaluate the relevance of the standard model for understanding developments in emerging economies with chronic current account surpluses since 1970. We find almost no support for the standard model, which predicts an eventual speculative attack on a strong currency. Episodes of net reserve accumulation coincide with growing current account surpluses. Reserve accumulations end when the current account surplus declines or (as often happens) swings all the way into deficit. Most important, the real exchange rate weakens at the end of accumulation episodes, and there is generally a small downturn in economic activity. Such a sequence is consistent with a variety of real and financial shocks to the surplus economy. But a real depreciation following the authorities' decision to stop accumulating reserves is not consistent with a speculative capital inflow or a successful speculative attack. Recall that, in the standard model, the regime ends with a burst of inflation or a forced nominal appreciation of the currency, either of which would be associated with a real appreciation. We do observe "sudden starts" of private capital inflows to finance a current account deficit, but these are associated with a falling real value for the currency, presumably to generate increases in expected yields that draw private capital into the economy.

Let us reemphasize what we did not find in the data. We did not find sequences of reserve accumulation followed by revaluations that generated capital losses for the government.<sup>15</sup> We did not find sequences of reserve accumulation followed by recessions generated by a real appreciation of

15. Calculations of such book losses have become a central arithmetical exercise among those issuing dire warnings and calling for an end to the system. See, for example, Roubini and Setser (2004) and Eichengreen (forthcoming).

the currency. This history suggests to us that the contemporary pattern of current account surpluses can continue in these economies until there is a major negative shock to demand for their exports. A cyclical downturn in the United States might be a likely candidate.

### **Nothing Lasts Forever**

The historical record we have presented suggests that most current account surplus regimes have not been terminated by speculative attacks. If this interpretation is correct, there is no obvious constraint on the ability of existing surplus regimes to continue to finance a current account deficit in the center country. A common theme in international finance is that repressed systems do not last forever. We agree they last for no more than twenty years and probably less, but the important point is that they are effective for substantial periods.

Of course, what countries can do tells us nothing about what they will *want* to accomplish. They could listen to the eminent advice and join the Washington consensus and the international finance textbooks by importing capital and developing internally. Our Revived Bretton Woods argument suggests that they will want to do just the opposite. That is, the governments of trade account countries will want to lend to the rest of the world and, in particular, to the center country. And they will counter efforts by the domestic private sector to export capital, through controls and sterilized intervention. An important part of our story is that the real exchange rate distortion will decline over time and vanish at the end of the adjustment period. So the big speculative incentive is front-loaded, and the beginning of a reserve accumulation episode is precisely the time in an emerging economy's history when financial repression is most likely to be effective. An important constraint on capital inflows into China is the underdeveloped and bankrupt domestic financial market. As the industrial sector grows and that sector lobbies for a better domestic financial system, the whole fabric of financial repression will unravel. But this takes time.

In our framework the Chinese government is not accumulating reserves because of a mindless infatuation with a fixed nominal exchange rate. It is instead using a real undervaluation of its currency to limit urban migration and to subsidize rapid industrialization and absorption of unemployed labor. So, at the end of the process, the government anticipates holding a

stock of dollar reserves that may or may not generate a capital loss. Clearly, if, as is typical, the renminbi depreciates in real terms, there is no capital loss in the endgame. In any case the government anticipates having by that time a physical capital stock that is larger and more productive than today's and a labor force that is employed and paying taxes. The one is the prerequisite for the other. The government's portfolio of interests includes the domestic capital stock as well as foreign exchange reserves; the value of that portfolio should not be maximized locally over its individual sub-components.

### **That Old-Time Religion, It's Good Enough for Me: It Is 1958**

The financial press and several widely quoted experts have argued that our comparison of the current international monetary system to the Bretton Woods system is problematic. In particular, they point out that the United States did not finance a large and persistent current account deficit under Bretton Woods, and indeed the mere forecast of such a deficit in the late 1960s was enough to bring the system to a painful end. In addition, unlike in the original Bretton Woods system, there is now a viable alternative reserve currency, the euro, and there are no formal arrangements to prevent reserve diversification. We argue below that this is a misreading of the nature of the system then and now and of the forces that brought the Bretton Woods system to an end.

#### *The Old-Time Religion: Balance of Payments Deficits Are Not Current Account Deficits*

During the Bretton Woods years, the United States did not run large current account deficits, the measure of external imbalance that most draws our attention today. But, in the reckoning of the day, it did run large and persistent balance of payments deficits. The definition of an external deficit that was natural to economists and policymakers at the time seems today to have been forgotten or to be treated as a curious and outmoded accounting convention. Almost all the old-timers focused on a *liquidity* definition of the balance of payments, which Ragnar Nurkse explained as follows:

A country with a deficit in its balance of payments can cover the deficit either by an outflow of gold or an inflow of foreign short-term funds. . . . These funds are equivalent to a loan by foreigners and should be regarded as a draft on the

recipient countries stock of international reserves. . . . The foreign short term funds are a liability, can be withdrawn at any moment, and must be treated as a negative gold reserve.<sup>16</sup>

Notice that this definition implicitly adds elements of the capital account, namely, the balance of trade in longer-term assets, to the current account in order to define a payments imbalance. It emphasizes strictly net flows of gold and short-term claims, that is, liquidity, in defining the balance of payments. Two generations of students of international economics have been kept in the dark about this concept or, at most, trained to think of it as an odd creation of the old-timers, mentally straitjacketed by the completely controlled economies of their day. Yet there it is in the literature: they harped continually about the growing U.S. balance of payments deficits. For instance, in his valedictory on the old international monetary system, French president Charles de Gaulle said

. . . . But in addition, the fact that a large number of countries accept, out of principle, dollars in the same way as gold to compensate, when appropriate, any deficits that arise to their advantage from the American balance of payments, leads the United States to become voluntarily indebted to foreign countries. . . . instead of paying them totally in gold, the value of which is real, that you can only possess if you have earned it and that you cannot transfer to others without risk and without sacrifice. . . .

The United States, for want of having necessarily to pay in gold, at least totally, for their negative balances of payment in accordance with the old rules, that required countries to take the required steps, sometimes rigorously, to remedy their imbalance, is suffering year after year from a deficit balance. No less because the total of their commercial exchanges is to their disadvantage. Quite the opposite! Their material exports always exceed their imports. But that is also the case for dollars, exports of which are always in excess of imports. In other words, capital sums are being built up in America, by means of what should really be called inflation, which, in the form of dollar loans granted to countries or to private individuals, are being exported. As, in the United States itself, the increase in currency circulation that results from this makes investments within the country less remunerative, there is an increasing trend there to invest abroad. This leads, for certain countries, to a sort of expropriation of some of their companies. . . .

But circumstances are such today that we can even wonder how far the problem would go if the countries that hold dollars wanted, sooner or later, to change them into gold? Although such a general movement would never take place, it is still the fact that there is an imbalance that is, to a certain extent, fundamental.<sup>17</sup>

16. Nurkse (1945, p. 3).

17. Press conference at the Palais de l'Élysée, February 4, 1965.

The old fundamentalists said there was a balance of payments problem. The modern secularists say there was not, because the current account was in surplus. So what brought about this change? A change in definition.

*The Modern Secular View: Yes, They Are*

The intertemporal maximization model of the international monetary system found in most modern textbooks assumes that the system is based entirely on *trust* and freely flowing capital. Private international capital transactions dominate and therefore undo official interference. Such transactions are based on the assumption that debtors willingly repay creditors, and those who suffer capital losses willingly repay those who enjoy capital gains *without the imposition of infrastructure to secure this result*. Observed net and gross capital transfers are interpreted as private intertemporal trade in goods and services. Boiled down to this dimension, goods and services should flow, on net, from high-income, slow-growing economies to low-income, fast-growing economies so that consumption can be smoothed over time. This flow imbalance can be sustained for a long time and reach high levels because it can be repaid later with surpluses that come from rapid growth. Trust is all that is needed.

That this theory generates more puzzles than insights is problematic but has not hindered its dominance. For example, an inconvenient parallel literature on sovereign debt has difficulty concluding that anyone should repay international debt, yet we somehow reconcile ourselves to this contradiction in two basic traditions in international finance.

*Which Is More Realistic, Collateral or Trust?*

A unifying conceptual basis for both the original and our Revived Bretton Woods system is the idea that the international monetary system was and is based on collateral, not on trust. Nurkse and his contemporaries believed the international monetary system depended on countries' willingness and ability to deliver gold on demand. A country's ability to deliver gold could be instantly reduced by calling its short-term credits. It follows that the liquidity balance was the natural measure of the change in the position of governments, including the government of the center country.

It is our contention that the current system also runs on collateral, not on trust. International net saving transfers are too small (except to the United States) because no one trusts a net debtor (the Feldstein-Horioka puzzle).

