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3

Direct Investment, Rising Real Wages, and the Absorption of Excess Labor in the Periphery

Michael P. Dooley, David Folkerts-Landau, and Peter Garber

> Could the whole [development] problem be solved simply by increasing the growth rate of manufactured exports to MDCs [more developed countries], in substitution for primary products? I shall assume this cannot be done. . . . Also I think it cannot be done.
> —W. Arthur Lewis, 1979 Nobel Lecture

Lewis' pessimistic outlook for industrial development in what we now call emerging markets was based on the view that developed countries allowed access to their markets only during brief periods of prosperity since "they then have many growing industries that can take the people displaced by imports" (Lewis 1979). Otherwise, they act to block access to manufactured imports from cheap labor countries to protect domestic workers. In this paper, we will argue that some emerging markets in Asia have found, perhaps by accident, a way around this fundamental obstacle to industrial and economic development. The solution has created the basic features of the current international monetary system. Along the way to making this argument, we will characterize the exchange rate and other policies designed to eliminate the vast underemployment in Asia as a solution to an exhaustible resource problem. Notably, the welcoming of foreign direct investment (FDI) is a solution to Lewis's conundrum in industrial development. Finally, we will propose a view that the main features of international finance are organized to overcome such inherent protectionism, rather than as a solution to an intertemporal consumption problem.

3.1 International Monetary Systems Are Endogenous Solutions

Whatever are the institutions and mechanisms of the international monetary system at any moment, they have emerged as solutions to a key real economic problem of the time.

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The Bretton Woods system was a top-down solution to what were perceived as the crucial problems of the Depression and World War II. A deal between the United States and the United Kingdom, its basic features were a compromise between the conflicting economic interests of the two parties. The United States viewed the competitive devaluations of the 1930s and the subsequent discriminatory trading blocs as detrimental to stability and especially harmful to U.S. trade. A creditor country with intact capital and promising exports, it was interested in currency stability and nondiscriminatory, open trading systems. The United Kingdom was determined not to sacrifice internal balance to maintain external balance. It wanted currency flexibility. With its huge sterling debt and its unbalanced war mobilization, it was interested also in maintaining controls and channeling of trade within the sterling bloc. Finally, it wanted access to official credit in large amounts if it was to maintain fixed rates. The compromise was to have fixed exchange rates but with flexibility within the rules, a gradual lifting of controls, and access to credit as a function of official quotas. This basic outline of the system lasted for the next twenty-five years.

The current system is also one of fixed or heavily managed exchange rates, with the accumulation of dollar reserves on a historically large scale, and is based on an effort to keep trade flows open. However, it is an ad hoc, bottom-up system, the sum of independent policy choices across and within countries. But it likewise has emerged to solve the fundamental real economic problem of our time: the emergence of 200 million underemployed workers into the global industrial economy.

3.2 Revived Bretton Woods

In a series of papers, we have characterized the international monetary system that has evolved to facilitate this development strategy in some periphery countries as a revival of the Bretton Woods system (Dooley, Folkerts-Landau, and Garber 2003a, 2004a,b,c). The revival has been contemporaneous with rapid deterioration of the net international investment position of the United States, and this has raised concerns about the stability of the system.

The discomfort with the current situation was already carefully set out five or six years ago (Mann 1999; Obstfeld and Rogoff 2000). The logic is that although international capital markets were much larger and more resilient than in the past, they could not support a U.S. current account deficit of 4 percent of gross domestic product (GDP) for long, let alone the current 6 percent. Moreover, even a mild withdrawal of credit from the United States—for example, a reduction in financing that required a return to current account balance—would generate a very large and sudden depreciation in the real value of the dollar. The sensitivity of real exchange

rates to changes in current accounts is related to the limited integration of goods markets across countries.

A related concern then and now is that the low level of private and government savings in the United States is generating a perverse flow of world savings to the United States. Summers (2004) has recently argued, for example, that the single engine for world recovery, U.S. growth and U.S. fiscal deficits, is a recipe for disaster both for the United States and the rest of the world. The global system has perversely, from the viewpoint of the textbook theory underpinning these views, moved steadily into higher imbalances. This has increased the stridency of proscriptive calls for their end or descriptions of the dire mechanisms by which this may be achieved, as exemplified in recent papers by Goldstein and Lardy (2003, 2004a,b), Eichengreen (2004), Obstfeld and Rogoff (2004), and Roubini and Setser (2005).

This growing chasm between what we know *ought to be* and what *is* can be best summarized in parallel charts on ten-year Treasury inflation-protected securities (10-TIPS) yields and the U.S. current account balance (see figure 3.1). The long term real interest rate has been falling as the current account deficit has been growing into historically uncharted territory. Our standard theory of open economy macroeconomics been wildly wrong for five years. The data indicate that it is likely to be wrong for years more. Of course, some day the imbalances will be reduced, allowing us to resume teaching the standard stuff with some increase in confidence. Meanwhile, we will have a decade long gap during which our accepted paradigm cannot come to grips with the key macroeconomic problem defining the era.

We have argued that the reluctance of private investors to increase their net claims on the United States has, as conventional analysis suggests, contributed to appreciation of floating currencies such as the euro against the dollar, but that this has not even started to force an adjustment of the U.S. international investment position and current account flows.

The reason is no mystery; governments in Asia are providing the necessary financing. The issue now is how long this can continue. The conventional view is that the Asian governments can fill the gap for only a short interval and, when the wheels fall off, the adjustment costs for the world economy will be very heavy.[1] The mechanism for the disaster is familiar. Expectations for the large exchange rate change needed to correct current imbalances generate massive private capital flows to the periphery. Capital controls and financial repression are no match for a determined private sector. If inflows are not sterilized, the monetary base explodes and the needed real exchange rate adjustment comes through inflation. Faced with

1. See Rogoff (2003). As Rogoff puts it, flying on one engine is easy as compared to landing on one wheel.

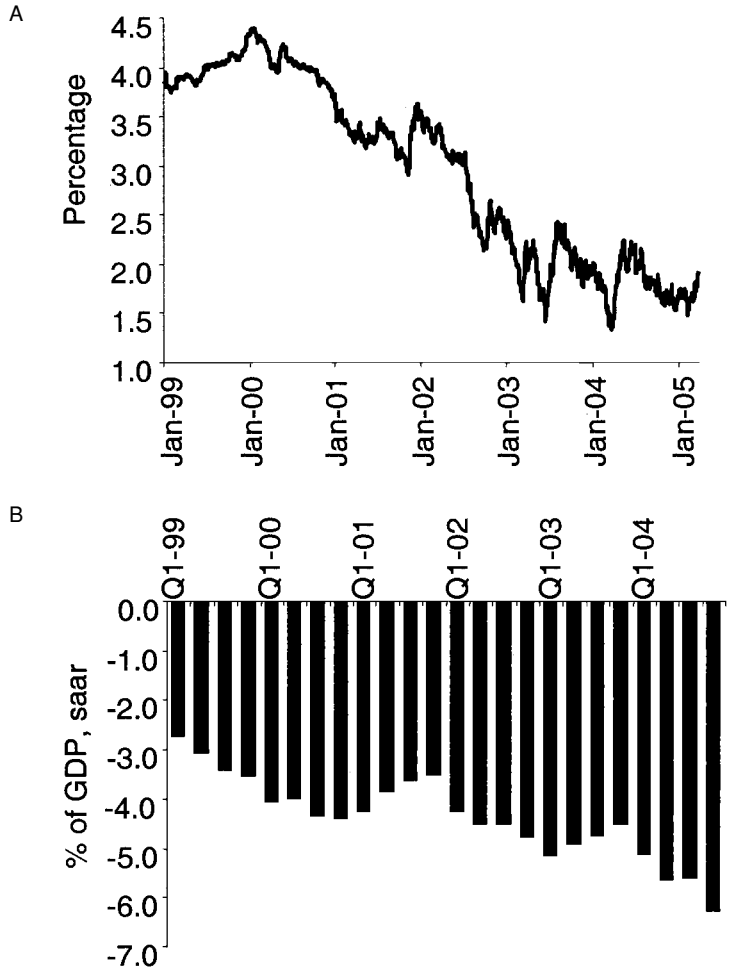

Fig. 3.1 *A,* **Ten-year TIPS yield;** *B,* **U.S. current account balance**

this unpleasant reality, central banks give up and revalue nominal exchange rates.

