

- Determination of the wage rate is, in most European countries, assigned to the social partners; consequently, they should be responsible for employment and unemployment.
- Taxation and spending tax revenue is assigned to the government; consequently, the government should be responsible for the allocation of resources and for economic growth.
- The right to define the institutional setting of a market economy—that is, to make the laws—is assigned to parliament; consequently, parliament should be responsible for creating the right institutions with the appropriate incentives and constraints—for instance, for the labor market.

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4 Moderating Fluctuations in Capital Flows to Emerging Market Economies

Michael Mussa, Alexander K. Swoboda,
Jeromin Zettelmeyer, and Olivier Jeanne

The emerging market crises of the 1990s—in particular, the shock of the Asian crisis and its global repercussions—have generated a perception of deep inadequacies in the international financial system, and an intense debate on global financial reform, particularly regarding capital flows to emerging markets.¹ This chapter highlights the challenges and constraints of different proposals about how to mitigate and cope with volatility in international capital flows. The goal is *not* to discuss comprehensively the many reform proposals on the international financial architecture that have emerged since the onset of the Asian crisis. Instead, particular attention is paid to the role of international *public* intervention in forestalling and mitigating future crises. Other reform topics, such as involvement of the private sector, are treated in other chapters.

An informed discussion of proposals on how to deal with the instability of international capital flows requires an understanding of the environment in which the financial system operates and of the problems it must solve. Our discussion begins with a short review of the development of capital flows since the end of the Bretton Woods era, briefly documenting the boom–bust cycle of capital flows and trends in their composition. While there are many similarities between the debt crisis of the 1980s and the crises of the 1990s, there are also important differences. Unlike the earlier crisis, the emerging market crises of the 1990s were not preceded by major disruptions in the world economy that also affected the major industrial economies. The more recent crises affected a much larger share of world output and involved official financial support packages on a much larger scale than the 1980s debt crisis.

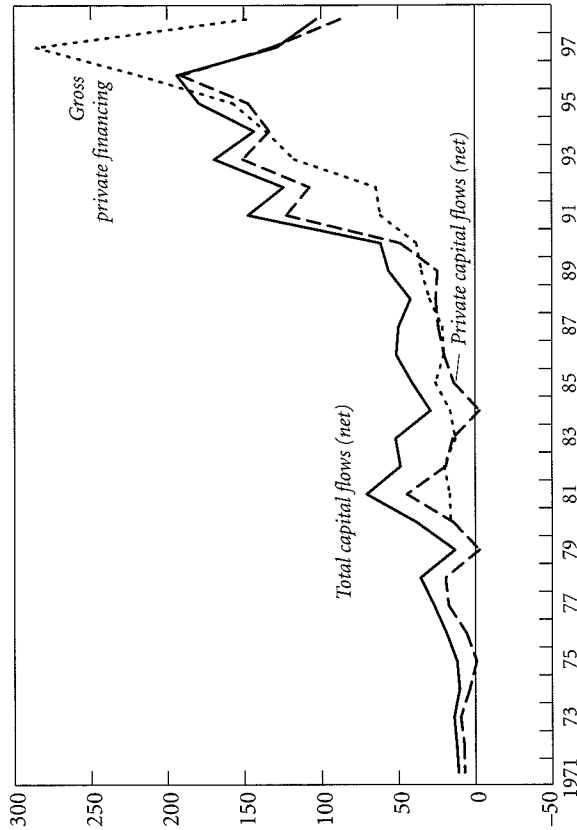
¹For two excellent surveys, see Eichengreen (1999) and Minton–Beddoes (1999).

Against this background, the causes of capital flow boom-bust cycles and of systemic instability in the 1990s are discussed. While national policy failures—especially in banking and financial supervision, and lack of transparency—along with adverse shocks paved the way for the 1990s financial crises, systemic fragilities also played an important role. We identify some of these, and relate them to the types of international capital flows and their maturity and currency composition. The magnitude and abruptness of capital flow reversals would, of course, be smaller were they not preceded by a sustained buildup of capital inflows. Some observers pointed to moral hazard as a major cause of excessive capital inflows to emerging markets. We discuss various forms that moral hazard may have taken, and argue that the availability of emergency assistance from international financial institutions cannot, on the whole, have played a major role in the lead-up to the Asian crisis.