Gross two-way trade in assets is too small because no one trusts a potential loser (the home bias puzzle).

In the original Bretton Woods system, the United States was able to provide intermediation services to the world because it posted a stock of collateral in the only form that was acceptable at that time, that is, gold.<sup>18</sup> Nurkse was right that the ability of the United States and other countries to participate in international markets was limited by the stock and distribution of gold. A similar implication of our view of collateral in the Revived Bretton Woods system is that a country that wants to participate in private international intermediation has to post collateral. In 1949 the United States had, as it were, the only triple-A credit rating in the system, and so it could hold its own collateral. As de Gaulle pointed out, however, this was no longer the case in 1965, when liquid claims on its collateral were substantial.

The key idea in our analysis of the current system is that “earned” U.S. dollar reserve assets have replaced gold as the ultimate reserve asset. The only collateral “asset” that everyone trusts are *goods already delivered to the United States* by other countries. These goods come to the United States via U.S. current account deficits. Everyone trusts the United States to keep these goods or, what is the same thing, to “default” on U.S. official liabilities to selected foreign governments if those governments steal the private assets of U.S. residents or others, especially in the context of a geopolitical bump.

In this sort of default, the Treasury does not cease paying on its own obligations owned by the problematic foreign government. In practice, it has in the past frozen assets, converting them from liquid to completely illiquid claims, placed service payments into blocked accounts, forced long-term rollovers at Treasury bill rates, and redefined the ultimate claimants and recipients of these payments in legal cases, which may emanate from ex post legislation.

Moreover, as in Nurkse’s explanation above, a country cannot usefully borrow reserves. It would then have nothing to lose, since it could simply default on its liability.<sup>19</sup> In our view reserves and other official or even private foreign-held assets are collateral only if they have been earned by net

18. The United States did sit on its own gold reserve, and so there was some trust even in this arrangement. It also sat on a large chunk of everyone else’s gold.

19. That is why Argentina’s reserves are not collateral, but rather loans from the International Monetary Fund. To seize them would be to seize the IMF’s capital.

exports of goods and services. If they are not so earned, they are by definition borrowed. If borrowed, there are no already-delivered goods for the United States to keep, and there is hence no collateral.

Critics of the collateral approach argue that the U.S. Treasury would never damage its reputation by defaulting on an official reserve liability. We have two reactions. First, the Treasury has frequently done so in the past. Several such actions are described below, along with a more detailed history of a recent case. Second, we argue that transferring collateral to the rightful owner in circumstances envisioned in the collateral relationship *preserves* the reputation of the U.S. government *both* as a debtor and as an impartial and reliable enforcer of collateral arrangements. In delivering its liability to the injured party, the United States is not defaulting on its obligations. It is honoring both its promise to pay and its promise to pay the rightful owner of its obligation. The identity of the rightful owner is conditioned by the terms of the collateral arrangement. Both reputations contribute to the demand for U.S. international reserves. But an important implication of our approach is that the second of the dual roles, that of enforcer of collateral arrangements, is the only *unique* function of an international reserve currency.

In a private collateral arrangement, the rights and obligations of the participants are clear and explicit. The rights and obligations of governments in the collateral arrangement we have described are implicit and necessarily less clear. For example, the event that would trigger transfer of ownership of U.S. official liabilities is not defined, as it would be in a private collateral arrangement. But historical precedents exist. The United States has transferred ownership following major geopolitical incidents such as wars, invasions, revolutions, hostage takings, and nationalizations of foreign investment. That there is uncertainty about what set of events would trigger transfer of collateral does not mean that there are no such events or that private investors do not value the protection offered by collateral in those circumstances.

There is also uncertainty concerning what set of creditors to a country would actually benefit from collateral arrangements. But even a random distribution among creditors would be a significant disincentive for a sovereign on the international periphery considering whether to seize assets, provided it had enough collateral at risk. Uncertainty about what events will trigger transfer of collateral and uncertainty about the distribution of

the transfer make governments' collateral less powerful than private collateral. Our conclusion is that more of it is needed to support a given scale of financial intermediation.

Ricardo Caballero and A. Krishnamurthy have similarly argued that international collateral is necessary to support private financial intermediation within advanced and emerging economies.<sup>20</sup> They also emphasize that an important market failure in emerging economies is the inability to produce assets that can be used as collateral, making it necessary to import such assets. Caballero elsewhere relates this to the private financing of the U.S. current account deficit as follows: "There is an enormous demand for saving instruments in the world, and the US is the most efficient producer of such instruments. No other place combines the volume from new opportunities and ability to generate trustworthy saving instruments from each unit of physical investment put on the ground."<sup>21</sup> An important aspect of their analysis is that financial crises can reduce the supply of collateral assets in emerging economies, and that this might constitute the real costs of such crises. Moreover, even developed financial markets can lose their ability to produce safe assets following a severe financial crisis like that which has plagued Japan in recent years.

We are just beginning to explore the economic significance of private and official holdings of international collateral and how the two might interact. Is private collateral a substitute for official holdings of safe assets? Is official collateral necessary for the credibility of cross-border private collateral arrangements? Our framework is based on the idea that official collateral is required because, when trouble comes, private international credit arrangements are enforced, if at all, by governments. There is, of course, ample room for clarification and improvement of our understanding of these mechanisms. But two things seem to us clear. The United States is a source of safe assets that cannot be produced locally in most of the rest of the world. And, since borrowed collateral is an oxymoron, most of the rest of the world has to earn these assets by delivering goods to the United States.

Could Europe, offering the euro as an alternative reserve currency, replace the United States as the preferred custodian of collateral? Clearly this is possible. As many observers have recently pointed out, the European

20. Caballero and Krishnamurthy (2001, 2003).

21. Caballero (2004).

Union already provides euro-denominated government debt that is a credible promise to pay. Moreover, some diversification from dollars to euros might make sense in terms of a narrow risk-return calculus. But our conjecture is that the dollar will remain the dominant reserve currency as long as the European Union is less willing or less able than the United States to enforce collateral arrangements. Since the European Union has no track record in this regard, it seems unlikely that the euro will soon challenge the position of the dollar in the international monetary system. For this to change would require markets to come to expect that some European governments would be willing to accept large current account deficits and to block the movement of euro reserves as a way of punishing a country (possibly an aggressive one) that expropriates foreign assets. In our view both expectations are unlikely. At this point in history, substituting euros for dollars places collateral out of the reach of creditors and therefore considerably reduces its usefulness.

Our approach is based on the view that there is little trust between key countries in the international monetary system. In such a system, everyone sees tremendous benefits from international financial intermediation, but no one can afford the risk of letting another country owe them substantial amounts of goods. The best risk is the central reserve country. Put another way, without trust, the stock of net financial indebtedness must always be less than the stock of collateral that can be seized. In domestic financial markets the stock of real capital that can be pledged as collateral is large relative to credit balances. Although collateral is a universal feature of domestic credit relationships, it is seldom a binding constraint, at least in the aggregate. In international finance just the opposite is the case. Huge stocks of national wealth exist but are useless in creating incentives for repayment, because mass default is often generated by government via the domestic legal system.

#### *Some Evidence on the Durability of Reserve Currency Status*

The International Emergency Economic Powers Act of 1977 (IEEPA, which supplanted the Trading with the Enemy Act of 1917) empowers the president of the United States to freeze foreign-owned assets under U.S. control. The IEEPA authorizes the use of sanctions when the president sees an “unusual and extraordinary threat” to the “national security, foreign policy, or economy” of the United States and declares a national

emergency.<sup>22</sup> The word “emergency” allows the window to be slammed shut if, for example, a foreign country threatens to launch a financial attack by withdrawing funds or to pull out a substantial amount of funds out in order to prevent their seizure. As described by the U.S. Information Agency, a freeze on foreign-owned assets

can be applied selectively to a particular country, or to a group of countries, in time of war or in response to a national emergency. . . .

