3

Global Imbalances and Emerging Market Economies

THE GROWING IMBALANCES IN external payments among the world's economies and the financing needs associated with those imbalances have provoked concern in international policy circles and anxiety in capital markets. The previous chapter discussed their nature and scale and identified the risks they posed for financial markets and the global economy. This chapter assesses the implications of such risks for developing countries—particularly emerging market economies, which depend on international capital markets to finance their investment and growth and, increasingly, to allocate their national savings.[1] Our concern here is not only the traditional sensitivity of emerging-market finance to cyclical developments in international capital markets, but also the implications for external balance sheets of accumulations of foreign exchange reserves.

The channels through which events in global financial markets affect developing countries reflect the changing character and growing significance of developing countries' international financial relationships. An improved external environment, years of structural reforms in developing countries, and improved macroeconomic stability have combined to produce the current favorable cycle of healthy trade surpluses, surging foreign exchange reserves, low inflation, and strong growth prospects. Such developments have contributed to the marked strengthening of private capital flows in the past two years (2003–4) from their long slide after 1997 (see chapter 1). Reinforced by higher oil prices and fixed exchange rates in Asia, they also have resulted in a large buildup of foreign currency assets with monetary authorities and central banks of several developing countries. But the increasing size and complexity of external balance sheets pose new challenges that will require not only appropriate strategies to manage external assets and liabilities, but also attention to the domestic macroeconomic implications of higher reserve levels.

Serious concerns remain about how the unwinding of global financial imbalances might affect the external financing conditions in which emerging market economies operate. From their perspective, the gravest risk is an abrupt and disorderly adjustment of major exchange rates, combined with a higher-than-expected rise in international interest rates. Persistent structural weaknesses in banking and financial systems, especially when coupled with high indebtedness or a record of macroeconomic mismanagement and default, render some now-thriving economies particularly vulnerable to sudden reassessments of country risk by capital markets.[2]

- A sharp depreciation of the dollar could result in large capital losses in local-currency terms for developing countries with substantial dollar reserves. On the other hand, countries with dollar-denominated debt would benefit from the erosion in the dollar value of their debt.
- Higher global interest rates could contribute to wider emerging-market bond spreads, particularly for borrowers with high ratios of debt to GDP, which would compound the adverse impact of higher U.S. Treasury benchmark rates.
- The growing carrying costs associated with central bank purchases of foreign exchange reserves could increase pressure on some

countries to moderate their reserve accumulations and allow exchange rates to share some of the adjustment burden. Expansion in aggregate domestic demand (including consumption) to reduce upward pressure on local currencies, coupled with greater openness on both trade and capital accounts, will also be required in many countries with large reserve holdings.[3]

The mixed effect of exchange-rate fluctuations

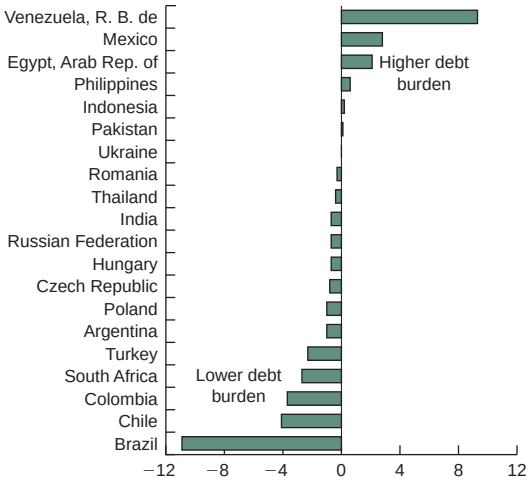
Fluctuations in the exchange rates of the major global currencies—dollar, euro, and yen—have important implications for emerging markets through their impact on flows of trade and finance. Because of the dollar's unique role in both trade and finance, fluctuations in its value tend to have a relatively larger impact on emerging market economies than do changes in other currencies. On the trade side, high volatility among G-3 exchange rates hurts developing countries' exports (Esquivel and Larrain 2002). But to the extent that international investment positions in emerging market economies diverge from their trade patterns, fluctuations among major currencies may have various added effects. Such effects vary by country, depending on their net trade and foreign asset holding patterns.

A further weakening of the dollar does have positive benefits for certain emerging market economies with large dollar-denominated external debt. To the extent that they are net debtors in dollars (as is the case for many that are active borrowers in global financial markets), pronounced dollar weakening reduces their real net external debt burden (measured in domestic currency). Since the end of 2002, the depreciation of the dollar against most developing-country currencies has reduced ratios of debt to GNP and of debt service to exports by 0.7 percentage point. If one excludes countries (such as China) whose currencies have been fixed against the dollar over this period, the decline in these ratios is even greater—nearly one percentage point.

The magnitude of this effect varies substantially, depending on the amount of dollar-denominated debt and the magnitude of the dollar depreciation that has occurred. Focusing on the effect of dollar depreciation for Brazil, for example, the ratio of debt service to exports has declined by 10 percentage points over the period, while for countries (including Mexico) whose currencies fell against the dollar, the debt-service burden rose (figure 3.1). The overall impact of dollar depreciation will of course depend on net asset positions. As discussed in the next section, beneficial effects on debt service could be partially offset in countries that have accumulated large dollar-denominated foreign exchange reserves. There may also be an important distributional distinction between gains accruing to the private sector in emerging markets (likely to be a net debtor) and losses accruing to the public sector (which may hold substantial dollar reserves).[4] Consideration should also be given to the extent to which policymakers or market participants may have hedged their net exposure to currency movements through forward or currency derivative markets.[5]

Figure 3.1 Impact of dollar depreciation on debt service ratios, 2002–4

Change in ratio of debt service to exports (in local currency)



Sources: World Bank data and staff estimates.