The conventional argument is a good description of the final days of the original Bretton Woods system. It is relevant for countries that are ready to graduate to the center. But it ignores the fact that the system lasted for two decades. To be sure, the original Bretton Woods system was not asked to finance a U.S. current account deficit until its closing days, but the periphery did benefit from rapid growth of trade and financed a substantial increase in U.S. direct and long-term investments abroad. Moreover, most governments in the periphery did not *decide* that the system was no longer

in their interests. They were forced to abandon the regime by private capital flows. The erosion of the effectiveness of capital controls and domestic financial repression that made this possible *followed* the development of international trade and domestic financial markets, and this process took many years.

The current version of the Bretton Woods system presents the periphery with similar policy choices.[2] We argue in the following that expansion of the volume of trade in goods and services and the volume of two-way trade in financial assets is the backbone of a successful industrialization or development strategy. If the price to be paid for this strategy includes financing a large U.S. current account deficit, governments in the periphery will see it in their interest to provide financing even in circumstances where private international investors would not.

The catastrophic losses and abrupt price breaks forecast by the conventional wisdom of international macroeconomics arise from a model of very naive government behavior. In that model, periphery governments stubbornly maintain a distorted exchange rate until it is overwhelmed by speculative capital flows. In our view, a more sensible political economy guides governments in Asia. The objectives are the rapid mobilization of underemployed Asian labor and the accumulation of a capital stock that will remain efficient even after the system ends.

The mechanism that regulates the mobilization is a cross-border transfer to countries like the United States that are willing to restructure their labor markets to accommodate the rapid growth of industrial employment in Asia. Net imbalances like those now observed for the United States may or may not be a by-product of this system. But such imbalances are only one of the constraints on the system and for considerable periods of time may not be as binding a constraint as in conventional theories.

3.3 What Force Drives the Global System?

China has about 200 million unemployed or underemployed workers to bring into the modern labor force. For political stability, there is a need for 10 to 12 million net new jobs per year in the urban centers. A growth rate of around 8+ percent has served to employ about 10 million new workers each year. About 3 million have been in the export sector.[3]

2. This policy has been criticized as wrongheaded in that FDI should be the source of global finance for a deficit on current account although this prescription seems to have been pulled from out of the air. The principle behind this argument seems to be that the external accounts should be properly balanced as a priority over the internal balance. See Goldstein and Lardy (2003, 2004a,b). The alternative argument is that being a net capital exporter seems to work.

3. Exports generate 10 percent of value added in GDP. The export sector grows twice as fast as the rest of the economy. So 25 percent of all growth is from the export sector. Because of a lower capital-labor ratio than in the rest of the economy, the export sector accounts for about 30 percent of employment growth.

If the world can absorb politically only the output of an additional 10 million workers per year (3 million in the export sector), then simple arithmetic indicates that this surplus is a force for twenty years more in the global system. If it can absorb the surplus faster, say, at a rising absolute rate that will keep the Chinese growth rate constant at 8 percent until the surplus is eliminated; then straightforward compounding and linearity assumptions indicate that this will drive the global system ever more relentlessly for the next twelve years).

We do not take a stand on how long this force will drive the global system. But twelve to twenty years has defined an *era* for any recent international monetary system.

3.4 Political Economy of Export Led Growth

Our analysis of government behavior has some surprising implications. Perhaps the most important is the idea that there is a trade-off between objectives for intertemporal trade, objectives for net international investment positions, and objectives for growth in *gross* trade in goods and financial instruments. In the framework we develop, governments have well-defined objectives for export growth and for the pattern of international financial intermediation. Within limits, they are willing to finance net capital flows when net flows are a by-product of this development strategy. The limits are likely to be much less of a constraint on the international system than is suggested by conventional analysis. Our framework, as it existed on first writing this paper, does not, for example, explain the source of the U.S. current account deficit. But it does provide an explanation for the relative willingness of Asian governments to finance that deficit.[4]

Governments care about *gross* trade and capital flows because both generate important externalities that are not captured by private firms and investors. Domestic production of traded goods subjects firms to the discipline of international competition and world prices, a discipline not imposed by distorted domestic markets for goods and services. Domestic capital formation by foreign direct investors financed in international capital markets bypasses distorted domestic financial markets. A sensible development strategy provides strong incentives for foreign direct investors to utilize unemployed domestic labor to produce for export markets. The emerging market is, in effect, borrowing the right relative prices and financial incentives from world markets to guide capital formation during a transition to full participation in the world economy.

But, as Lewis suggested, access to import markets comes at a price. Pen-

4. We have argued elsewhere (Dooley, Folkerts-Landau, and Garber [2004b]) that the unbalanced risks accruing from FDI flows require collateral on a large scale to support the gross cross-border positions. The current account surpluses are the only means to generate the collateral.

etration of markets in industrial countries will generate a protectionist response. We do not argue that imports cause unemployment in the importing country, but it is clear to us that industrialization of the periphery requires a fundamental restructuring of the labor force in the center. While this creates tremendous aggregate benefits for both countries, established industries and their workers in the center are displaced. No country has found a workable way to compensate its own losers. So a surplus must be generated *and properly allocated* to provide additional incentives to overcome protection. In short, we believe in gains from trade but also believe that gains from trade are not enough to insure that mutually beneficial trade will automatically occur. Our conjecture is that this distortion alone is sufficient to keep labor in the periphery in domestic zero marginal product activities.

The recent reduction of private capital inflows to the United States and the appreciation of the euro and other floating currencies provide an opportunity for fixed- or managed-rate emerging markets to replace European exports to the United States without changing the rate at which U.S. labor markets absorb total imports. Even if governments weigh the same risks of financing net deficits as do private investors, governments also see benefits of accelerating their development strategies. It follows that the United States will, other things equal, be able to maintain larger increases in its net international debt over time.

3.5 Exhaustible Resources

The economics underlying the current international monetary system is best viewed through the lens of an exhaustible resource model. The exhaustible resource is the pool of Asian labor that is underemployed by industrial country standards. Left underemployed, it is politically dangerous and socially costly. Once employed, it produces a stream of product marginally valued at the global real wage and contributes to social and political stability. So the government would like to employ labor in the industrial sector as quickly as possible. The government also wants to insure that at the end of the transition period the capital stock should be capable, *when combined with domestic labor paid the world real wage,* of producing goods going forward that are competitive with those produced in other countries. *This is a crucial constraint:* make-work projects or great leaps forward will not do because the history of development has shown repeatedly that this is the way to end-game crisis and zero-value real capital.

There are two reasons that employment is increasingly costly in the rate of employment growth. First, we make the usual assumption that investment installation costs rise in the rate of investment over time, the usual bottleneck argument. It follows that a more rapid adjustment requires a greater cost of capital per worker.

Second, investors have to make transfers to offset the political power of displaced workers in the importing country. Again, it seems likely that the adjustment costs in the country restructuring its labor market are increasing in the rate of import penetration. Put another way, *a larger piece of the new product stream must be paid to the importing country* the faster is the absorption of the unemployed pool.