The procedure can be used to serve three purposes:

- to deny authorities in blocked countries access to assets that might be used against the US
- to protect the true owners of the assets from illegal attempts to seize their property
- to create a pool of assets for possible use in settling US claims against blocked countries, or for use as a bargaining chip in negotiating an eventual return to normal relations.<sup>23</sup>

During World War II, assets owned by Germany, Japan, and Italy were blocked and eventually used in settling war claims against them. Similarly, assets of Hungary, Romania, Latvia, Lithuania, Estonia, Bulgaria, and Czechoslovakia were blocked after these countries fell under Soviet domination. Asset blockings were subsequently imposed against North Korea and China in 1950, Cuba in 1963, North Vietnam in 1964, Rhodesia (now Zimbabwe) in 1965, Kampuchea (Cambodia) in 1975, Iran in 1979, Libya in 1986, Panama in 1988, the Federal Republic of Yugoslavia (Serbia and Montenegro) in 1992, and Afghanistan in 1999. In 1990 the United States blocked \$30 billion in assets belonging to Iraq and Kuwait. In 1979 it blocked \$12 billion of Iran’s assets, including \$5 billion in off-shore branches of U.S. banks; part of this was used to pay off syndicated loans by U.S. banks to Iran, and \$1.4 billion was sent to the Bank of England to cover claims in the United Kingdom. Another \$1 billion was held against awards from the Iran-U.S. claims tribunal.<sup>24</sup>

These asset freezes have occurred under a variety of circumstances. Some of the asset blockings were aimed at adversaries in a declared or undeclared war (Germany, Japan, Italy, China, North Korea, and Iraq). Some were aimed

22. See the International Emergency Economic Powers Act (IEEPA), United States Code ([www.treas.gov/offices/enforcement/ofac/legal/statutes/ieepa.pdf](http://www.treas.gov/offices/enforcement/ofac/legal/statutes/ieepa.pdf)). Assets frozen under the IEEPA are administered by the Treasury’s Office of Foreign Asset Control (OFAC).

23. U.S. Information Agency, “Freeze of Iraq, Kuwait Assets Has Many Precedents,” August 28, 1990 ([www.fas.org/news/iraq/1990/900828-152460.htm](http://www.fas.org/news/iraq/1990/900828-152460.htm)).

24. U.S. Information Agency, “Freeze of Iraq, Kuwait Assets Has Many Precedents.”

at friendly countries that had been occupied, with the aim of preserving the assets pending the restoration of a government recognized by the United States (Latvia, Lithuania, Estonia, and Kuwait). Some countries saw their assets blocked when they opposed the United States geopolitically or became hostile without war breaking out (Cuba, Iran). Some freezes were implemented as part of a global imposition of sanctions (F.R. Yugoslavia, Rhodesia). The differences in circumstances notwithstanding, this history shows that the center country can repeatedly “default” on official liabilities and still remain the only important provider of reserves.

### **Conclusion**

The international monetary system must create collateral in order to support international capital transactions. In the industrial countries, the lack of such collateral might account for the relatively small net and gross capital flows among them. Collateral is expensive, and the benefits of trade in financial assets among similar countries are probably not great, even though the legal and expropriation risks are relatively small. For emerging economies, in contrast, the benefits of trade in financial assets are very large. The irony here is that, to accumulate collateral (or “net reserves” to the more traditional among our readers), the emerging economy must export national saving. This is bad from the modern secularist perspective, but it is orthodoxy in the old-time religion. The benefits of two-way trade in financial assets are potentially enormous for countries that have high saving rates but waste the resources thus generated when they are channeled through inept domestic financial systems. These countries need to run the modern version of a liquidity surplus.

Some observers have taken a too-legalistic interpretation of our definition of international collateral. We do not argue that any set of private investors in an emerging economy would benefit or would expect to benefit from the collection of collateral by the United States, and in the case of China we have in mind much more the sort of expropriation that might result from a geopolitical clash. Nevertheless, both U.S. and non-U.S. private (portfolio and direct) investors know that an emerging economy that is an international creditor has something to lose from confiscation of its investments abroad. It seems clear to us that European direct investors in Argentina, for example, would have fared much better in recent years if

the government of Argentina had owned net assets in the United States. In a general sense our argument is that the government of an emerging economy needs a strong incentive to stay out of the way of private international financial intermediation. Building a positive net international asset position seems to us the obvious way for it to create that incentive. The real potential for globalization of international finance lies in governments of emerging economies posting collateral in the United States to support private two-way trade in financial assets. The current general move in emerging economies, in both Asia and Latin America, toward reducing sovereign debt and building international reserves may be based on an implicit understanding of how the system really works.

## APPENDIX A

### *Data Sources and Methodological Notes*

#### **Episodes of Official Asset Accumulation**

We define an episode as a period of three or more years where

- the official sector increases its stock of international assets
- on average the official sector entirely or partly finances the current account, and
- the official sector generates more than 25 percent of the change in national net foreign assets.

The second part of the definition is equivalent to the country running current account surpluses during the episode. As described above, the second requirement binds only on average; it is possible to find one or more observations where the country runs current account deficits, although in the data this appears very rarely.

#### **Net Official Assets**

Net official assets are defined as the sum of the following items in the “general government” and “monetary authority” accounts in the balance of payments (all on a net basis): capital transfers, portfolio investment assets (equity and debt, the latter including bonds, notes, and money market

instruments), financial derivatives, other investment (trade credits, loans, currency and deposits), and reserve assets.

For the following countries, partial quarterly estimations have been calculated for 2004: Japan, Pakistan, Russia, and Ukraine (two-quarter estimations); Denmark, Indonesia, and Korea (three-quarter estimations).

### **Current Account**

Current account data were obtained from the International Financial Statistics (IFS) of the International Monetary Fund and from the International Institute of Finance (IIF) dataset. All forecasts for 2005 and 2006 come from the IIF dataset. The current account data are expressed as a flow variable in millions of dollars from the end of one fiscal period to the beginning of the next.

### **GDP Growth**

GDP growth data were obtained from the World Bank's World Development Indicators and the IIF dataset. All forecasts for 2005 and 2006 come from the IIF dataset.

### **Real Effective Exchange Rates**

The commonly used definition of the real effective exchange rate is

$$\text{REER} = \Pi_i [(e/e_i)(P/P_i)]^{w_i},$$

where  $e$  is the exchange rate of the subject currency against the dollar (in dollars per subject currency unit), in index form;  $e_i$  is the exchange rate of currency  $i$  against the dollar (in dollars per currency unit), in index form;  $w_i$  is the weight attached to currency  $i$ ;  $P$  is the consumer price index (CPI) of the subject country; and  $P_i$  is the consumer price index of country  $i$ . REER data were retrieved from the IFS, IIF, and Organization for Economic Cooperation and Development datasets. Data are reported as index values, where an increase indicates an appreciation of the local currency.

### **Coverage**

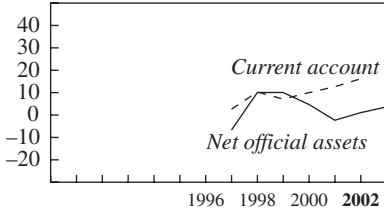
The list of countries in the sample is available from the authors. The initial sample of 164 countries was reduced to 115 because of unavailability of data.

APPENDIX B

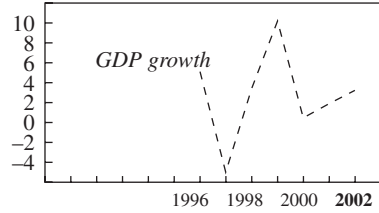
*Reserve Accumulation Episodes in Hong Kong, India, Russia, and Singapore*

**Hong Kong, 1999–2001**

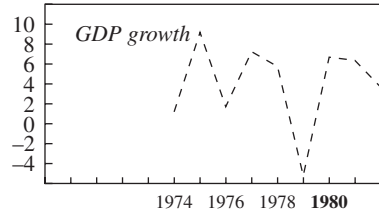
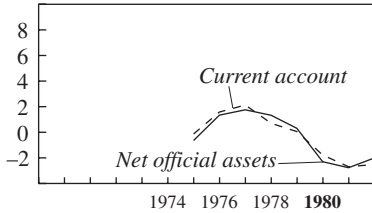
Billions of dollars



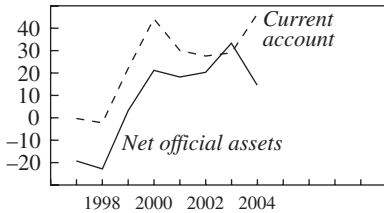
Percent



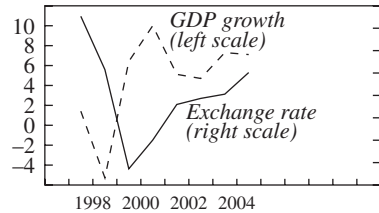
**India, 1976–79**



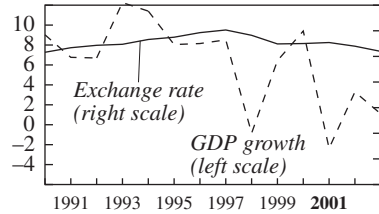
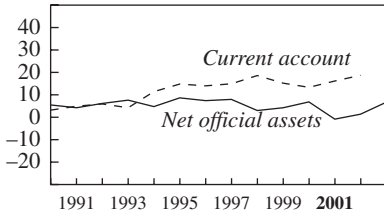
**Russia, 1999–2004**



Index



**Singapore, 1974–2000**



Source: International Monetary Fund, International Financial Statistics; International Institute of Finance; World Bank, World Development Indicators; Organization for Economic Cooperation and Development.

a. Year in bold refers to the first year after the end of an episode. See footnote a of figure 5 for the definition of an episode.