Global monetary tightening: higher interest rates

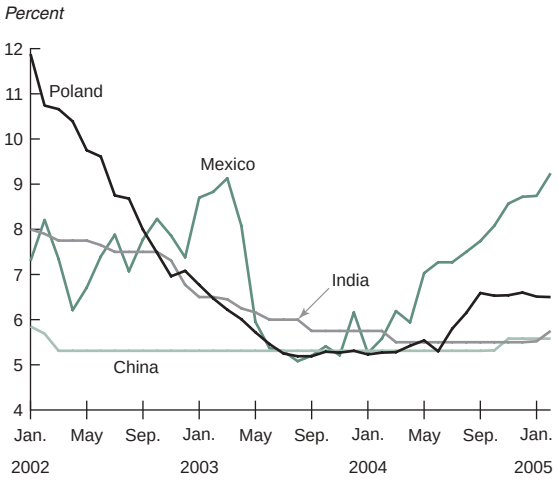
The evolution of interest rates in world capital markets—strongly influenced by U.S. rates—has the most direct (and perhaps most potent) impact on emerging-market risks. This occurs not

only through the traditional, direct channel—monetary tightening to control inflation in industrial countries, which produces higher rates—but also because higher rates can lead to large capital losses on official dollar-denominated bond portfolios.

Historically, virtually every cyclical monetary policy turn in the United States over the past two decades has been accompanied by heightened volatility in emerging financial markets, with direct implications for the level and price of capital flows. The 1994 tightening cycle, which raised the Fed funds rate from 3 to 6 percent in just over a year, had particularly severe consequences, causing turmoil in financial markets and reducing global liquidity. On the other hand, the global monetary easing that began in the fall of 1998 helped end the 1997/98 round of crises (Frankel and Roubini 2003).

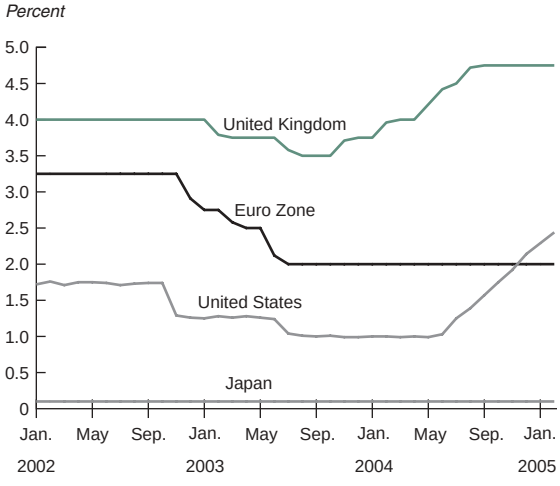
Market interest rates are influenced fundamentally by G-3 monetary policy, as shaped by central banks' reaction to domestic inflation and output gaps. The most visible turning point in the current global interest rate cycle came in June 2004, when the U.S. Federal Reserve began a widely anticipated series of interest-rate hikes after a long period of monetary expansion. Short-term policy rates have been increased in several other countries, as well (figures 3.2 and 3.3). With real interest rates still negative in the United States, there is scope for further monetary tightening (figure 3.4), and forward interest rates signal expectations of higher future rates (figure 3.5). Estimates of "neutral" Fed fund rates for the United States—on the order of 2 percent in real terms—imply a target rate of at least 4 percent in nominal terms, or 150 basis points higher than the current level of 2.5 percent.

Figure 3.3 Short-term policy rates in major emerging markets, 2002–4



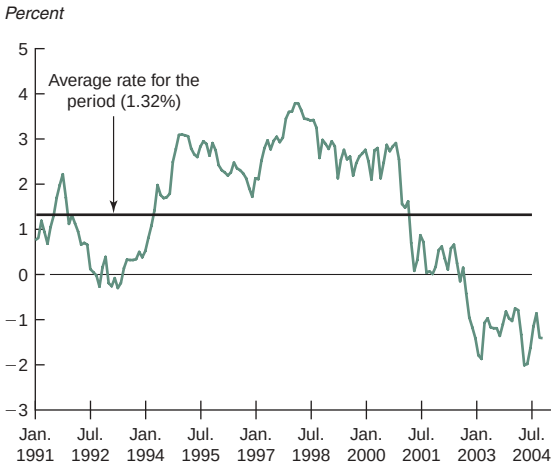
Source: World Bank data.

Figure 3.2 Short-term policy rates in developed countries, 2002–4



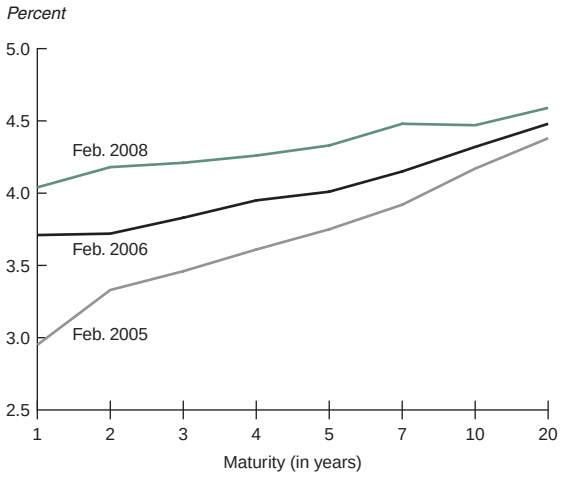
Source: World Bank data.

Figure 3.4 Movement of real federal fund rates, 1991–2004



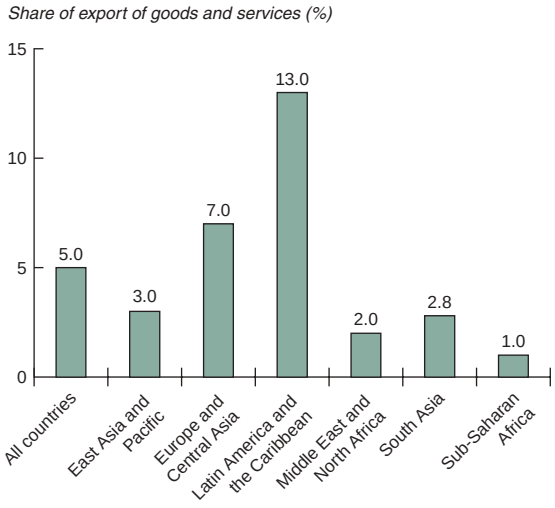
Sources: U.S. Federal Reserve; World Bank staff estimates.