In the current global system, benefits are shared with importing countries by initially giving foreign capital access to Asian labor at a low domestic real wage relative to the world real wage. This gives the capitalist excess profits for some time period and provides the resources for the capitalist to utilize to keep home country import markets open. The trick is to set the real wage (real exchange rate) low enough and to adjust it gradually upward to the expected real wage in the rest of the world until the excess labor pool is exhausted, all at a minimum cost.

The optimal strategy for the government is to set the initial wage and the rate of change in the wage in order to employ fully the stock of unemployed labor at a minimum cost.

Consider first the rate of change for the real wage. An additional unit of labor employed provides a nonnegative yield to the government b. A unit of unemployed labor costs the government a yield of $-r$. The yield b can be thought of as tax revenue or political support for the government. The yield $-r$ might be transfers to the unemployed or political opposition.

The incentive with which the government sweetens the provision of labor to investors is the present value of the difference between the domestic real wage and the world real wage. Suppose the government kept this present value constant for two consecutive time periods. A constant incentive generates a constant flow of new employment. If the incentive in the first period was set slightly higher than in the second period, less unemployed labor will be carried over into the second period. The carryover is costly, so a constant incentive cannot be optimal. The government can get the same increase in employment at a lower cost by frontloading the adjustment.

Because it is in the government's interest to reduce the incentive over time, the present value of the sequence of market wages must be expected to rise. While there are some complicated interactions between marginal costs of extraction and the optimal adjustment path in any real world application, the result that the wage rises monotonically to the equilibrium level is quite general (Devarajan and Fisher 1981).

Paths AB and CD in figure 3.2 satisfy this rate of change condition. Path AB starts from w_1, a relatively high initial real wage, and increases at the optimal rate. Path CD begins with w_2 and rises at the same rate. The full solution to the Hotelling (1931) problem requires that the government sets the initial wage so that the initial stock of labor is employed when the domestic wage rises to the world wage. Clearly, a lower initial real wage path CD generates more total employment over the interval from t_0 to T_2 as com-

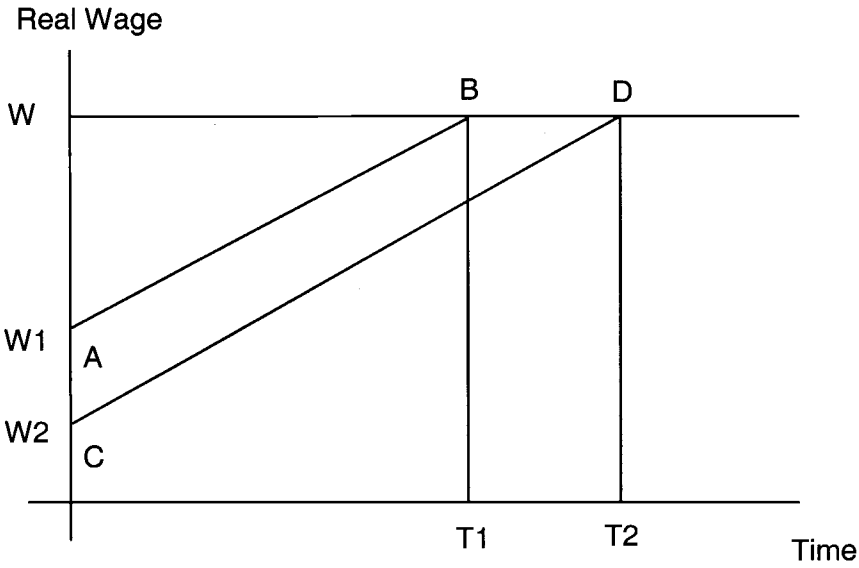

Fig. 3.2 Real wages and adjustment

pared to path AB from t_0 to T_1. It follows that the integral of employment increases as the initial wage declines and only one initial wage fully employs the initial labor supply.

It also follows that a country with a very large stock of labor to employ will want to set a real exchange rate that appears to be grossly undervalued by conventional measures.[5] Moreover, the adjustment period is determined by the equilibrium adjustment path and, other things equal, is longer the larger the initial stock of labor to be employed. Without government coordination, individual workers could not internalize the benefits from rapid capital accumulation and open export markets. They would therefore demand higher wages and live with slower employment growth and a longer adjustment period.

We can summarize this section as follows. The optimal exchange rate and inflation policy are derived conceptually from the exhaustible resource problem. For a fixed exchange rate regime, only one initial real exchange rate is optimal, and only one rate of inflation generates the optimal path for the real wage over time. The length of the adjustment period is determined, and at its end the following conditions hold:

5. It follows that the shadow exchange rate, that is, the exchange rate that would prevail if the government set the rate at its optimal level to a point in time but then withdrew from the market, would always be above the optimal exchange rate. In this sense, the optimal exchange rate might appear to be undervalued relative to the shadow rate.

- The domestic real wage equals the world real wage in the manufacturing sector.
- The initial pool of surplus labor is employed.
- The capital stock has increased to match the world capital or labor ratio in manufacturing.
- The political costs of adjusting displaced labor and capital in the importing country have been compensated. This co-opts attempts to use commercial policy to freeze out the exports that are vital to the development policy.

3.6 An Indeterminacy: Adjust Nominal Wages or Nominal Exchange Rates?

The optimal adjustment path for the real wage allows the authorities to choose a path for the nominal wage rate or the nominal exchange rate, but not both independently. In fact, Asian authorities use both techniques. For a fixed exchange rate regime, the central bank manages the inflation rate in order to regulate the dollar value of domestic wages and prices. In this case, we would expect wage inflation to be above that in the center so that domestic real wages rise over time. The alternative would be to set domestic wage and price inflation at or below that in the center and then allow the nominal exchange rate to appreciate over time but at a controlled rate.

As long as private market participants understand that policy is driven by the objectives set out in the preceding—the optimal path for the real wage rate—the *same pattern of real private capital flows and trade account* will be generated by either a fixed or managed-float exchange rate arrangement. From the balance-of-payments accounting identity, it follows that *the path of real and nominal official intervention is invariant to whether a fixed-rate or managed-float regime is chosen.* Those who argue the necessity of switching to a managed appreciation *because* of the large accumulation of official reserves are missing the basic policy problem and its resolution. Moreover, switching from fixed to managed floating, perhaps in the face of political pressure from the center, would not alter the real nature of the transition.

3.7 The Transfer to Foreign Capital

The regime set out so far encourages capital formation in export industries and makes room for this new investment in the domestic market. But it does not suggest that nonresident direct investors are the best placed to do the investing. Recall, however, that the investor has to expect that the foreign markets for exports remain open and that the political costs of displaced workers in the importing countries must be compensated.

A transparent but unrealistic example will help make the point. Suppose

the right to supply capital is allocated by the government through licenses on a project-by-project basis. The gap between the domestic and world real wage would then be captured by selected capitalists.[6] Moreover, the government could lend through domestic balance sheets to the direct investor and finance this by sales of securities to the domestic market. The government can reduce the political costs to foreign governments associated with rapid export growth by allocating some of this capital to foreign investors that are adept at penetrating countries that allow the rapid growth of imports. In the present context, with the United States absorbing much of the exports, this allocation would go to those FDI investors who can push goods into the United States. This provides an economic rent until the convergence of real wages at T, which is not competed away because entry into FDI is rationed by the Chinese government.