## APPENDIX C

*Real Exchange Rate Changes, Reserves, Current Account Balances, and GDP Growth in Reserve Accumulation Episodes*

<i>Episode</i>	<i>Duration (years)</i>	<i>Average real depreciation (percent a year)</i>		<i>Cumulative change in reserves (millions of dollars)</i>	
		<i>During episode</i>	<i>First year after episode</i>	<i>During episode</i>	<i>First year after episode</i>
Argentina, 1976–79	4	6.7	–23.9	8,810	–2,598
Bulgaria, 1982–85	4	2	–26.9	1,053	–885
Canada, 1996–2001	6	–0.2	3.7	19,926	–185
China, 1990–present	15+	–4.5	...	410,674	...
Colombia, 1976–80	5	n.a.	4.6	4,287	–21
Colombia, 1989–94	6	2	6.3	4,728	–4
Croatia, 1993–95	3	14.3	0.3	1,652	533
Denmark, 2001–present	4+	3.3	...	13,537	...
Egypt, 1990–94	5	–2.9	4	15,615	409
Finland, 1997–2002	6	–1.2	4.2	3,261	–508
France, 1977–80	4	2.3	–3.7	11,796	–3,588
France, 1983–86	4	1.4	–1.1	10,417	–2,602
Germany, 1971–73	3	4.2	–1.7	18,312	–523
Germany, 1976–78	3	1.2	–4.3	21,011	–3,590
Hong Kong, 1999–2001	3	n.a.	–4.4	24,755	–2,377
Hungary, 1990–92	3	7.9	1.1	2,905	2,575
Hungary, 1995–97	3	1.2	0.5	2,983	791
India, 1976–79	4	n.a.	n.a.	6,578	–624
Indonesia, 2002–present	3+	6.4	...	8,245	...
Ireland, 1993–95	3	–2.2	–1	4,823	–52
Italy, 1987–89	3	1.4	1.3	25,245	11,623
Japan, 1986–88	3	12.1	–4.4	70,747	–13,058
Japan, 1992–96	5	1.8	1.6	147,110	6,567
Japan, 1999–2004	6+	0.4	...	398,985	...
Jordan, 1999–2003	5	–0.3	–0.2	3,411	n.a.
Korea, 1976–78	3	–13.5	–16.9	3,385	749
Korea, 1986–89	4	2.9	–3	13,036	–1,208
Korea, 1998–present	7+	–0.6	...	122,894	...
Malaysia, 1976–80	5	–3	3.7	2,652	–235
Malaysia, 1985–93	9	–2.2	0.4	25,398	–3,160
Malaysia, 2001–03	3	–3	–3	14,838	n.a.
Morocco, 1996–2002	7	0.3	0.3	6,782	1,649

*Cumulative change in  
current account balance<sup>a</sup>  
(millions of dollars)*

<i>During episode</i>	<i>First year after episode</i>	<i>Years of deficit after episode</i>	<i>Real GDP growth (percent a year)</i>	
			<i>During episode</i>	<i>Average for three years after episode</i>
3,120	-4,774	3+	10	-1.5
612	-951	2	3	5.1
24,902	14,447	0	4.2	2.6
315,476	...	0	9.3	...
1,029	-1,961	3+	5.4	6
-2,185	-4,527	3+	3.8	4.4
-413	-1,049	3+	1.6	5.1
22,033	...	0	1	...
-2,937	-1,000	3+	3.6	5.1
49,845	9,295	0	3.4	1.9
7,592	-4,811	3+	2.9	1.8
-3,646	-4,446	3+	1.7	3.8
4,627	9,085	0	3	2.3
16,929	-5,387	3+	3.7	1.8
27,309	12,596	0	4.7	2.6
1,134	-4,262	3+	-6.2	1.3
-3,451	-2,228	3+	2.5	4.7
4,441	-1,785	3+	2.4	5.6
18,676	...	0	4.1	...
5,063	2,049	0	6.1	9.3
-22,628	-16,479	3+	3.3	1.4
249,000	63,000	0	4.5	4.6
551,000	97,000	0	1.5	0.3
743,000	...	0	1.4	...
1984	208	0	3.9	5.2
-1383	-4,151	3+	10	3.8
34,634	-2,003	3+	9.8	8.1
130,483	...	0	4.2	...
130	941	0	8.6	6.4
-6,326	-4,521	3+	8.1	9.7
27,885	14,400	0	3.3	5.8
2,253	1,593	0	4	3.7

*(continued)*

<i>Episode</i>	<i>Duration (years)</i>	<i>Average real depreciation (percent a year)</i>		<i>Cumulative change in reserves (millions of dollars)</i>	
		<i>During episode</i>	<i>First year after episode</i>	<i>During episode</i>	<i>First year after episode</i>
Netherlands, 1970–77	8	1.5	–1.3	3,902	–770
Netherlands, 1992–95	4	2.2	–1.8	11,349	–5,695
Norway, 1980–85	6	1	1	9,442	–3,211
Norway, 1993–97	5	–0.5	–1.7	14,353	–6,384
Norway, 1999–2003	5	1.7	–4.8	13,393	n.a.
Oman, 1989–92	4	–1.4	–6.6	1,302	–1,058
Oman, 1999–2001	3	–1.7	–4.9	3,483	309
Pakistan, 2001–present	4+	–0.3	...	10,244	...
Portugal, 1985–92	8	2.2	–0.4	16,235	–2,848
Romania, 1986–89	4	–2.7	–31.1	1,614	–1,494
Russia, 1999–2004	6	–0.1	7.2	63,731	n.a.
Saudi Arabia, 1979–82	4	1.6	–3.3	11,432	–1,509
Singapore, 1974–2000	27	–0.3	–2.1	81,135	–861
South Africa, 1989–91	3	2.9	–1	2,030	503
Sweden, 1970–73	4	–0.4	0.2	1,499	–753
Sweden, 1998–2000	3	–2.7	–0.1	5,306	–1,048
Switzerland, 1982–87	6	2.1	–0.3	10,189	–2,382
Ukraine, 1999–present	6+	–4.7	...	5,383	3,092
Venezuela, 1979–81	3	11.3	–5.9	7,839	–8,160

Sources: International Monetary Fund, International Financial Statistics; International Institute of Finance; World Bank, World Development Indicators; Organization for Economic Cooperation and Development.

a. A positive number indicates a change in the direction of surplus.

n.a., data not available; . . . , not applicable.

<i>Cumulative change in current account balance<sup>a</sup> (millions of dollars)</i>			<i>Real GDP growth (percent a year)</i>	
<i>During episode</i>	<i>First year after episode</i>	<i>Years of deficit after episode</i>	<i>During episode</i>	<i>Average for three years after episode</i>
16,476	-904	1	3.6	2
63,117	21,502	0	2	3.7
11,736	-4,551	3+	3.4	1.9
33,520	6	0	4.6	2.5
113,812	n.a.	0	1.9	n.a.
563	-1,190	3+	6.7	4.6
5	2	0	4.3	3.2
9,277	...	0	5.3	...
-14	233	0	4.6	1.1
9,874	-3,254	3+	-0.8	-9.1
199,007	40,800	0	6.8	5.2
98,912	-16,852	3+	2.5	-5.2
116,349	16,137	0	7.5	0.7
5,734	1,967	0	0.4	0.8
2,149	-529	3+	3.4	2.3
29,648	8,531	0	4.2	1.5
26,869	8,846	0	1.9	3.7
10,606	...	0	8.3	...
9,078	-4,246	1	-1.3	-1.5

## *Comments and Discussion*

**Barry Eichengreen:** The first rule of forecasting is, “Give them a forecast or give them a date, but never give them both.”<sup>1</sup> Michael Dooley and Peter Garber have given us a forecast, namely, that the dollar will fall and U.S. Treasury yields will rise. Bravely, they have also given us a date. Unfortunately for those of us interested in the future, that date is 1971.

Like Dooley and Garber, I agree that what cannot go on forever generally will not. But unlike them I do not believe that recent events in financial markets can help us pin down the timing. The middle of March, just before the Brookings Panel meeting, saw an increase in noise about the possibility that foreign central banks might diversify out of dollars. The governor of the Bank of Korea made some widely reported comments about the need for more-active reserve management. Prime Minister Junichiro Koizumi of Japan told a parliamentary committee that reserve diversification was “necessary.”<sup>2</sup> Y. V. Reddy, governor of the Reserve Bank of India, said that the diversification of reserves was under active discussion.<sup>3</sup> Ukrainian economy minister Sergiy Teriokhin argued publicly that the country should diversify its reserves out of dollars and into euros.<sup>4</sup> This upsurge in noise was associated with an eight-month high in Treasury yields, reinforcing the belief that reserve diversification could eventually force the dollar down and Treasury yields up.