Figure 3.5 U.S. Treasury implied forward rates



Source: Bloomberg.

Figure 3.6 Estimated additional debt service burden due to increase of one percentage point in U.S. interest rates



Source: World Bank staff estimate.

The pressure from rising interest rates is likely to have a negative impact on global economic growth, particularly in developing countries. About one-fifth of developing countries' outstanding external debt is estimated to be based on variable interest rates. Thus, increases in U.S. rates and subsequent effects on related dollar benchmarks, such as the dollar London-interbank-offered (LIBOR) rate, exact a direct cost. Estimates suggest that an increase of 1 percentage point in U.S. medium-term interest rates can imply an additional debt-service burden equivalent to about 5 percent of developing countries' exports of goods and services—with considerable regional variation, ranging from 1 percent in Sub-Saharan Africa to 13 percent in Latin America and the Caribbean (figure 3.6).

A key question from the perspective of emerging market economies is how market interest rates are likely to react to changes in monetary policy—particularly in the United States—and how such reactions spill over to emerging bond markets. With G-3 central banks relying on short-term policy rates to conduct monetary policy, this question can be pursued at two levels: first, how market participants react to current and expected future changes in short-term policy rates in G-3 countries, particularly the United States (box 3.1); and second, how such reactions are factored into the determination of dollar-denominated emerging-market bond prices and spreads, which are typically benchmarked against 10-year U.S. Treasuries.

Potential volatility in emerging-market spreads

The cost of borrowing in emerging markets will be affected not only by movements in interest rates in global markets, but also by the evolution of country-specific spreads over these rates. The persistence of emerging-market bond spreads at near-record-low levels for much of 2004 (see chapter 1) raises concerns that markets are not adequately assessing—and pricing—emerging-market risks. This in turn raises the possibility that, should global conditions deteriorate, these spreads could widen suddenly and dramatically, as investors adapt their expectations to a more pessimistic outlook and shift out of emerging-market assets.

Deteriorating global conditions can affect emerging markets through their impact on sovereign credit ratings. Countries that rely primarily on market-based financing could face further pressures if credit ratings deteriorated, because deterioration would increase borrowing costs in primary capital markets. In general, the marginal cost of a downgrade increases as one moves down the credit spectrum. Since credit ratings for most emerging markets are concentrated around low investment grade or high noninvestment grade, a slip of one grade implies, on average, additional

Box 3.1 Asset prices and unanticipated news

Understanding the transition from short-term policy rates to bond-market prices and yields requires paying greater attention to the dynamics of market expectations in shaping views on interest rates and monetary policy changes. In forming views on the economic outlook, including expected paths of inflation and short-term interest rates, bond-market investors and traders pay close attention to actions, views, and perceived intentions of monetary authorities. Based on such expectations, market participants form their views about long-term interest rates through the term structure of interest rates, which provides information on the whole maturity spectrum, from the short end (three months) to the long end (30 years).

Recent research on finance has emphasized the finding that asset prices are driven primarily by unanticipated information or news contained in macroeconomic announcements. This analysis argues that the anticipated part of economic "news" is already incorporated into asset prices. In most industrial countries, announcements are released regularly at specific times during any given business day, providing market participants with a steady flow of new information and insights into economic fundamentals, and shaping expectations about the economic outlook and likely official policy reactions. Using intra-day high-frequency data, recent empirical work has documented the adjustment response of different financial markets to economic news announcements. For example, it has been shown that news regarding labor-market conditions, output changes, and consumer confidence are incorporated in U.S. bond prices within one minute, and also that German government bond yields are more responsive to U.S. economic news than to Euro-area or German news. Also, favorable "growth news" causes the dollar to appreciate relative to other major currencies (Balduzzi and others 2001; Brandt and Kavajecz 2004; Goldberg and Leonard 2003).

borrowing costs of about 80 basis points over and above the regular costs.

Empirically, the link between global monetary conditions and emerging bond markets is also reflected in the way U.S. interest rates affect emerging-market spreads. Examining time series of correlations of Emerging Markets Bond Index (EMBI) spreads with U.S. interest rates (measured over 36-month rolling periods between December 1992 and June 2004) yields several conclusions:

- First, the estimated correlations vary over time and fluctuate a great deal, with a clear break between crisis and noncrisis periods—suggesting that during crisis periods, spreads are driven by factors other than movements in U.S. rates.
- Second, the effect of U.S. rates on emerging-market spreads is nonlinear; as higher U.S. interest rates affect the creditworthiness of emerging economies (through the channels identified earlier), emerging-market spreads rise more quickly.[6]
- Third, emerging-market spreads appear to track movements in short-term U.S. rates (both the Fed target rate and the three-month Treasury rate) more closely than the longer-term (10-year) rates, implying that the orientation of investors in the asset class may be driven more by changes in short-term U.S. rates than by longer-term yield considerations.

Such aggregate analysis helps delineate the dynamics between U.S. interest rates and emerging-market bond conditions, but fails to incorporate the influence on spreads of specific country variables and credit quality. It is reasonable to expect that higher U.S. interest rates, for instance, have a more serious adverse effect on spreads in countries with high levels of external debt than in countries with moderate external debt. For countries with strong economic fundamentals, the impact of higher U.S. interest rates is likely to be modest. Box 3.2 summarizes research results that consider the role of individual country factors in determining emerging-market spreads.

A 200-basis-point increase in U.S. interest rates (approximately equal to current expectations of future U.S. Fed rate increases during the current round of tightening) would translate into additional increments in emerging-market spreads ranging from 6 basis points (for countries with

Box 3.2 Determinants of emerging-market spreads

To examine how individual country conditions affect the relationship between U.S. interest rates and emerging-market bond conditions, we draw on the recent literature on asset-pricing models for sovereign yield spreads (Duffie, Pedersen, and Singleton 2003; Menkveld, Cheung, and de Jong 2004; and Dailami, Masson, and Padou 2004). To analyze determinants of the emerging-market spread over U.S. Treasuries, we performed panel regressions on domestic determinants of a country's creditworthiness, as well as global variables that explain the supply and cost of credit to emerging markets. The results point to several important conclusions.