The foreign investors then become a well-financed and effective lobby to counteract the resistance to the restructuring of the U.S. labor force away from import substitutes. The foreign investors need not be U.S. nationals in order to influence U.S. trade policy. Prasad and Wei (2005) argue that because most direct investment into China does not come directly from the United States, direct investment could not be a significant force in keeping U.S. markets open. It is difficult to identify the nationality of multilateral firms; for example, we do not believe that the Virgin Islands are the third largest direct investors in China. But more important Asian direct investors in China, including Japan, Hong Kong Special Administrative Region (SAR), and Korea Taiwan, which account for the bulk of direct investment in China, have a long and successful history of penetration of U.S. markets. Multinationals from these countries may be more skilled lobbyists than U.S.-based corporations.

Each time a worker is matched with foreign capital, the direct investor gets a benefit equal to the discounted value of the wage differential plus the normal return to capital. The excess returns are implicitly paid by the Chinese workers accepting the low but rising real wage.

But perhaps this method of local intermediation is too transparent and difficult politically. Instead, the government could sell the same domestic security mentioned previously but, rather than make a loan to a direct investor, purchase international reserves. The foreign investor then has to borrow at his own normal cost of funds and then buy yuan to make the investment. Part of the subsidy to the foreigner is then given to borrowers in reserve currency countries and part to the FDI investor in the form of rents from access to low real wage labor.

Politically, this is perhaps better because there is an arms-length relationship between the government and the financing of the foreign investor.

6. We refer to *foreign investors* and not *foreign direct investors* because in this example they are financed by Chinese saving intermediated through domestic balance sheets.

With this more competitive mechanism, we would expect that the surplus generated by access to low wages in China would be absorbed by adjustment costs. In this case, direct investors from countries with open import markets might enjoy a competitive advantage over other foreign and domestic investors because they can more effectively mobilize profits to make transfer payments to their fellow residents.

At this point we do not understand well the mechanism that allocates investment in the export sector, its profitability, or the distribution of those profits.[7] It is also quite possible that direct investment is restricted, or the risk that the regime might end prematurely requires excess profits in order to insure entry. The net profitability of direct investment is an important ingredient in the evolution of net international investments positions during the transition. Data on profitability of direct investment in China is anecdotal at best. We can make a reasonable guess about the gap between the real wage and marginal product of labor, but we do not have much information about the distribution of the implied surplus. This is an important topic for further research.

3.8 What about the Accumulating Balance Sheet Positions?

Headline numbers for reserve accumulation and the U.S. current account deficits seem to suggest that the main end-game problem is the accumulated net international investment position of the center and the periphery. But net positions are the difference between two much larger gross assets and liabilities. Just as in the original Bretton Woods System, official intervention, that is, large official capital outflows from the periphery, are largely associated with private capital inflows to the periphery. In our view, the financial intermediation and the capital gains and losses generated will substantially mitigate problems associated with the net international investment positions generated by export led growth.

At the end of the transition period, Asian governments will hold a large stock of U.S. treasury and other securities on which it has earned a relatively low but positive rate of return. It will also have incurred a large stock of liabilities to domestic claimants. But at the end of the game, both of these will carry the same international interest rate. The United States will hold a large stock of direct investment that pays the world equity rate going forward but that has paid a much higher rate during the adjustment interval.

It may be instructive to take another look at the end of the original Bretton Woods system with these two points in mind. The United States did not run large trade deficits leading up to the 1971 to 1973 crisis that ended the regime. The balance-of-payments deficit that observers focused on at the

7. See Razin and Sadka (2002) for an interesting discussion of the allocation of rents.

time was the liquidity balance, a concept that put short-term capital inflows below the line. As Depres, Kindleberger, and Salant (1966) pointed out in their celebrated letter to the *Economist,* this concept of a deficit ignores the legitimate role of financial intermediation in international financial arrangements. To be sure, financial intermediation can lead to instability and crises. But the problem is much more subtle, and the lessons from countries that have run large and persistent current account deficits may not be of much use in evaluating the new Bretton Woods.

3.9 The Key Role of Financial Repression

A key to this regime is the ability of the government to repress real wages for an extended period of time. In our framework, this is equivalent to controlling the rate of inflation and the nominal exchange rate. Given a foreign rate of inflation and an international interest rate, this requires that the link between domestic and international interest rates be broken. In our view, China has more than adequate controls on domestic and international financial transactions to make this possible.

- Purchases of international bonds are strictly controlled.
- State-owned or controlled banks provide all the claims available for domestic savers.
- The government sets the interest rate on these bank liabilities and rations bank credit to the private sector.
- Growth in the foreign part of the monetary base is determined by the current account surplus plus targeted net direct investment inflows.

In this repressed domestic financial system, growth in domestic credit from the banking system is a residual, that is, the difference between desired money base growth, (determined by the desired rate of inflation), the growth in the demand for money and the growth in the foreign part of the base.

Domestic savings not purchased by the banking system are absorbed by sales of domestic treasury or central bank securities to households and firms. Note that as long as the interest rate that clears this market is not above the return on U.S. treasury securities or other forms of investing the reserves, the government can absorb domestic savings and intermediate into foreign bonds while booking an accounting profit.

The government rations credit to the private sector by forcing the banks to buy government securities through liquidity and reserve requirements and then rations the remaining credit to the private sector at fixed lending rates. This, of course, sets up strong incentives for private lenders and borrowers to go offshore or to alternative domestic intermediaries. We assume that the government is an effective counterforce to such financial innovation for the requisite amount of time.

3.10 Internal Balance

The macromanagement problem for the government in implementing this policy is daunting but simple enough to set out. In pursing the employment objective, a distorted real exchange rate will create imbalances in the economy that require an additional policy instrument. As noted previously, the bottom line is that the government must be able to manage the domestic real interest rate throughout the adjustment period to keep the domestic economy in balance. The good news is that the problems are large but diminish over time.

To make this argument, assume the economy, aside from the 200 million, is in full employment equilibrium with effective capital controls, no initial net international investment position, and an exchange rate that balances trade. To set the problem in motion, now imagine that 200 million unemployed people appear from the provinces. As discussed previously, the path for the real exchange rate that solves the absorption problem involves a sudden real depreciation that is gradually eliminated. The exchange rate path that solves the absorption problem therefore subsidizes exports relative to imports, and the trade balance initially moves from balance to surplus.[8]

The initial current account surplus must equal the amount by which domestic (government plus private) savings exceed domestic absorption. It follows that a rise in the domestic interest rate is needed to reduce absorption relative to savings. But what happens to the interest rate that insures internal balance over time?

During the adjustment period, the trade surplus as a share of GDP will decline and may move into deficit as the real exchange rate appreciates and domestic income grows more rapidly than foreign income. A surplus on the service account will appear and grow as net asset accumulation generates net capital income. But the overall current account as a percent of domestic GDP will fall for any reasonable set of parameters. It follows that the domestic interest rate will fall over time as a smaller share of domestic absorption is crowded out by net transfers abroad. This mitigates the interest differential pressure on capital controls.

3.11 Sterilization and Inflation

The relevant capital flow problem in the face of expected revaluation is large private capital inflows. If private capital inflows augment the mone-

8. An important mitigating factor is that adjustments in commercial policy are likely to encourage imports. For example, the initial condition for China is a large gap between the effective exchange rate for imports and exports. In fact, China has not run a large overall trade surplus to date. In part, this probably reflects large declines in tariffs associated with ascension to the World Trade Organization (WTO). In part, this also arises because China has been an assembly center for the rest of East Asia, with component imports representing an imported fraction of finished exports.

tary base and, in turn, increase domestic inflation, real wage growth will be too rapid, and the transition will be too short to accomplish the government's objectives. However, if capital inflows are sterilized, and if domestic financial repression allows the government to finance reserve creation by issuing low interest domestic securities, the inflationary impact is eliminated.