At the same time, that eight-month high in Treasury yields was not all that high. I would acknowledge that this is a troubling point. I am not alone, of

1. Attributed to Edgar R. Fiedler by Dickson (1978).

2. Steve Johnson, “Dollar Wobbles on Japan Diversification Talk,” *Financial Times*, March 10, 2005.

3. Reuters, “Asian Foreign Exchange Reserves: A \$2.46 Trillion Question,” March 11, 2005, 11:36 AM.

4. Reuters, March 16, 2005, 12:50PM.

course: Federal Reserve Chairman Alan Greenspan has commented on this issue extensively, to the point where it is now known as the Greenspan conundrum. Factors invoked to help explain it include the relatively short supply of new long-term Treasury debt coming onto the market as the debt managers at the U.S. Treasury shorten maturities, and the inelastic demands of various institutional investors for government securities. In Dooley and Garber's view, the proper interpretation is that financial market participants are attaching a positive probability to Asian central banks continuing to support the dollar by making massive purchases of Treasury bonds. This is the substance of the first of the authors' three notes.

Who am I to second-guess the markets, much less to second-guess our esteemed authors? Well, I'm an economic historian who can recall a substantial number of previous episodes where major imbalances leading to sharp changes in exchange rates were not obviously factored into financial markets until immediately before the event. For example, the January-March 1933 run on the dollar, a suggestive precedent, had virtually no discernible impact on interest rate differentials or forward exchange rates until almost immediately before it occurred, despite the fact that the possibility had been actively discussed for the better part of a year.<sup>5</sup> The 1992 attacks on the pound sterling, a currency that commentators regularly cited as ready for a fall, were similarly not preceded by the emergence of noticeable interest rate differentials or a forward discount in the foreign exchange market until a couple of weeks before the denouement.<sup>6</sup> Particularly interesting, given the context, is that in 1968–71, in the run-up to the collapse of the Bretton Woods system, the forward discount on the dollar was very modest, as was the interest rate differential between the United States and Germany.<sup>7</sup> Then, in the summer of 1971, the forward discount jumped upward. Although one can always ascribe such behavior to the arrival of new information, it is not as if people failed to see the collapse of the Bretton Woods system and a substantial devaluation of the dollar coming. To the contrary, there was an immense contemporary literature warn-

5. See Hsieh and Romer (2001).

6. See Eichengreen and Wyplosz (1993).

7. See Obstfeld (1993). Imperfect capital mobility complicates the drawing of inferences from these data, although, as Obstfeld notes, capital mobility was rising strongly toward the end of the Bretton Woods period. Imperfect capital mobility also complicates drawing inferences from interest rates today, as Dooley and Garber themselves note.

ing that the system would dissolve and that the dollar would have to fall substantially. Yet there seemed to be a striking reluctance to take a position on this basis until one minute before the clock struck midnight. This behavior may be hard to reconcile with perfect foresight, but, if it exists, asset prices will not be telling us when it is 11:58.<sup>8</sup>

Dooley and Garber's second note is an analysis of the end of several episodes of large current account surpluses accompanied by reserve accumulations. The authors' intriguing finding is that many such episodes come to an unhappy end with a sharp real and nominal *depreciation*, which is not how most observers of China expect the current situation to play out. I would simply observe that how ancillary variables like the real exchange rate will react when China's accumulation of reserves ends will depend on *why* it ends. If it ends because the People's Bank of China and the government, observing robust economic growth and mounting inflationary pressure, choose to tighten monetary policy in order to cool fears of overheating, the currency will appreciate. But if they wait until domestic financial excesses further infect the banking system, creating a crisis of confidence, there may instead be a scramble to get out, causing the currency to crash. The wisdom of moving away from the peg while confidence is strong, capital is still flowing in, and reserves are still being accumulated is the central lesson of the literature on exit strategies.<sup>9</sup> It provides the strongest argument for why China should abandon its peg to the dollar now.

Dooley and Garber's third note extends an earlier paper of theirs that characterizes the role of the United States in the current international system as providing financial intermediation services to the rest of the world.<sup>10</sup> The United States borrows short, indeed increasingly short given the shorter and shorter tenor of Treasury debt, and lends long in the form

8. It is worth recalling that, in the original Krugman-Flood-Garber model, interest rates remain perfectly stable until the moment the exchange rate collapses, despite the fact that everyone has perfect foresight and can see the end coming. I understand, of course, that the interest rate in their model is the instantaneous rate, not the long-term rate, and that the result depends on some restrictive assumptions. But add to this the well-known fact that the markets appear to attach a heavier weight to short-term rates than the term-structure hypothesis would lead one to predict, and it is possible to reconcile the conviction that the end is near with the observed low level of long-term rates.

9. See, for example, Eichengreen and Masson and others (1998) and, for an application to China, Eichengreen (forthcoming).

10. Dooley, Folkerts-Landau, and Garber (2004b).

of foreign direct investment (FDI). It thus provides liquidity transformation services like those of a bank. It enhances the efficiency of resource allocation, also like a bank. Again, there is a suggestive analogy with the Bretton Woods system, there having been an argument in that period that the United States was acting as banker to the world, borrowing short and lending long. It was similarly argued that the U.S. deficit on liquidity account was not a problem because foreigners were simply the happy recipients of these intermediation services.<sup>11</sup>

But there is a difference between the Bretton Woods era and today, namely, that the present situation occurs against the backdrop of large, ongoing current account deficits for the country that is banker to the world. In principle, there is no reason why the country with the most efficient financial system, which is therefore providing intermediation services to the rest of the world, cannot run a balanced current account or, for that matter, a surplus. There is no reason why importing short-term capital and exporting long-term capital should also require it to run a current account deficit, as the United States is doing. The United States ran current account surpluses following World War II, even after contemporary economists stopped referring to the dollar gap. Britain ran persistent current account surpluses before World War I, when it was similarly acting as banker to the world. Being an international financial center and providing maturity transformation services to the rest of the world does not doom a country to current account deficits.

So China must be buying something else through its bilateral surpluses and heavy investment in U.S. Treasury bonds. According to Dooley and Garber, it is buying custodial services. The United States, in their view, is now custodian to the world (this is not a comment on the postindustrial economy). In other words, the United States holds the collateral against which countries like China are able to borrow. China can then attract FDI from abroad, because if it ever decided to nationalize U.S. or other private assets, the United States would then default on its official liabilities held by the Chinese government.

This is a provocative hypothesis whose validity is highly questionable. For one thing, the story is specific to China, whereas the accumulation of

11. See Despres, Kindleberger, and Salant (1966). Others objected to this view on the grounds that the capital inflow was really the temporary balancing item that offset a U.S. current account surplus that was too small to fully finance U.S. FDI abroad.

reserves and chronic surpluses in trade with the United States is a pan-Asian phenomenon. No one worries that Japan, Korea, or Taiwan will expropriate U.S. investments, yet they, too, hold massive claims on the United States. I am not aware of any U.S. corporate executives pointing to China's large dollar reserves as a form of collateral justifying their decision to invest there. Nor am I aware of statements by Chinese officials explaining that they are accumulating Treasuries as a way of posting collateral for FDI inflows. Dooley and Garber rightly emphasize the importance of looking at the current international financial system through the eyes and statements of Asian officials. Here is an instance where their point works against them.

Moreover, the timing is wrong: U.S. FDI in China began to rise around 1992, yet the massive reserve accumulation started nearly a decade later. Then there is the fact that the United States accounts for only a small fraction of FDI in China: Morris Goldstein and Nicholas Lardy find that it accounts for less than 10 percent.<sup>12</sup> Thus one must assume that the United States would be willing to go to bat not just on behalf of U.S. private foreign investors but also on behalf of investors from other countries. In addition, the way foreign investments in China have been expropriated historically is through the surreptitious stripping of assets by Chinese managers and joint-venture partners. It is hard to imagine that the U.S. government would risk tarnishing its public credit in response to such behavior. Rather, one has to assume a major geopolitical blow-up between the United States and China, a decision by Beijing to freeze all U.S. investments there, and the U.S. government retaliating by freezing all U.S. Treasury bonds held by China in custody in the United States. Such events are not beyond the realm of possibility, but they do not exactly strike me as an obvious way of explaining the current pattern of global imbalances.

This suggests testing the hypothesis with a systematic analysis of the impact of inward FDI and property rights protection on the demand for reserves. Specifically, I am imagining a regression of the level of reserves on FDI, where the coefficient on the latter is expected to be larger in economies where property rights are less secure, the government is communist, and the country is not politically allied with the United States. Of course, one would have to control for the other standard determinants of the demand for reserves and correct for the endogeneity of FDI. But this

12. Goldstein and Lardy (2005).

would be a much more direct way of marshalling evidence for Dooley and Garber's hypothesis.