Country-specific variables seem to dominate U.S. interest rates in terms of the influence on emerging-market spreads. In particular, trade openness has a strong negative effect on spreads—plausible because more open countries are better able to adjust their balance of payments to generate earnings to service external debt. This variable may also reflect the finding in the growth literature that more open countries tend to grow faster. Higher indebtedness (measured by the ratio of debt to GDP) has a positive impact on spreads, whereas a higher ratio of reserves to debt and a lower share of short-term debt each have a significant negative influence. The latter effect may simply reflect an upward-sloping term structure.

The risk that U.S. monetary tightening might lead to dramatic increases in emerging-market spreads and in global risk appetite appears lower than in past periods. Levels of indebtedness in emerging markets are generally lower than in earlier periods, as countries have recognized the dangers of external borrowing (especially short-term), and the level of foreign exchange reserves is considerably higher. Countries are differentially affected by the current high level of commodity prices, with some benefiting from higher prices for key commodity exports, and others adversely affected by the higher price of their oil imports.

The fact that monetary tightening is largely anticipated (which was not the case, for instance, in March 1994) is likely to mean a less abrupt adjustment of spreads that will permit emerging market economies to take palliative measures, such as lengthening maturities to lock in lower rates. The latter tactic is evident in actions by several countries to "prefinance" future financing needs while current conditions are favorable. For countries that still limit the fluctuations of their currencies against the U.S. dollar through a peg or "dirty float," the weakening of the dollar against the euro and yen offers more room for maneuver.

There is evidence that today's investors are much better able to discriminate among borrowers and less likely to infer that problems in one country signal problems in others. The default by Argentina in 2002—the largest in history—did not cause much disruption in world capital markets, nor did neighboring countries suffer major increases in their spreads. While the Argentina episode was in some ways a special case—the "crisis" unfolded over a period of months, plenty of time for market participants to anticipate events—it may also signal that when higher interest rates push a country to the edge of default, the likelihood of generalized contagion is now low.

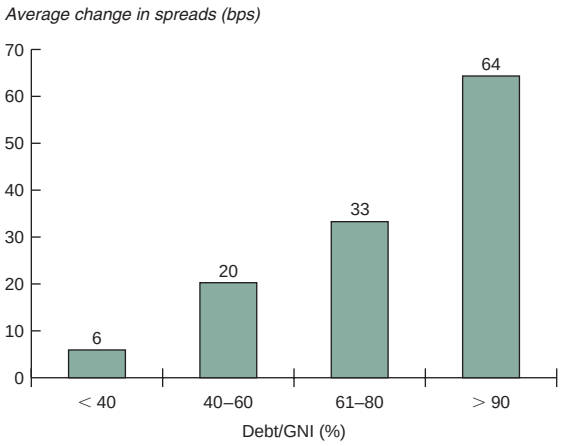
debt-to-GNI ratios below 40 percent) to 65 basis points (for highly indebted countries with debt-to-GNI ratios above 90 percent). This increase would come on top of the underlying increase in the 10-year U.S. Treasury yields, which would likely increase by less than the 200 basis points (figure 3.7).

Capital flows and reserve accumulation

Developing countries are now capital *exporters* to the rest of the world. Highlighted in *Global Development Finance 2004,* this trend has continued to increase in scale and strategic importance. It warrants careful attention.

The aggregate current account surplus of developing countries has widened steadily since 2000, rising in 2004 to $153 billion (2.0 percent of developing-country GDP). Within developing countries, the current account surpluses have been concentrated largely in emerging markets—notably Brazil, China, Malaysia, the Russian Federation, and República Bolivariana de Venezuela, several of which maintain managed exchange-rate regimes and limited capital account convertibility (table 3.1). The large surpluses mirror a decline in domestic investment relative to savings, a trend that is particularly noteworthy in East Asia. The long-running stagnation of Japan and the steep fall in growth and investment in developing economies since the crisis of 1997/98 have generated surpluses equivalent to 9 percent of the U.S. deficit

Figure 3.7 Change in sovereign bond spreads following increase of 200 basis points in U.S. interest rates, by degree of indebtedness of country



Sources: World Bank Debtor Reporting System and staff estimates; J.P. Morgan Chase; Dailami, Mason, and Padou 2004.

Table 3.1 Current account balances in developing countries, 2000–4

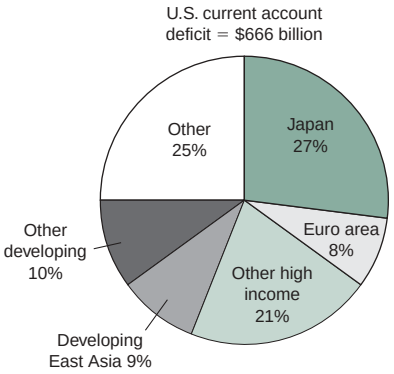
$ billions

	2000	2001	2002	2003	2004e
Developing countries	**43.6**	**16.9**	**72.0**	**117.7**	**152.7**
Argentina	−9.0	−3.9	9.1	7.8	3.2
Brazil	−24.2	−23.2	−7.6	4.0	11.1
China	20.5	17.4	35.4	45.9	47.3
Czech Republic	−2.7	−3.3	−4.3	−5.7	−6.0
Egypt, Arab Rep. of	−1.0	−0.4	0.6	3.7	3.3
India	−4.3	0.2	5.8	8.0	−1.1
Indonesia	8.0	6.9	8.1	7.5	3.7
Malaysia	8.5	7.3	7.2	13.4	13.8
Mexico	−18.2	−18.2	−14.1	−9.2	−8.3
Pakistan	−0.1	1.9	3.9	3.6	2.5
Philippines	6.3	1.3	4.4	3.3	4.1
Poland	−10.0	−5.4	−5.0	−4.6	−4.4
Russian Federation	46.8	33.8	29.1	35.8	55.4
South Africa	−0.3	0.1	0.6	−1.5	−5.6
Thailand	9.3	6.2	7.0	8.0	5.4
Turkey	−9.8	3.4	−1.5	−6.8	−14.9
Venezuela, Rep. Bol. de	11.9	2.0	7.6	11.5	12.5
Memo items:					
Low-income countries	8.2	3.2	15.3	12.1	7.6
Middle-income countries	35.4	13.7	56.7	100.7	145.0

Note: e = estimate
Sources: World Bank, *Global Development Finance*, various years; World Bank staff estimates for 2004.