This is an empirical issue. Capital controls and financial repression do not last forever, but neither does the regime we are describing. We simply observe that to date, Asian governments have been very successful in hitting aggressive inflation targets. In the case of China, for example, some observers have suggested that overheating and an inflationary spiral are already underway. In our view, that is more of a prediction than an observation. Time will tell, but we would point out that there are many reasons why inflation may have increased in recent months. In general, a growth rate of 8+ percent has not generated inflation in China. In our view, increases in reserve requirements last year, a form of sterilization, have already reduced the growth in money and credit. Moreover, this has been accomplished with no increase in administered interest rates.

If the capital account is liberalized, expectations of appreciation that are a central feature of the regime discussed in the following will generate capital inflows. Moreover, market-determined domestic interest rates would make sterilization expensive, and so inflation would be the eventual result. But we do not expect opening of the capital account or deregulation of domestic interest rates. It follows that the economic linkages between exchange rate policy and inflation clearly relevant for capital account countries do not now exist, and we do not expect them to materialize for many years.

3.12 Overheating? A Diversion into the Facts

Because many have argued that this system must end soon from inevitable overheating in China and East Asia, it is useful to consider briefly whether this phenomenon has yet materialized.[9]

We can infer that the Chinese economy is growing faster than its potential because raw materials prices are rising, energy use is rising faster than supply, and wages are rising. But growth is not fast enough to drive consumer prices higher—and almost all items in the Consumer Price Index (CPI) have free market pricing. Only food and housing prices are rising much at all—about 5 percent yoy each. Prices for clothing, furnishings, health care, transportation, and communications are falling. Nonfood CPI inflation was 0.8 percent in January, 2005, a six-month low.

As in previous episodes of high global commodity prices, raw materials

9. This view has shown up in testimony by Alan Greenspan (2005) and has been expressed most forcefully by Goldstein and Lardy (2003, 2004a,b) and Roubini and Setser (2005).

prices are rising much faster than producer prices for manufactured goods or consumer goods and margins are being squeezed. Recently, firms seem to have a little more pricing power than in the past, but lately even those downstream prices have softened. (See figures 3.3 and 3.4.)

China's price experience is hardly atypical. In the United States and else-

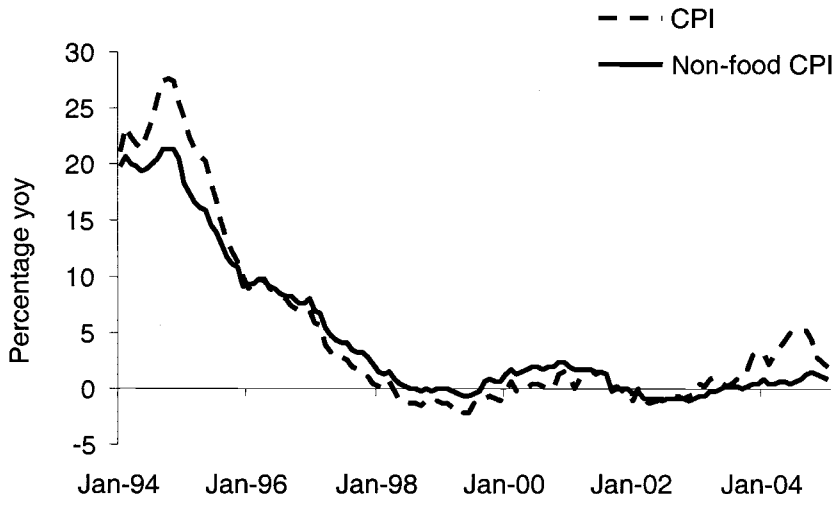

Fig. 3.3 Consumer prices in China, 1994–2005

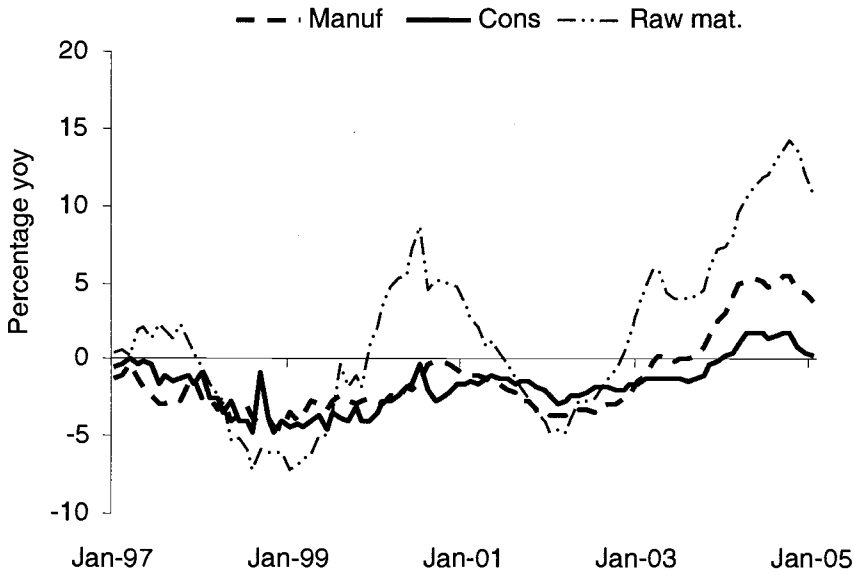

Fig. 3.4 Producer prices in China, 1997–2005

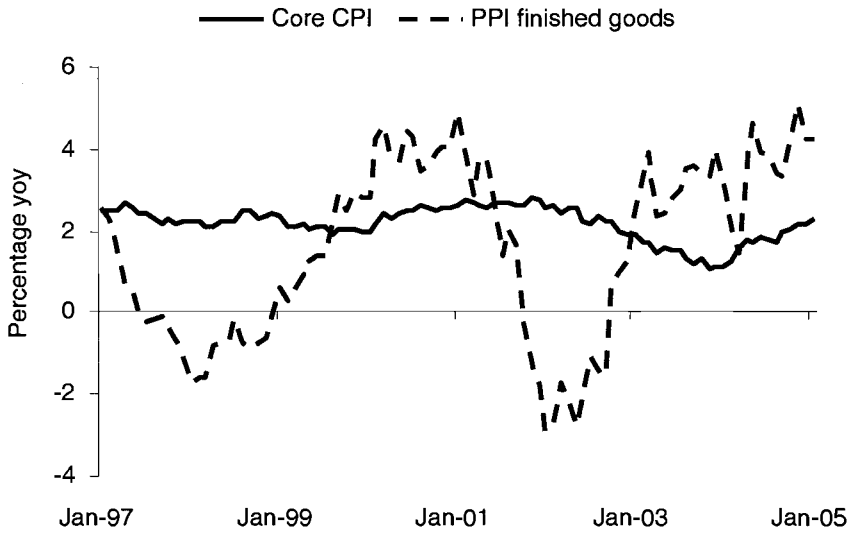

Fig. 3.5 U.S. CPI and PPI, 1997–2005

where, producer prices are also rising significantly faster than consumer prices. Higher raw materials costs are compressing margins in many industries and pose an upward risk to consumer price inflation, if firms can pass on higher costs. Compared to China, there is even stronger evidence that the U.S. economy is growing sufficiently fast relative to potential that inflation risks are mounting. Prices for all categories of consumer goods (except perhaps apparel) are rising, and nonfood inflation in the United States is above 3 percent, versus less than 1 percent in China. A good case can be made for the view that inflation going forward will be more of a problem in the United States than in China. (See figure 3.5.)