If one accepts that the collateral story is implausible or at best unsubstantiated, how then to explain the Chinese authorities' insistence on keeping their currency down against the dollar? We are forced to fall back on the traditional rationale for export-led growth. The export sector, in this account, is the locus of knowledge spillovers and productivity growth in a developing economy. Distortions affecting the economy justify the imposition of another distortion in the form of an undervalued currency, which pushes more resources into the export sector than would occur under the unfettered operation of market forces. The original distortion might be the fact that the productivity effects associated with producing for export are external to the firm, providing an inadequate incentive for private investors to shift resources into the sector absent other interventions. Or it might be an inefficient financial system that prevents saving in the developing economy from underwriting adequate investment in the export sector. Or it might be a shortage of organizational knowledge that is strongly complementary with exports and can only be augmented by export-linked FDI that imports this organizational knowledge from abroad.

Which of these distortions provides the primary motivation for pursuing the export-led growth strategy matters importantly for how quickly one should expect the government to move away from current arrangements. I have the sense that Chinese managers and entrepreneurs are rather quickly gaining the organizational knowledge necessary to run a modern, export-oriented manufacturing firm. I also have the sense that the productivity effects from learning by exporting are internal as well as external to the firm, much as they are in other countries. In other words, the time may not be very long in coming when these justifications for keeping the exchange rate artificially low are no stronger in China than in a variety of other middle-income countries.

The strongest argument in favor of the indefinite maintenance of the status quo is that the export sector, where productivity is higher than in the rest of the economy, is being starved of funds by an inefficient Chinese banking system and that an undervalued renminbi is needed to offset this distortion, perhaps by artificially boosting the prices of traded goods relative to nontraded goods and thus enhancing the profitability of investing in the traded goods sector. But this would boost the prices of traded goods across the board, whether manufactures or agricultural products, and whether

produced by state enterprises or by private firms. This hardly looks like a sensible strategy for enhancing efficiency.<sup>13</sup> Alternatively, an undervalued renminbi could lead to China accumulating Treasuries and thus encouraging efficiently allocated FDI in China. This is the reasoning that forces Dooley and Garber into the logical corner in which they now find themselves. It also brings us back to my earlier objections to the collateral-and-selective-default story.

If one rejects, as I do, their collateral argument, one must hang one's hat on the first two distortions: learning spillovers external to the firm, and shortages of organizational knowledge. It is then hard to resist the conclusion that these justifications for an undervalued currency will grow less compelling rather quickly, for the reasons I have just enumerated. As the authors point out, capital losses on dollar-denominated reserves should be counterbalanced against the returns, and these returns are likely to be strongly declining. In addition, the liability side of the equation should include also the other costs of undervaluation, such as the limited extent of monetary control, the incentive under current conditions for large amounts of credit to flow into the property market (heightening financial fragility), and the additional difficulty that this poses for efforts to raise lending standards and otherwise strengthen the banking system. These feature not at all in Dooley and Garber's analysis.

These are all reasons, then, why Asian governments are likely to move away from the strategy of export-led growth through undervaluation before long. (But recall the first rule of forecasting.) Once countries see their neighbors doing so, and thereby lending less support to the dollar, there will be an obvious incentive not to be late in jumping off the bandwagon.<sup>14</sup> At that point the familiar models of speculative attacks, which the authors helped to pioneer, will not just be "dancing in our heads."

13. There is also the question of whether undervaluing relative to the dollar is an appropriate strategy for boosting exports in general. The United States takes about a third of China's exports (including exports that go via Hong Kong). Even if one aggregates the other dollar peggers, the share of the "dollar area" is still only 40 percent. Europe meanwhile takes 25 percent of Chinese exports. Over the last ten years the dollar has risen as well as fallen against the euro. Between 1994 and 2002 it rose very substantially. Was Chinese policymakers' preference then for increasing overvaluation on an effective basis?

14. As emphasized in Eichengreen (2004).

**Jeffrey A. Frankel:** In a recent series of papers that have deservedly received a lot of attention, Michael Dooley and Peter Garber (usually with David Folkerts-Landau) have put forward the view that the essential elements of the current international monetary situation bear a strong resemblance to the old Bretton Woods system, with the Asian central banks today playing the role of dollar accumulators that Europe played in the 1960s. There is a lot of insight in their views, which are all the more useful for their unconventional perspective and language. This is not just another recitation of familiar positions in a fixed-versus-floating debate. For example, I think the authors are right that “The problem for China is to mobilize its existing enormous domestic saving to create a growing, internationally competitive capital stock that can rapidly employ hundreds of millions of workers in productive activity. A serious constraint is the lack of a domestic financial system capable of channeling this saving into productive capital, technology, and management skills.” To link these issues to the U.S. balance of payments situation was an original, imaginative, and thought-provoking leap.

It is fair to claim, as the authors do, that much of their analysis has now been generally accepted. This is not to say that one has to credit them for the insight that Asian central banks are now financing much of the U.S. current account deficit; that much is obvious. And, at the other end of the argument, I think the authors have been forced to clarify that they are not claiming that the current system can continue indefinitely—that the dollar will never have to depreciate—which many of us thought we heard them saying at first.<sup>1</sup> But I do credit them with the useful insight that the willingness of Asia, and especially China, to pile up unheard-of quantities of dollars is not simple myopia or mercantilism, but rather part of a deliberate strategy of export-led growth, which may not be foolish given the structural limitations of their financial and corporate governance systems.

I will begin by restating the authors’ case. It is not always easy to understand everything they say, perhaps because of the novelty of much of it. I will try to be helpful in defending them against some of the critiques that have demanded their response. Indeed, I may carry the parallel with

1. See, for example, Eichengreen (2004). Dooley, Folkerts-Landau, and Garber (2003, abstract) wrote, “there is a line of countries waiting [to follow the development strategy of keeping their currencies undervalued against the dollar] sufficient to keep the system intact for the foreseeable future.”

the Bretton Woods period further than they themselves intended or would like. I will then, in some respects, try to suggest some different (and perhaps less unconventional) language to make what seems to me the same argument. On the key question posed by the title of their paper, however, which amounts to asking whether we are at the beginning of the revived Bretton Woods system or the end, I come down on the latter side, or, more precisely, that we are *closer to* the end than to the beginning. One could argue that we are actually *at* the end, 1971, since the dollar depreciated substantially against most major currencies during 2002–04, as so many of us predicted it would when the United States shifted macroeconomic gears four years ago. But the system may still have a little ways to go in other respects, such as the much-anticipated end of the peg of the renminbi to the dollar. I shall argue that in one respect we may be at 1967.

IS THE BRETTON WOODS ANALOGY APPROPRIATE? The five features of the current system that the authors enumerate at the beginning of their paper in fact bear little resemblance to the Bretton Woods system. Certainly, with no mention of pegged exchange rates or gold, their list bears little relation to the system that was agreed upon at Bretton Woods, New Hampshire, in 1944. But I think readers are meant to take “Bretton Woods” to refer to the *de facto* system under which all other currencies were pegged to the dollar, and all other central banks held dollars as the reserve asset because the dollar was convertible into gold.<sup>2</sup> Specifically, the “Bretton Woods” period in this sense refers to the years from 1958, when the European countries restored convertibility as envisaged in the International Monetary Fund Articles of Agreement, to 1971, when the dollar was devalued, or perhaps just to 1968, when the United States ceased to allow foreign citizens to convert dollars to gold.

The ten to thirteen years that this *de facto* system lasted is not very long in the broad scheme of things. One might even question whether it was a “system,” given that it was already breaking down throughout much of that period, under strain from the U.S. balance of payments deficit. But almost everyone has long understood these points. That the dollar is still the main international reserve currency today, that some Asian central banks see it in their interest to pile up large quantities of dollars, and that their doing so finances a large U.S. balance of payments deficit like those of the

2. See, for example, McKinnon (1996, especially p. 41).

1960s, together probably suffice to justify the analogy with Bretton Woods. The picture is indeed that of a “system,” in the sense that it shows how the two halves, the United States and the periphery, fit together into a whole—a mode of analysis that has largely died out from international macroeconomics since 1971, as Barry Eichengreen points out in his comment.

True, only China and a couple of other Asian economies (Hong Kong and Malaysia) have currencies that are fixed to the dollar today, even *de facto*. But dollar purchases by foreign central banks, especially in Asia, seeking to prevent their currencies from appreciating against the dollar have nonetheless been very large recently. They have financed an increasing share of the U.S. current account deficit, which itself has been widening sharply, over the last four years.