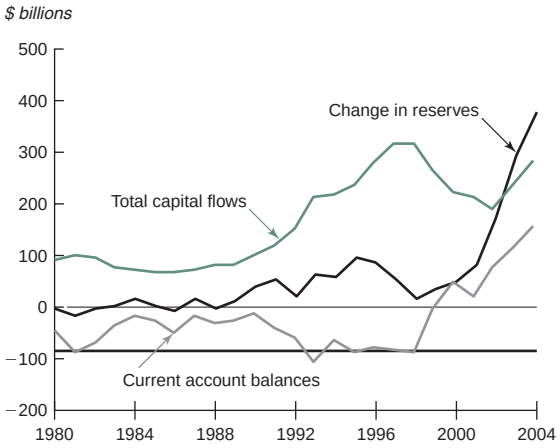
(figure 3.8). At the same time, the ratio of investment to GDP in major developing East Asian economies (other than China) fell by an average of 9 percentage points of GDP between 1996 and 2003 (World Bank 2004).

Figure 3.8 World current account surpluses as shares of U.S. current account deficit, 2004



Source: World Bank staff estimates.

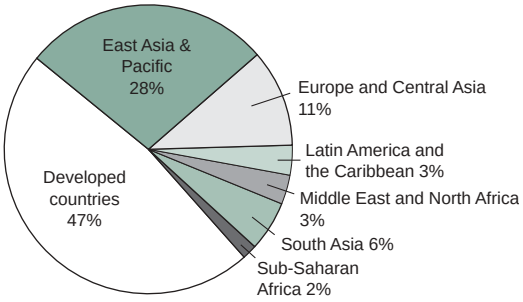
Figure 3.9 Capital flows, current account balances, and reserve accumulations in developing countries, 1980–2004



Sources: World Bank staff estimates; IMF International Financial Statistics.

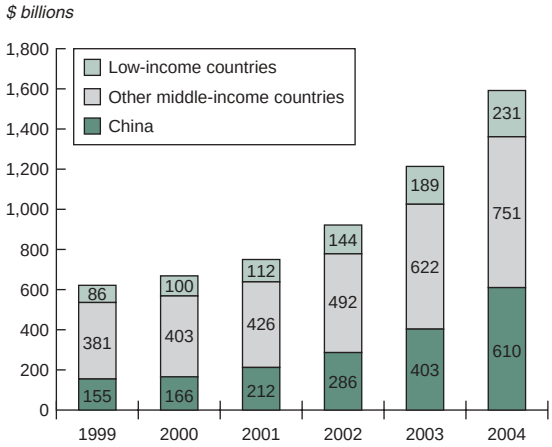
The disparity between growing current account surpluses and steady or declining domestic investment and consumption is explained by the fact that a portion of the surplus has been funneled into reserve accumulation (figure 3.9). Over the last five years, developing countries have accounted for more than half of the global increase in foreign exchange reserves (figure 3.10). The developing countries as a group have raised their foreign exchange reserves to unprecedented levels in recent years. At the end of 2004, they held an estimated $1.6 trillion in foreign exchange, compared to

Figure 3.10 Global foreign exchange reserve accumulation, 1999–2004



Sources: World Bank staff estimates; IMF *International Financial Statistics Yearbook*.

Figure 3.11 Foreign-exchange reserves in developing countries, 1999–2004



Sources: World Bank staff estimates; IMF *International Financial Statistics Yearbook*.

$1.2 trillion in 2003 and $921 billion in 2002. Approximately 86 percent of the total is held by middle-income countries, with China alone accounting for 38 percent, or $610 billion, an increase of $207 billion over 2003 (figure 3.11). Other emerging market economies saw large increases as well—the reserves of the Russian Federation increased by $41 billion to $114 billion; India's by about $28 billion to $125 billion; and Malaysia's by $18 billion to about $62 billion. In 2004, 101 of 132 developing countries that reported data for 2004 increased their foreign exchange reserves, approximately the same number as in 2003. And while East Asia dominates, reserves have increased in all developing regions over this period.

The benefits of higher reserves

Accumulation of higher reserve levels across a broad range of developing countries is tangible evidence of prudent policies and strong trade performance since the crises of the late 1990s. In general, it lowers vulnerability to external shocks. With financial markets focusing on borrowing countries' level of reserves as an important indicator of financial health, the recent increases provide a margin of comfort and confidence.

Three factors have driven the rapid growth in reserves:

- *The quest for self-insurance against external shocks.* The financial crises of the late 1990s gave developing-country policymakers a renewed appreciation for the value of reserves as protection against currency crises and abrupt reversals of capital flows. Such protection is especially important for countries with heavy external financing needs (Brazil, Turkey) and for those with a high degree of trade concentration (Pakistan) that are vulnerable to sudden interruptions in gross flows as a result of changing domestic conditions or broader contagion in global markets.
- *The search for credit on favorable terms.* Reserve levels are also an important factor in assessments of creditworthiness and broader policy credibility. Increases in reserves contribute to credit upgrades, which in turn translate into lower borrowing costs and reduced volatility.
- *The need for liquidity to achieve and manage exchange-rate stability.* In countries pursuing a fixed exchange-rate policy, reserves help monetary authorities defend a target peg in the face of external pressures to raise the value of their currency.

The costs and risks of "excessive" reserves

There is ample evidence of and broad consensus about the benefits to developing countries from maintaining an adequate level of foreign exchange reserves that provide liquidity for exchange-rate management and can be readily accessed when needed.