3.13 Is the Renminbi (RMB) Peg Causing Monetary Instability?

The crux of the overheating argument is that China's large external surpluses and reserve accumulation threaten monetary stability. Therefore, it is in China's own interest that the RMB be allowed to appreciate so that this source of inflationary pressure can be relieved. But money supply growth has been slowing since early 2004, while foreign exchange intervention rose to record highs. Also, going farther back, money supply growth surged in 2000 before China had to intervene much at all. In sum, this argument ignores the fact that China's money supply is not affected much by the increase in reserves: sterilization is not particularly difficult.

Reserves rose $207 billion in 2004, after rising $162 billion in 2003 (adding back in the $45 billion transferred to domestic banks). In 2004, the

People's Bank of China's (PBOC) net foreign assets rose RMB1.58 trillion ($191 billion), while net domestic assets fell RMB980 billion ($118 billion). So 62 percent of the reserve increase was sterilized. That is a much smaller amount than most other central banks in Asia, which are averaging 80 percent to 90 percent sterilization. But it is a reasonable amount. China is targeting nominal GDP growth of about 12 percent (i.e., about 8 percent growth with about 4 percent inflation, neither of which are hard targets) and wanted broad money growth of about 17 percent in 2004, the official target at the beginning of the year. Reserve money growth was 11.4 percent yoy (December to December) in 2004, and M2 growth was 14.5 percent. For 2005, the M2 growth target is about 15 percent. In the first quarter of 2005, the GDP growth rate was 9.5 percent while inflation was 2.8 percent yoy. M2 growth was 14 percent yoy at the end of March, with loan growth at 13 percent yoy, both below official targets.

From August 2002 to February 2005, the PBOC has issued RMB1.3 trillion ($157 billion) in central bank bonds to mop up excess liquidity. Foreign exchange reserves rose $367 billion during that period. These bonds accounted for 14 percent of the central bank's liabilities. Far from having to raise interest rates in order to be able to sterilize fx inflows, interest rates on banks' excess reserves have been cut twice since 2001. Bond and repo yields are volatile but essentially directionless (one-year repo ended 2004 66bps below end-2003 levels). The PBOC raised deposit rates by 25bps in October 2004 to start the process of bringing real rates back to neutral levels.

Until December 2004, the PBOC issued three-month, six-month and twelve-month bills (zero-coupon) for sterilization purposes, but almost all at the twelve-month term. These are traded, and the yield on the three-month bonds peaked at 3.5 percent in early November, which was a spike after the policy rate hike. By the end of the year, the yield was down to 3.2 percent. Following the PBOC's decision to cut the interest rate on excess reserves (by 72bps), the three-month yield is now around 2.2 percent. In December 2004, the PBOC started issuing three-year bonds. The yield on the fixed-rate bonds started at 4.1 percent, and issues at par in March had a coupon of 3.3 percent. For comparison, the yield on U.S. three-month T-bills was about 2 percent in November, 2.2 percent in December 2004, and 2.8 percent in March 2005. The yield on three-year notes was 3.2 percent in December 2004 and about 4 percent in March 2004. The PBOC would gain on the carry by holding middle-term notes.[10] (See figures 3.6, 3.7, 3.8, and 3.9.)

10. Central banks in Asia earned between 4 percent and 5 percent last year on their reserves. They tend not to buy thirty-day paper; rather, they buy two-year, five-year, and ten-year bonds, plus some subsovereign paper. Generally, the accounting cost of financing reserves is much less than interest earnings: a large part is funded by sales of central bank paper, but the rest is funded by required reserves bearing interest of less than 2 percent. So Asian central banks earn a significant positive carry.

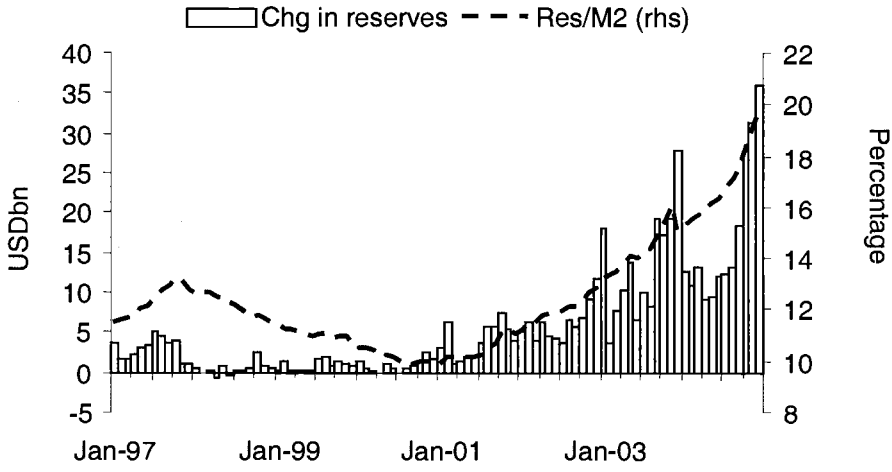

Fig. 3.6 China: FX reserves accumulation, 1997–2004

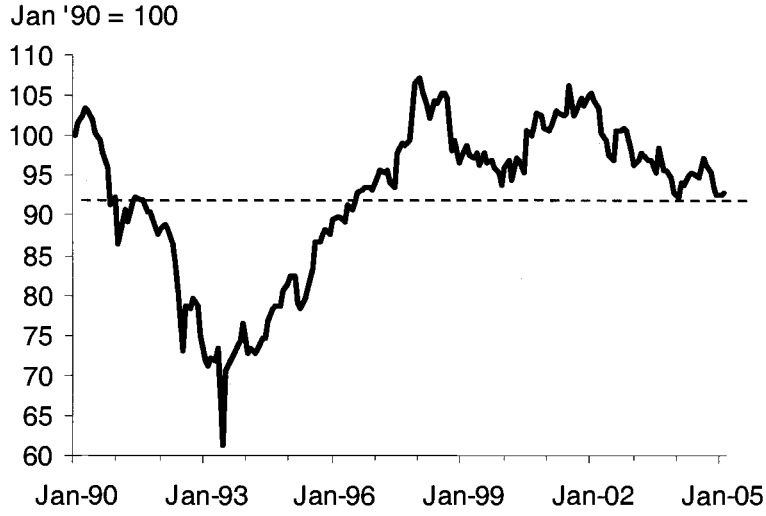

Fig. 3.7 China: RMB real effective exchange rate (dbREER)
Sources: CEIC *Financial Times* Data Service and Deutsche Bank Global Markets Research.

3.14 Is the Rest of Asia Overheating?

Most countries saw a large increase in foreign exchange reserves in 2004. Combined Asia-10 reserves rose from $1.22 trillion to $1.59 trillion. In comparison, Japan's reserves rose $85bn in the first quarter and then only $15bn thereafter as they stopped intervening.