In the third of the three “notes” that constitute the Dooley-Garber paper, the authors take pains to defend themselves against the criticism that the Bretton Woods analogy is invalid because the United States was not running a current account deficit in the 1960s as it is today. I agree with them on this. In the first place, the long-term trend in the U.S. current account balance during the Bretton Woods period was negative, even if the balance was usually greater than zero. The United States had run substantial surpluses in the late 1940s, because it had emerged from World War II with its productive capacity intact. (This was called the period of “dollar shortage.”) The surpluses diminished in the 1950s. True, they then recovered a bit, peaking in 1964. But from then on the general trend was downward until the system fell apart in 1971.

In the second place, more-comprehensive measures of the balance of payments, starting with the basic balance (which includes foreign direct investment and other long-term capital flows) and the liquidity balance (which adds short-term, nonliquid flows and errors and omissions), did turn negative. The overall U.S. balance of payments went into deficit in 1958, which is presumably why the authors single out that year for their Bretton Woods analogy. These deficits defined the 1960s as a period of excess supply of dollars.<sup>3</sup>

Both in Europe in the 1960s and in China today, rising foreign direct investment (FDI)—bilateral FDI as well as overall outward FDI from the

3. The United States was losing reserves throughout 1958–67, and in large amounts during 1970–71, which forced the devaluation and the closing of the gold window. Foreign central banks were also piling up dollars, and in ever-larger magnitudes, through most of the 1960s, and especially starting in 1970. The trend in 1968–69 was actually in the other direction, perhaps because the United States had begun to make an effort to tighten fiscal policy with a tax surcharge.

United States and overall inward FDI to the partners in question—was an important part of the story, indeed just as important as the trade balance. One difference is that in Europe the voices decrying “the American challenge” were louder than those favoring the entry of foreign multinational companies as part of an intelligent growth strategy, whereas China seems more welcoming to FDI. When the French complained about the United States’ “exorbitant privilege”—the ability to trade pieces of paper for items of more tangible value—they had in mind Americans acquiring French factories as much as, or more than, French goods. So I think the authors are on firm ground in focusing on a broader measure of the balance of payments, one that includes direct investment, such as the basic balance or the liquidity balance.

TERMINOLOGY. It may be worth spending a moment on language choices, so that we are all sure we are talking about the same things. I have some translating to propose.

The authors use the phrase “trade account country” to refer to a country that offsets current account imbalances with large changes in official reserves. They particularly have in mind China, which has been running a trade account surplus and offsetting it with increases in reserves. They use the phrase “capital account country” to refer to one that offsets its current account deficits with capital inflows. (Then there is the third set of countries—Europe and a few others—that are floaters.) In standard models the first group would be characterized by low capital mobility and a high propensity for the authorities to intervene in foreign exchange markets to stabilize the exchange rate, and the second group by high capital mobility and less of a tendency to intervene. I am afraid that I don’t care for the terms “trade account country” and “capital account country.” Each time I read them, I have to stop and remind myself which one is which in the authors’ scheme. I think it would be much more intuitive to call Asia the “exporting countries” and the United States the “consuming country.”

AMERICA AS THE WORLD’S BANKER. I learned from Charles Kindleberger thirty years ago that one way to think of the chronic willingness of other countries to absorb dollars is that the United States acts as the world’s banker, taking short-term deposits and investing in longer-term, higher-risk, higher-return assets such as FDI.<sup>4</sup> Thus I accept the idea that

4. Kindleberger (1965).

both parties stand to gain from an exchange of gross capital flows, whereby U.S. companies undertake direct investment in China and China acquires dollar bonds. Notwithstanding that U.S. Treasury bills tend to pay a much lower rate of return on average than the United States earns on its investments in other countries, I accept the argument that this can be part of a useful development strategy. (I leave it to others to reconcile this with the fact that the recent surges of capital into China have been portfolio investment, not FDI, and that even the FDI has for the most part not come from the United States.<sup>5</sup>) I am still, however, mulling over the notion that FDI is, as the authors put it, the “lesser credit.” This must mean that the danger of expropriation by China’s government is greater than the danger that the United States will depreciate away the value of the bonds, and that therefore China has to offer collateral to the United States, not vice versa, and that supplying exports up front constitutes this collateral. It is an interesting notion.

But while I am thinking about this, I have a question. Where do private short-term liquid portfolio flows belong in the story? Are we sure it is the liquidity balance that matters, as the authors say, and not the official settlements balance (or official reserve transactions balance), which is after all the most comprehensive measure of the balance of payments? Why not also include short-term portfolio capital flows, even those that are liquid? In other words, why not draw the line so that *all* private transactions appear above the line, and nothing besides official reserve transactions appears below it? Isn’t the main point that the United States can run deficits on the overall balance of payments, and that other countries are forced to run corresponding surpluses in order to earn foreign exchange reserves? Wasn’t that the point of the two-country version of the monetary approach to the balance of payments in the 1960s?<sup>6</sup> Don’t the arguments about how developing countries are forced to post “collateral” against capital inflows apply just as much—actually, more—to their inflows of short-term portfolio capital as to FDI?

If it is just the U.S. monetary authorities who are playing the role of world banker, the answer is that what matters is the official settlements balance. If it is the entire U.S. commercial banking sector, what matters is the liquidity balance. The language of private versus public domination of

5. See, for example, Prasad and Wei (2005).

6. See, for example, Mundell (1971) and Dornbusch (1973).

the capital account makes it sound as if the official settlements balance were key, that one should draw the line below all private transactions, even liquid short-term banking flows. Consistent with this, the biggest increase in China's balance of payments over the last few years has been neither in the current account nor in FDI, but rather in unmeasured inflows that are generally considered to be speculative and short-term: it is Chinese citizens bringing back onshore liquid investments that they had previously managed to accumulate offshore. Nor is the circumstance unique to China of short-term capital flowing from the United States to the emerging market, that is, in the same direction as the FDI. This has been a feature of other emerging markets, both during the most recent boom phase of the international debt cycle (2002–05) and during the preceding one (1990–96). Hence all the talk about how capital inflows are more likely to lead to crises if their composition is tilted in the direction of short-term loans, unless they are fully offset by reserves.

One reason to skip directly to the official settlements balance is that the liquidity balance and the others are no longer computed. The United States stopped trying to calculate these statistics long ago, in part because the capital account statistics are not reliable, in part because it is difficult even in principle to define what is a short-term and what is a long-term flow, and in part because the entire exercise of distinguishing between autonomous and accommodating transactions became obsolete with the end of the Bretton Woods system. (The “basic balance,” however, is still reported for some countries, such as Japan.)

LONG-TERM INTEREST RATES. The authors cite low real interest rates as evidence that the world is experiencing a glut of saving—that the relationship is being pushed by the Asian desire to save, rather than pulled by the U.S. desire to consume. It is true, as they say, that “the fact of unusually low long-term real interest rates for this stage of the business cycle [is] a direct challenge to those who . . . claim that the end is near.” My view is that one of the ways economists can most usefully contribute to real-time analysis of the economy is by pointing out when some market price seems to be out of line with historical relationships, the implication being that it is likely to correct itself within a couple of years. (Examples include the undervalued U.S. stock market in 1980, the overvalued dollar in 1985, the overvalued yen in 1995, the overvalued stock market in 2000, and the undervalued euro in 2002.) Perhaps those observers are right who say that the recent coexistence of low U.S. interest rates with large U.S. budget

deficits shows that there has been a major fundamental shift in the willingness of global investors to hold U.S. debt. But I am willing to bet against it. Here is one testable disagreement.

My view is that the bond market was buoyed over 2001–04 by three factors, each of which is already starting to come to an end:

—easy monetary policy in the United States, that is, the purchases of U.S. Treasury securities by the Federal Reserve (which began to reverse in the summer of 2004)

—easy monetary policy in Asia, that is, the purchases of U.S. securities by Asian central banks (who get center stage in the Dooley-Garber story), and

—the fact that investors appear still to be putting some weight on official government projections of declining future U.S. budget deficits, despite all the reasons to disbelieve them.

As these three factors come to an end, nominal long-term interest rates should rise from their current levels, near 4 percent at the time of this writing, to above 6 percent. I calculate this as approximately  $2\frac{1}{2}$  percent inflation plus 2 percent for a normal real short-term rate plus 1 percent for a normal term premium plus 1 percent as an extra term premium for an expected path of a rising debt-GDP ratio. This does not even count the proposed dumping of huge quantities of new U.S. Treasury bonds on the market to fund a transition to privatized Social Security accounts. Nor does it count possible unforeseen factors such as further instability coming from the Middle East or new oil price increases. It seems to me that a crash is more likely to come in the bond market than anywhere else. But time will tell.