There is less agreement, however, on what constitutes an "adequate level of reserves," especially when countries are operating under a flexible exchange-rate regime and are relatively open to

Box 3.3 Developing countries as exporters of capital—a new twist on the Bretton Woods system

The buildup of foreign exchange reserves in the hands of developing countries' central banks and monetary authorities—and its use in financing global payment imbalances—marks a new phase in the postwar system for financing international payments. In the years following the establishment of the Bretton Woods system in 1948, when most exchange rates were fixed, capital mobility restricted, and access to private sources of capital limited to a few high-income countries, the balance of payments was maintained primarily through official finance. Anchored by the International Monetary Fund (IMF), but also encompassing supplementary financing facilities through the Bank for International Settlements and central banks, this regime assured a sufficient supply of balance-of-payments financing as long as imbalances were not too large and countries adhered to the norms of good policy behavior—for example, by avoiding competitive currency devaluation. But as the European countries recovered from the devastation of the war, they made their currencies convertible and secured access to private capital markets. Only developing countries continued to draw on official financing to maintain their balance of payments.

The rise in world oil prices in the 1970s and the associated accumulation of balance-of-payments surpluses in the member states of the Organization of Petroleum Exporting Countries strengthened the role of private financing, as surpluses were intermediated to deficit countries through private capital markets, particularly banks. This "privatization" of balance-of-payments financing had the effect of easing previous balance-of-payments constraints on national economies and, to a degree, substituted market discipline for the discipline of official financing. In the process it also contributed to the financial crises of the 1980s and 1990s.

foreign capital flows (IMF 2003; Wijnholds and Kapteyn 2001; Feldstein 1999). In the 1970s and 1980s, when most exchange rates were fixed and capital accounts closed, the rationale for holding reserves was to provide a safeguard against external volatility in exports and imports (box 3.3). Three to six months of imports was often used as a rule of thumb to define an adequate level of reserves. When the underlying source of volatility and crisis shifted from trade to the capital account in the 1990s, the measure of reserve adequacy moved from an import-based indicator to one that would express the country's ability to weather volatility and the possibility of a reversal of capital flows—whence the new convention, likewise just a rule of thumb, that reserves should be equal to short-term debt (debt maturing in one year or less).

In several countries reserve levels have come to exceed, by a large margin, conventional measures of adequacy: six-months of imports or the entire stock of outstanding external short-term debt. In these countries, the question of the potential cost of reserve holdings can reasonably be posed. China, the Czech Republic, India, Malaysia, Pakistan, Thailand, and República Bolivariana de Venezuela all have reserves that are more than four times their external short-term debt (table 3.2). Many of these economies have accumulated these reserves as a result of policies that have kept exchange rates fixed or pegged.

Table 3.2 Ratios of foreign-exchange reserves to imports and external short-term debt in emerging market economies, 2004

	Reserves as months of imports	Ratio of reserves to short-term debt
Argentina	11	1.1
Brazil	12	1.8
China	12	14.1
Czech Republic	6	4.6
Egypt, Arab Rep. of	14	3.7
India	16	6.3
Indonesia	13	2.6
Malaysia	6	5.3
Mexico	4	2.1
Pakistan	10	10.7
Philippines	4	1.6
Poland	6	2.6
Russian Federation	11	3.1
Thailand	6	5.0
Turkey	6	1.8
Venezuela, Rep. Bol. de	20	5.0

Sources: World Bank staff estimates; IMF International Financial Statistics.

But holding reserves has costs, too. And when reserve levels become high enough, the costs can become quite large. The high level of reserves,

particularly in emerging market economies, has prompted much debate about whether the protection is worth the cost. The key economic costs of excessive reserve accumulation fall into two categories: (i) "quasi-fiscal" costs associated with central banks' sterilization efforts; and (ii) potential capital losses on reserve assets held, typically, in highly rated foreign government securities.

The quasi-fiscal cost of reserve accumulation stems from central banks' efforts to offset (or sterilize) the expansionary monetary impact of their purchase of reserves. Without open-market sterilization operations (or other administrative measures), ballooning reserves would cause the monetary base to expand beyond the productive capacity of the economy, leading to inflation. As central banks sterilize by selling government securities in local markets to mop up liquidity, they incur an income loss, because the yields on their reserve holdings generally fall short of the yields they must pay on the securities they issue.

The magnitude of this fiscal burden varies across countries, depending on the gap between the interest rate paid on domestic issues and the rate earned on reserve holdings, adjusted by expected changes in exchange rates. For emerging markets with high reserves, that gap (based on the difference between domestic interest rates and the yield on two-year U.S. government bonds) is estimated at around 7.6 percent for China, 8 percent for the Russian Federation, and 1.8 percent for India (table 3.3). Assuming an average spread of 250 basis points between an emerging-market bond with a two-year maturity and a U.S. Treasury bill of corresponding maturity, each $10 billion of reserve holdings costs the central bank about $250 million in annual carrying charges—a sizable cost. Moreover, these costs are likely to increase as sterilizing operations add to public sector debt and put upward pressure on domestic interest rates, in turn increasing the size of the rate gap and associated carrying charges.[7]

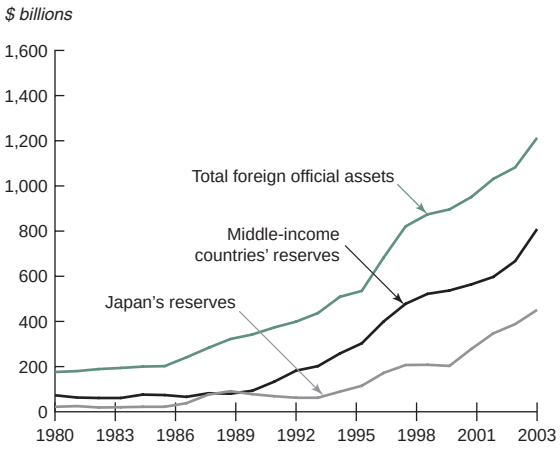
The risk of capital losses on reserves depends on the level of reserves, but also on the portfolio investment decisions of reserve managers—and particularly on their choices of currency composition and acceptable risk parameters. Virtually all reserves are held in five major currencies (dollar, euro, Japanese yen, British pound, and Swiss franc), with about 70 percent invested in dollar-denominated assets, both inside the United States and in global euro-dollar markets. Although detailed data on allocations in the reserve portfolios of individual countries are not available (because central banks have little reason to disclose such information),[8] there is a strong correlation between emerging markets' total reserve holdings and total foreign official assets in the United States (figure 3.12), suggesting that a substantial share of reserves is in fact invested in dollar assets in the United States. If this is indeed the case, a drop in the value of the dollar vis-à-vis the local currency