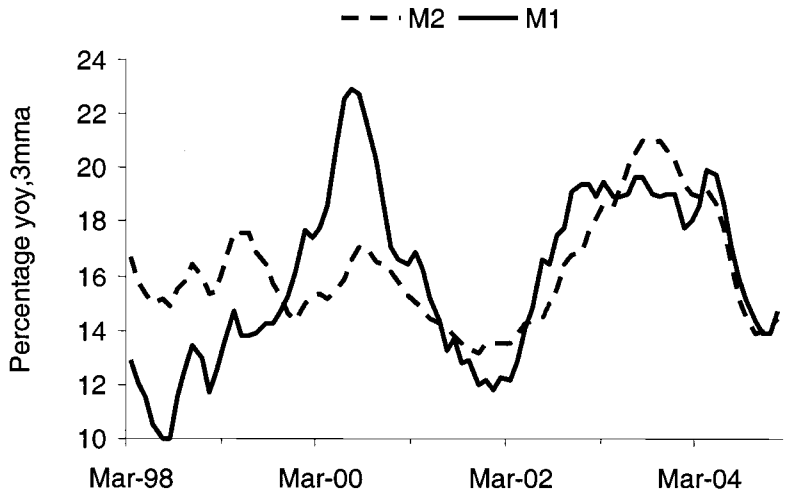

Fig. 3.8 China: Money supply growth

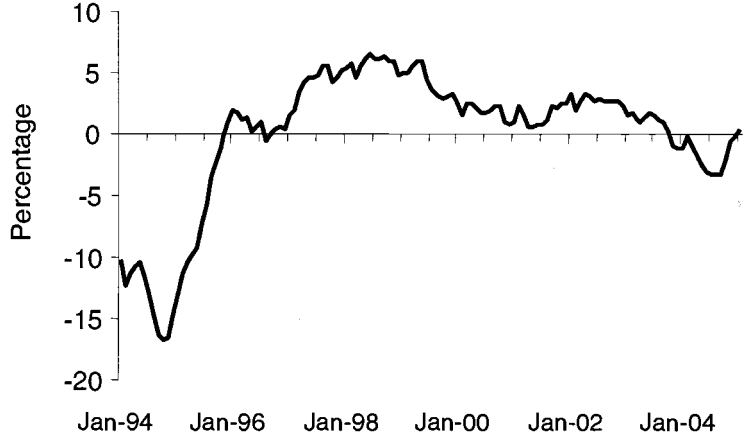

Fig. 3.9 China: Real one-year deposit rate

From the following charts, if intervention was going to be a problem, it would appear likely that this problem would be most acute in Malaysia, Singapore, China, and Taiwan. (See figures 3.10 and 3.11.)

But just as China has had no difficulty managing its reserves inflow, so, too, elsewhere we see no real (political issues in Korea aside) difficulty with intervention and sterilization. Central banks have raised interest rates more slowly than in the United States, if at all, and bond yields have remained stable (rising slightly in China and India by about 125bps), while yields fell in the United States. Korea has been the only country where in-

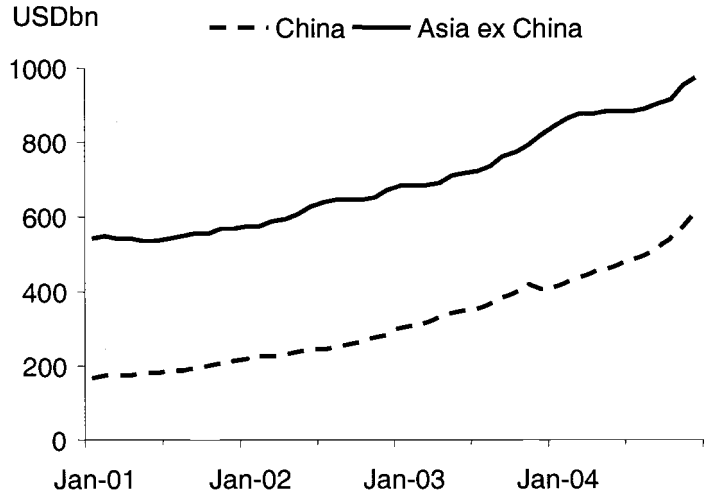

Fig. 3.10 Foreign exchange reserves in Asia

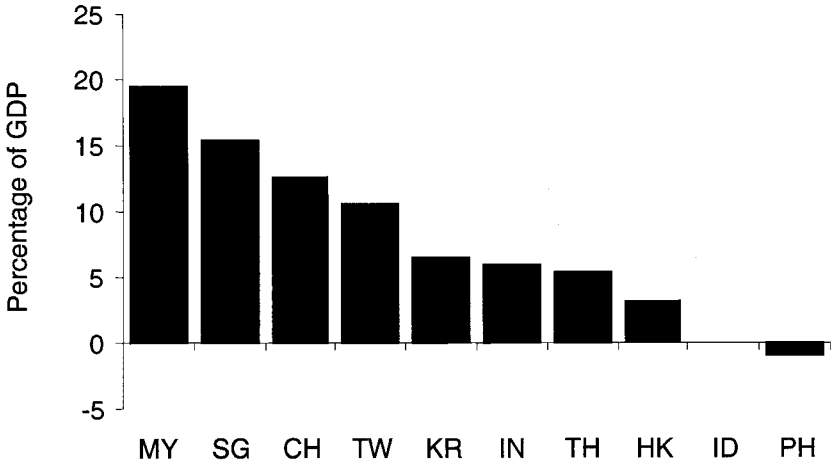

Fig. 3.11 Change in reserves in 2004

Sources: CEIC *Financial Times* Data Service and Deutsche Bank Global Markets Research.

tervention has been problematic because parliament opposed it. But even there, all of the reserve accumulation was sterilized in 2004. Monetary policy has probably been and remains too tight, not too loose. Net foreign assets of the ten Asian monetary authorities rose $359 billion in 2004, but reserve money rose only $111 billion—almost 70 percent of the reserve increase was sterilized through a reduction in net domestic assets in order to keep money supply growth under control. (See figures 3.12 and 3.13.)

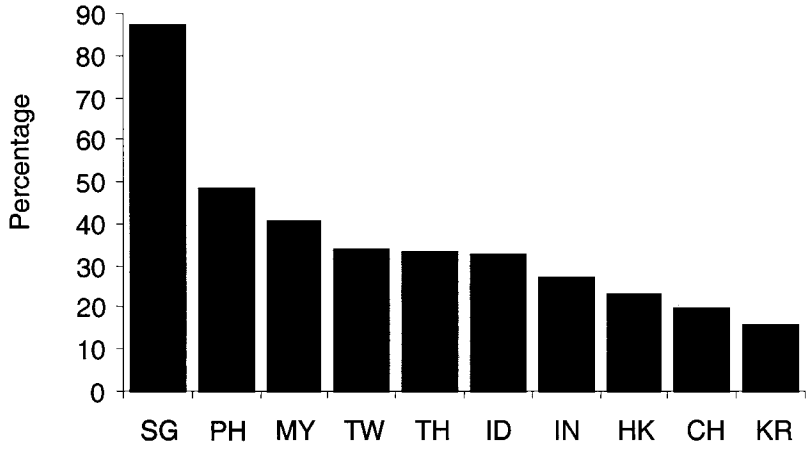

Fig. 3.12 Foreign exchange reserves/broad money

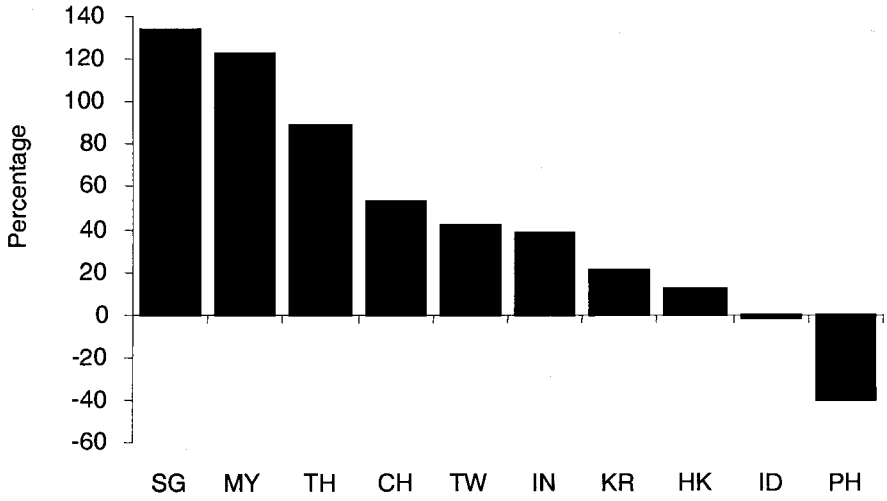

Fig. 3.13 Change in reserves in 2004/change in broad money
Sources: CEIC *Financial Times* Data Service and Deutsche Bank Global Markets Research.