I would also guess that the dollar will resume its depreciation long before all unemployed or badly employed labor in China is reallocated to world-class production (which the authors say will take at least ten years). It is now in China's own interest to move away from the peg. It has more reserves than it can use.<sup>7</sup> But the Chinese authorities do not want to be pushed into revaluing the renminbi against the dollar.<sup>8</sup> It is safer to bet

7. Frankel (2005b).

8. Li Ruogu, deputy governor of the People's Bank of China, may have best captured the Chinese perspective when he said in May 2004, "I think those who call for a fixed exchange rate are right in the short run. And those who call for a floating exchange rate are right in the long run. How long is the short run, you ask? You must understand. China is 8,000 years old. So when I say, short run, it could be 100 years" (author's paraphrase).

against the U.S. bond market: I think it will probably fall before the dollar does, or at worst at the same time.

Perhaps my answer to the question of whether it is now 1958 or 1968 is that it is 1967. In that year the seriousness of the U.S. balance of payments imbalance had become clear, yet large increases in government spending were still coming out of Washington—much of that spending, then as now, on a foreign military adventure—with no evidence of any willingness to pay for it by raising taxes.<sup>9</sup> Perhaps if it had not been for the Vietnam War and the Great Society programs—the determination to have both the guns and the butter—and the associated fiscal and monetary profligacy, the Triffin dilemma would have taken decades to work itself out fully.<sup>10</sup> But the excessively expansionary U.S. macroeconomic policy accelerated the process, so that the end came in 1971. To my way of thinking, a fundamental systemic structure that produces rising U.S. balance of payments deficits, *combined with* excessively expansionary macroeconomic policies that accelerate the trend, sounds like the situation today. It is in this respect that I think the current period resembles the 1960s even more, perhaps, than Dooley and Garber think. But it is also for this reason that I think the situation is unlikely to be sustainable for ten or twenty years.

Incidentally, easy monetary policy kept real interest rates fairly low in 1967 as well: the federal funds rate was 4.2 percent and the ten-year yield on government bonds was 5.1 percent, compared with consumer price inflation at 3.0 percent. Thus the Johnson deficits seem to be a better precedent for the Bush deficits than are the Reagan deficits, which were not initially accommodated by monetary policy.

THE EURO AS A RIVAL FOR THE DOLLAR. I both agree and disagree with the authors' rejection of recent media reports that central banks are jumping on a bandwagon of diversification of their reserves out of dollars. Where I agree is that there is an element of hysteria to such reports, which come in highly predictable waves every time the dollar has been depreciating for a couple of years in a row. The most recent previous cycle occurred in 1994–95, when articles suggested that the dollar might lose its status as the unrivaled international reserve currency, that it was in danger of “going

9. See, for example, Solomon (1977, pp. 102–04). In 1968 Congress did pass an income tax surcharge to help pay for the spending. It was too little, or too late, or both, to head off rising fiscal deficits and inflation.

10. Triffin (1960).

the way of sterling, the guilder, the ducat and the bezant.”<sup>11</sup> The recent cycle of alarmist articles in the financial media was not hard to predict.

The earlier cycle of alarms was wrong. In the first place, shares of reserve holdings in central banks and other measures of international currency use change only slowly over time. In the second place, these measures in the 1990s actually showed that the dollar’s share had reversed the downward trend of the 1970s and 1980s.<sup>12</sup> But this time may be different, and this is where I am less confident than the authors. The share of the dollar in international reserves has again resumed its downward trend. And there are two or three available explanations. One is that there is now an obvious rival, the euro, which is more credible as an alternative than the deutsche mark or the yen ever were. Another is that the United States now has a net international debt that is large and rapidly rising.

Some argue that, because central banks in Asia hold so many dollars already, they will be reluctant to diversify into other assets for fear of precipitating a sharp depreciation of the dollar, in which the value of their holdings will be the hardest hit. No doubt individual central banks have this concern. But, as often, I agree with Eichengreen: when each individual participant decides that it stands to lose more by holding pat than by joining the run, it will act in its own self-interest.<sup>13</sup> If narrow economic self-interest is not sufficient to stop the slide, will enlightened geopolitical calculation do it? In the meantime, the United States has lost popular sympathy and political support in much of the rest of the world. Our past deficits due to imperial overstretch were manageable when others paid the bills for our troops overseas: Germany and Japan during the Cold War, Kuwait and Saudi Arabia in 1991. Now the hegemon has lost its claim to legitimacy in the eyes of many. The next time the United States asks other central banks to bail out the dollar, will they be as willing to do so as Europe was in the 1960s, or as Japan was in the late 1980s after the Louvre Accord? It seems unlikely.

Menzie Chinn and I have documented econometrically some of the commonly hypothesized determinants of reserve currency shares: size of the home economy, rates of return, stability of the currency, historical inertia,

11. Kindleberger (1995, p. 6).

12. Frankel (1995).

13. Eichengreen (2004).

and a tipping phenomenon.<sup>14</sup> We have found each of these to be statistically significant during the period 1973–98. We found surprisingly little support for another hypothesized variable, the net international investment position of the home country. We use the admittedly brief period of European Economic and Monetary Union (EMU), 1999–2003, as a crude test of the out-of-sample performance of the estimated equation. The equation correctly predicts a small increase in the euro share at the expense of the dollar during this period. We then use the parameter estimates to project into the future. The projections are naturally very sensitive to what one assumes about the explanatory variables, particularly the size of Euroland. Our preliminary finding is that, if some Central and Eastern European countries join EMU by 2010, and if Sweden, Denmark, and (most important) the United Kingdom join by 2015, so that Euroland becomes larger economically than the United States, the tipping phenomenon could set in soon thereafter. The euro could definitively pass the dollar, perhaps in the subsequent decade. Even if some of the EU countries stay out of Euroland, as is likely, the tipping could result in response to a future trend depreciation of the dollar that continues at the same pace as in the past.

It is still true that measures of international currency use such as reserve shares change slowly. So when one sees newspaper headlines warning of the euro overtaking the dollar, it is important to realize that this is unlikely to happen for a long time. But if it does happen, the consequences are likely to be large. It would mean the end of America's "exorbitant privilege." It would be not just a ten-year "system" coming to an end, but the end of a century of U.S. economic hegemony.

**General discussion:** Paul Krugman saw the crucial question as not whether China will stop accumulating foreign exchange reserves, but whether it will diversify its reserve portfolio, switching to the euro or possibly the yen. He also noted that loss of reserve currency leadership could arise not only from diversification of existing reserves, but also from diversification at the margin. He speculated that this would have huge exchange rate implications. Kenneth Rogoff was skeptical of the authors' claim that demand for U.S. assets by Asia's official sector can explain today's low

14. See, for example, Bergsten (1975), Dooley, Lizondo, and Mathieson (1989), and Eichengreen and Mathieson (2000). Chinn and Frankel (2005) provide a comprehensive review.

dollar interest rates, and he drew a parallel with recent work by Glenn Hubbard and Eric Engen, who concluded that the recent huge U.S. budget deficits do not matter for interest rates. Rogoff also doubted that the huge pool of surplus Chinese labor entering the global market is driving interest rates down, noting that standard models would predict the opposite and that both the capital share of income in the advanced industrial economies and corporate profits are surging. Michael Dooley replied that the pressure on interest rates came not directly from labor supply but from China's very high saving rate: those savings, effectively, are exported to the rest of the world.

Rogoff emphasized the role of Japan, whose current account surplus in recent years is several times China's and whose reserves are larger. He noted that arguments based on labor surplus and the collateral hypothesis do not apply to Japan. He added that other Asian economies also run larger surpluses than China and together accumulate more reserves than China, but they are much more open and their capital markets are more integrated than Europe's were in the 1960s. Gian Maria Milesi-Ferretti was also skeptical about the authors' hypothesis that emerging economies accumulate U.S. reserves as a form of collateral. He reminded the panel that many of the countries that have grown rapidly, including Korea, Malaysia, Thailand, and Indonesia, have typically been borrowers on international markets. The main exception has been Taiwan, which is a special case for various reasons. Singapore, which is now a large creditor, borrowed heavily in its early stages of development. Milesi-Ferretti also noted that a country's external balance can depend importantly on the terms of trade. Asia's emerging economies are mostly commodity importers and are today running large current account surpluses despite unfavorable terms of trade. If there is a temporary component in the current high prices of oil and other commodities that these countries import, the structural surpluses may be even larger than they appear.

Richard Cooper questioned the presumption of many observers that the Chinese renminbi is undervalued. He noted that China has substantially effective controls on resident capital outflows, an investment rate of 40 percent of GDP but an even higher saving rate, and a modest current account surplus relative to the size of the economy. Given these facts and the fact that exchange rates in the rest of the world are generally floating, Cooper saw little evidence that the renminbi is undervalued. Furthermore, he expected a reform of the Chinese banking system and, eventually, full currency con-

vertibility. In that event the renminbi might well depreciate, because capital outflows would increase as wealthy Chinese households begin to invest abroad to diversify their portfolios. He added that one already observes increasingly aggressive foreign direct investment by China, with Chinese oil firms just one example.

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