Table 3.3. Reserve carrying costs in emerging markets

	Spreads	Expected annual change in exchange rate	Expectation-adjusted spreads[a]
Brazil	−0.6	14.3	−14.9
China	2.4	−5.2	7.6
Czech Republic	−0.7	−0.5	−0.2
Egypt, Arab Rep. of	6.8		
India	2.3	0.5	1.8
Indonesia	6.0	2.6	3.4
Malaysia	−0.5		
Mexico	5.6	4.3	1.3
Pakistan	−0.1		
Philippines	3.2	4.1	−0.9
Poland	3.3	3.1	0.2
Russian Federation	9.8	1.8	8
Thailand	−1.2	−0.2	1
Turkey	16.8	17.4	−0.6

a. Spreads over U.S. two-year government bond yields as of Jan. 7, 2005.
Sources: Bloomberg; J.P. Morgan Chase; World Bank staff estimates.

Figure 3.12 Foreign official assets in the United States, 1980–2003



Source: U.S. Department of Commerce.

implies an equivalent drop in the real asset value of the reserves held. Similarly, increases in global interest rates can generate capital losses on reserve assets held in fixed-income securities, particularly those with longer maturity. For example, an increase of 200 basis points in U.S. interest rates would translate into a $26.8 billion loss on the dollar-denominated bond portfolio of the six emerging market economies, with the largest asset holdings in U.S. Treasuries as of October 2004 (Brazil, China, India, Mexico, Thailand, and Turkey).

In practice, these losses are typically absorbed by reducing income transfers from the central bank to the treasury or reflected in the central bank's capital position. But other outcomes are possible—in countries where the banking system is under government control and interest rates are not market-determined, such as China, the quasi-fiscal expenditure has been largely off-loaded onto state-owned commercial banks that have been required to purchase securities sold by the People's Bank of China at below market-clearing interest rates. While this approach keeps the cost of reserve holdings off the government's (and the central bank's) books, it tends to further reduce the already tenuous profitability of the state-owned banks and so contribute to financial system fragility. The broader point is that these losses impose real economic costs, whose incidence (on the treasury or on banks) will depend on the policies and institutional arrangements pursued.

For the majority of developing countries, whose currencies are not fully convertible on the capital account, institutional constraints often limit the sustainability of sterilized foreign exchange interventions. Underdeveloped government securities markets and an insufficient volume of securities with which to conduct sterilization operations limits the scope for effective open-market action in many countries. The Reserve Bank of India, for example, now faces a dilemma because its inventory of government securities is falling rapidly, yet it is not allowed to issue its own securities or sell rupee assets on international markets. Similarly, in connection with its open-market operations, the Bank of Korea came up against the annual limit set by the legislature on sales of government securities. By October 2004, it had sold 17 trillion won ($15.9 billion) of a permitted 18.8 trillion won ($16.9 billion) total. The People's Bank of China, which accumulated nearly $100 billion of foreign exchange reserves in the fourth quarter of 2004 alone, had (as of November 2004) sold the equivalent of nearly $80 billion of central bank bonds domestically, more than tripling the total stock of bonds outstanding.

Looking ahead, policymakers in developing countries are likely to find it increasingly difficult to ignore certain important policy questions:

- As official financing from developing countries plays an increasingly important role in meeting global financing needs, questions regarding the sustainability of these flows become more important. Changes in the pattern of reserve accumulation could have important implications for international stability and repercussions for private capital flows to developing countries.
- Developing countries that are accumulating reserves in excess of (i) prudential demand for liquidity and (ii) amounts needed to protect against volatility in capital flows will have to address the growing quasi-fiscal carrying costs, potential capital losses from further weakening of the dollar, and opportunity costs associated with directing capital inflows away from productive domestic investment (including infrastructure) and into foreign asset accumulation.

Promoting stability in global capital flows

Since the beginning of 2004, the external financing environment in which developing countries must operate has been extraordinarily stable. Driven by improved domestic economic fundamentals and high global liquidity, private capital flows expanded vigorously throughout the year, uninterrupted by any sign of crisis or abrupt changes in market sentiment (with the exception of the short-lived rise in emerging-market bond spreads in April and May). Today, however, that stability is threatened by risks arising through three channels discussed above:

- Growing imbalances in external payments
- Exchange-rate fluctuations among the major currencies (dollar, yen, and euro)
- Market reactions to the ongoing tightening stance in global monetary policy.

Enhancing the resilience of developing countries to these risks requires actions on several fronts, with important roles for both developed and developing countries.

For developing countries, the greatest challenge is to continue taking advantage of current favorable external financing conditions while pursuing the domestic macroeconomic and structural reforms necessary for long-term stability in external financing. This strategy involves building on recent macroeconomic gains—low inflation, healthy trade surpluses, greater exchange-rate flexibility, and lower debt burden—to address structural weaknesses in their financial systems, local capital markets, and systems for managing external assets and liabilities. Such policies remain critical to forging closer links with global capital markets and to channeling capital flows to long-term and productive investment and growth opportunities.

Progress in macroeconomic stabilization and structural reforms during the last two decades helped provide the foundation for the recovery and vigorous expansion of capital flows over the last two years. Commitment to such policies needs to be renewed through credible and concrete fiscal actions (reduction in public debt burdens and improved public debt management), monetary actions (long-term price stability and low inflation), and exchange-rate policies (avoiding misaligned exchange rates and expanding flexibility). Such policies have underpinned recent gains in creditworthiness in many emerging markets and could help minimize the adverse impact on credit spreads or availability of finance, should global economic conditions worsen unexpectedly.