3.15 Conclusions

What makes this perpetual motion machine run is, of course, the assumed zero (actually negative) product of the pool of excess labor that we are implicitly associating with the outcome of a market-determined real exchange rate and allocation of domestic and international savings. This provides a free lunch that everyone can share through current Asian policies.

With plausible rates of accumulation and returns, the transition to the new steady state need not imply a large continuing net transfer. So the system can end with a smooth adjustment. The government of China, for example, would have emplaced a more productive capital stock and will have managed to employ 200 million people in world-level wage jobs. The United States will own a nice chunk of the Chinese capital stock and will have made a fine excess return during its accumulation. There are even mutually offsetting cross-border claims against each other that can serve as escrow against confiscation.[11]

During the adjustment period, many dimensions of this development program are distorted in the periphery. But one thing that is not distorted is the knowledge that at the end of the transition, capital invested in traded-goods industries will have to compete on an equal basis with capital invested in other countries. We see no practical alternative to imposing this discipline on an emerging market and, at the same time, accelerating the absorption of a large and politically dangerous pool of labor. The feasibility of maintaining an undervalued exchange rate through monetary policy and controls on domestic and international capital markets for a long time can, of course, be questioned. But this is an empirical question. At the moment we do not see a mechanism in the case of many Asian countries for significant circumvention of their financial arrangements and regulations.

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Comment Shang-Jin Wei

This paper by Dooley, Folkerts-Landau, and Garber is the third in a four-paper series that the authors have written on international monetary sys-

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tem.[1] This is a highly successful series judged by the attention it has generated. Dooley, Folkerts-Landau, and Garber have termed their theory a revived Bretton Woods system. An alternative label one might fashion is a giant communist-capitalist conspiracy theory. Here is how the conspiracy works:

On the communist or the Chinese side,

1. There is a desire to create 20 to 30 million manufacturing jobs per year.
2. This conflicts with a second feature of the economy: an inefficient domestic financial system that could not convert the national savings into productive investment.

The strategy is (a) promoting rapid export expansion, especially into the U.S. market by welcoming FDI, especially those from the United States by (b) using a systematically undervalued domestic currency, the RMB or the yuan, and by (c) channeling the trade surpluses back into the United States, buying and accumulating low-interest U.S. securities, especially government bonds.

The use of FDI serves two purposes, according to Dooley, Folkerts-Landau and Garber. First, it bypasses the inefficient domestic system in China. Second, by offering high returns to the U.S. multinational firms, these firms can be induced to be a counterweight to the protectionist forces in the United States against the rise of imports from China.

The purpose of a supposedly deliberately undervalued exchange rate is self-evident. So is the purpose of channeling foreign exchange reserve back to the United States.

On the capitalist or the U.S. side,

1. The United States maintains a large current account deficit vis-à-vis China. The two elements of the conspiracy are that the large U.S. direct investment in China, together with the large U.S. current account deficit, are collectively termed total return swap by Dooley, Folkerts-Landau, and Garber (2004c).
2. American households find it attractive to accept or tolerate the Chinese model of growth as they are enjoying lower interest rates in terms of cheaper mortgages or are generally consuming beyond their means.
3. The U.S. government is willing to accept the Chinese model because it needs Chinese foreign exchange to finance public debt, the Iraq War, and so on.

A key prediction of the Dooley, Folkerts-Landau, and Garber hypothesis is that such conspiracy can last for another ten to fifteen years because it can maintain enough political support on both sides of the Pacific.

1. The series of papers are Dooley, Folkerts-Landau, and Garber (2003, 2004a,b,c).

Like all intriguing theories, there are certainly elements of the theory that seem to be well supported by facts.

Elements of Plausibility

1. The Chinese government desires to create 20 to 30 million new jobs each year.
2. The Chinese domestic financial system is very inefficient. In fact, in a paper with Boyreau-Debray (Boyreau-Debray and Wei 2005), I have documented various inefficiencies in the system. For example, if one were to compute marginal products of capital by province, and if one expects that capital to flow to most productive activities, then the marginal product of capital (MPKs) would be equalized in a steady state or positively correlated with MPK during the transition. Instead, we find that capital inflow across regions tends to be negatively correlated with MPK. In other words, capital in China systematically goes to less-productive regions. To understand this puzzling pattern, we have decomposed the capital inflow into those through state budget or state-owned banks and those by private investment and FDI. It turns out the peculiar negative association applies only to the allocation of capital through the state budget or state banks. Because the financial system is heavily dominated by the state, the entire system is not conducive to channel national savings into the most productive investment.
3. China welcomes FDI and, in fact, offers not just national treatment, but supernational treatment.
4. Chinese exports have been expanded at a very fast rate.
5. China channels much of its cumulative current account surplus in low-yield U.S. government securities.

Elements of Less Plausibility

1. Most FDI in China does not come from the United States.[2] Half of them come from Hong Kong. The U.S. share is about 10 percent. On the flip side, the United States has more FDI in several other countries than it does in China. Given the relative lack of prominence of U.S. companies in China, the argument that U.S. companies would serve as a very effective counterweight to the protectionist force in the United States becomes weaker than it first appears.

Hong Kong has more direct investment in China than the United States. It arguably has less recourse than the United States in the event of a Chinese default on its investment. So the need for a collateral should be bigger than the U.S. multinationals. Yes, it has run a trade surplus against China every year since 1980.

Taiwan has about as much direct investment in China as the United

2. The following discussion draws on Prasad and Wei (2005).

States. Yet, unlike the United States, it has run a trade surplus against China consistently throughout the 1990s and into this millennium.

2. What about the possibility that the United States collects the collateral on behalf of multinational firms from all countries? This may be important precisely because collaterals in Hong Kong, Taiwan, and other small economies may not be credible; the People's Liberation Army may overrun them. A necessary condition for this story to work is that in the event of a Chinese default, investors from Hong Kong, Taiwan, and other economies could go to the United States to ask for compensation in the form of getting a slice of China's foreign exchange reserve. This scenario doesn't seem very plausible. In addition, Japan, a large, developed country, has about as much direct investment in China as the United States. Yet it also runs a trade surplus.

3. While the Chinese exchange rate is likely to be undervalued today, it was not always so over the lifetime of the eleven-year-old dollar peg system. In fact, during much of the 1990s, black market data suggest that the Chinese currency were overvalued rather than undervalued. Also, during 1997 to 1999, there was tremendous pressure in China to devalue yuan. Yet the government chose not to. In any case, the Chinese did allow its currency to appreciate by 2.1 percent on July 21, 2005. These observations do not fit very well with the conspiracy theory that a deliberately undervalued exchange rate has been an integral and consistent development strategy of China.

4. The U.S. Congress does not seem to buy into the conspiracy theory as evidenced by intense recent pressure to get the Chinese to revalue their currency.

5. Dooley, Folkerts-Landau, and Garber's colleagues at the Deutsche Bank do not appear to buy into the their conspiracy theory as they are reported to speculate on possible Chinese revaluation from time to time.

Summary

The Dooley, Folkerts-Landau, and Garber hypothesis has enough plausible elements to make it intriguing to ponder. At the same time, there are important parts of the story that do not appear to fit the facts.

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II

Empirical Studies of G7 Current Account and Exchange Rate Adjustment