The cost-benefit calculus of continued reserve accumulation by central banks in developing countries (especially in Asia) needs to be reexamined in light of increasing associated fiscal costs and potential investment losses. While recognizing that such policies have to date had a largely positive macroeconomic effect on countries that pursued them, continuing accumulation of reserves on such a large scale carries its own clear risks, particularly if central banks (or others) with large dollar holdings shift to other major currencies. In both the short- and long-term, high-reserve countries need to consider how best to manage an appreciation of their currencies against the major currencies, to share the burden of exchange-rate adjustment with others (especially Japan and the European Union).

As developing countries' external balance sheets have grown in recent years, the challenge of asset and liability management has taken on considerable significance. In that context, debt and asset management policies need to strike a meaningful balance between risk and return, through efforts to lengthen the maturity of portfolios, diversify currency composition, and seek higher-yielding assets, while not losing sight of broader macroeconomic and growth objectives. Many emerging market economies have taken advantage of recent favorable external financing conditions to adjust maturity or currency structures of their external debt through refinancing and, in certain cases, retirement of expensive Brady bonds. On the asset side, more central banks are relying on professional asset managers to manage part of their foreign exchange reserve holdings.

The Asian financial crises of 1997/98 provided a stark demonstration that weak domestic financial systems can easily transform a currency crisis into a full-blown economic free fall. Weak prudential regulation, undercapitalized banks, underdeveloped local capital markets, and governments' implicit guarantee of foreign currency borrowings through the prevailing fixed exchange-rate regimes of the time were among the factors that undermined investor confidence and reversed capital flows. While considerable progress has been achieved in many developing countries in strengthening the banking sector and developing local capital markets, the agenda is largely unfinished. In several countries, strengthening domestic financial institutions remains critical if monetary authorities are to pursue a broad range of policies (particularly related to exchange rates) without jeopardizing the soundness of the domestic financial system.

But ultimately it is the macroeconomic policy stance of G-3 countries that must shoulder the burden of required adjustments. As emphasized in the previous chapter, an orderly and market-determined depreciation of the dollar, a key element of such a strategy, would help reduce U.S. external imbalances through its positive impact on the current account deficit and on net external

debt. But orderly depreciation alone will not secure a sufficient reduction in current global payments imbalances. Equally important are efforts to promote a shift in relative aggregate demand through fiscal consolidation in the United States and policies in the European Union and Japan to stimulate domestic demand. It is only through a combination of exchange-rate and demand instruments that the necessary rebalancing of world demand can be engineered in a sustainable manner.

Notes

1. The following countries are usually included in the category of emerging market economies: in Asia—China, India, Indonesia, Malaysia, the Philippines, and Thailand; in Latin America—Argentina, Brazil, Chile, Mexico, Peru, and República Bolivariana de Venezuela; in Eastern Europe—Bulgaria, Czech Republic, Estonia, Hungary, Poland, Russian Federation, and Slovakia. "Emerging market economies" are not a category in the World Bank's country-classification system, which classes countries according to gross national income, indebtedness, and other criteria. See http://www.worldbank.org/data/countryclass/countryclass.html.

2. The notion that a country's history of macroeconomic management and default matters in the assessment of country risk by the capital markets is known as "debt intolerance." See Reinhart, Rogoff, and Savastano (2003).

3. This is not the first time the world economy has faced external payments imbalances and related adjustment difficulties. Postwar history is replete with such episodes. Just as at present, those episodes featured domestic and external policy conflicts, international adjustment bargains, disagreements on burden sharing, and several cases of macroeconomic diplomacy leading to cooperative solutions, such as the Plaza Accord of September 1985 (Henning 1987; Bergsten 1991).

4. Given their relatively higher risk aversion and natural proclivity for safe assets, official investors have a strong demand for government securities, with equities given a low (or even zero) weight in their investment portfolio. This preference for government paper favors government bond markets at the expense of equity markets. Higher bond prices mean lower costs of funds for the public sector, and lower equity prices mean lower return on private capital. The macroeconomic consequence of this rotation is a reallocation of resources from the private to the public sector. With the U.S. economy relying increasingly on official sources in financing its current account deficit, the distributional impact is again to the public sector.

5. While the potential for hedging against cross-currency risk among major currencies is substantial, given the size and depth of global currency and interest-rate derivative markets, the scope for hedging against currency risk vis-à-vis local currencies in developing countries is limited to six-month to one-year forward markets.

6. The relationship between U.S. interest rates and emerging-market bond spreads may be nonlinear because spreads incorporate default probability in a nonlinear way. For instance, at low interest rates and in periods of favorable economic activity in developing countries, a rise in U.S. interest rates may have little effect on investors' estimates of the probability of default. By contrast, when the emerging-market borrower is, or appears to be, at the limit of its ability to repay, a given increase in U.S. rates may (appear to) push the borrower over the edge, sharply increasing the perceived probability of default. Such a scenario may have occurred, for instance, in 1982 and 1994 (Dailami, Masson, and Padou 2004).

7. The fiscal costs occur regardless of whether reserves are held on the central banks' balance sheet or are held by other authorities that purchase foreign exchange reserves in the local interbank market and pay for them with local-currency liabilities or cash. To the extent that the return on reserve holdings in foreign securities falls short of domestic financing costs, there exists a fiscal cost of reserve accumulation. The magnitude of this fiscal cost depends on the spread between foreign and domestic interest rates, the size of reserve increases, and the future changes in the exchange rate of the local currency vis-à-vis reserve currencies. But in practice and in a majority of countries, it is the central bank that is the primary agency in charge of reserve management. Its responsibility extends to adopting more stringent accounting standards for reporting the volume of and changes in reserve levels. Estimating the fiscal costs of reserve accumulation also involves paying attention to the implications of holding reserves on the central bank's balance sheet for the determination of domestic interest rates, the exchange rate, monetary expansion, and government debt dynamics. See Dailami 2005; Kletzer and Spiegel 2004; and Becker and Sinclair 2004 for further discussion of such issues.

8. Reflecting the progress achieved in recent years in the implementation of the IMF's safeguards assessments and the Special Data Dissemination Standard (SDDS, adopted in 1996), the accounting standards, transparency, and quality of reserve information reported by central banks have significantly improved. As of the end of 2004, 53 central banks had committed to the SDDS, and participation is expected to rise further.

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