This chapter turns next to ways of improving the management of international capital flows. When addressing systemic risks, policy must face some basic trade-offs. Most proposals, whether they are capital controls, measures to “bail in” the private sector, or attempts to change the composition of capital flows, all involve trade-offs between efficiency, stability, and distributive considerations. While domestic policy reform, supervision, and standards all have important roles to play, and while these and other measures to strengthen crisis prevention and to make the system less vulnerable are necessary and should be implemented, crises associated with sharp capital account reversals will not be eliminated. Consequently, countries will still find themselves in situations where they cannot meet their external debt obligations, leading to three possible outcomes: national default involving the government, most of the financial system, or the nonfinancial private sector; imposition of capital controls; or resorting to international financial assistance, sometimes on a massive scale.

Much of the focus of the later sections of this chapter is on the role of internationally supported mechanisms for providing emergency financing to countries in difficulty. One strand of the argument is that assistance provided by the international community has costs, but that these costs are typically significantly smaller than the volume of assistance, to the extent that interest-bearing loans extended during crises are, in fact, later repaid. And these costs should be set against the systemic benefits generated by the assistance. It remains true that the provision of international financial support for countries in difficulty should guard against the generation of excessive moral hazard—on the side of both borrowers and lenders. The existence of moral hazard, however, does not, in and of itself, invalidate the desirability of international financial assistance. Some degree of moral hazard is an inevitable by-product

Figure 1. Developing Countries: Total and Private Capital Flows
(Billions of U.S. dollars)



Sources: IMF, World Economic Outlook Database, and Bonds, Equities, and Loans Database.

of any insurance scheme. The issue is to find the right balance between the benefits provided by the insurance and its costs, including the costs associated with the likely generation of some degree of moral hazard.

Capital Flows in the Post-Bretton Woods Era

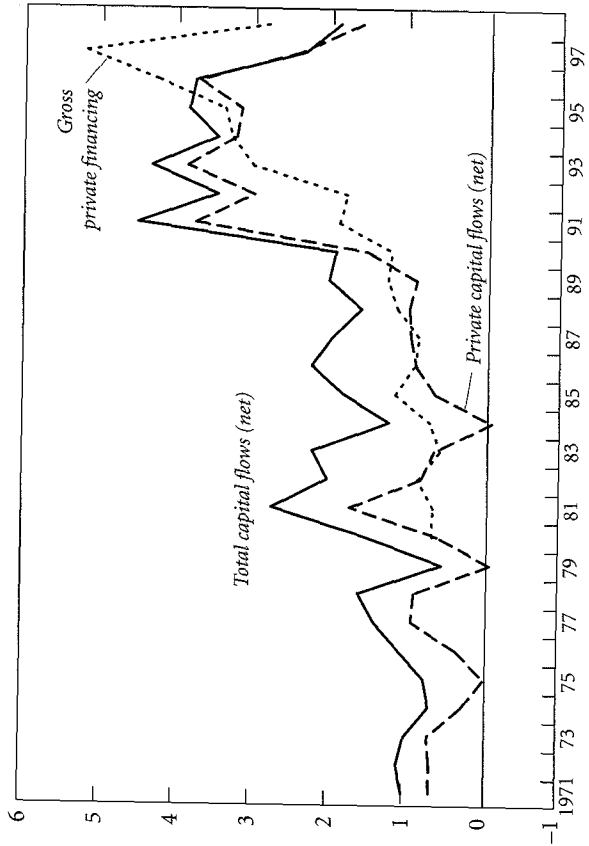
We now highlight three trends in international capital flows that are of particular relevance for the discussion that follows. Additional detail, in particular on the volatility of capital flows and the incidence of crises over time, is provided in the chapter appendix.²

Boom-Bust Cycles and Secular Trends

Aggregate private capital flows to emerging markets since the mid-1970s are characterized by two main regularities. First, a general upward trend (see

²For a survey of developments in capital flows to emerging markets, see Mussa and Richards (1999).

Figure 2. Developing Countries: Total and Private Capital Flows
(In percent of GDP)

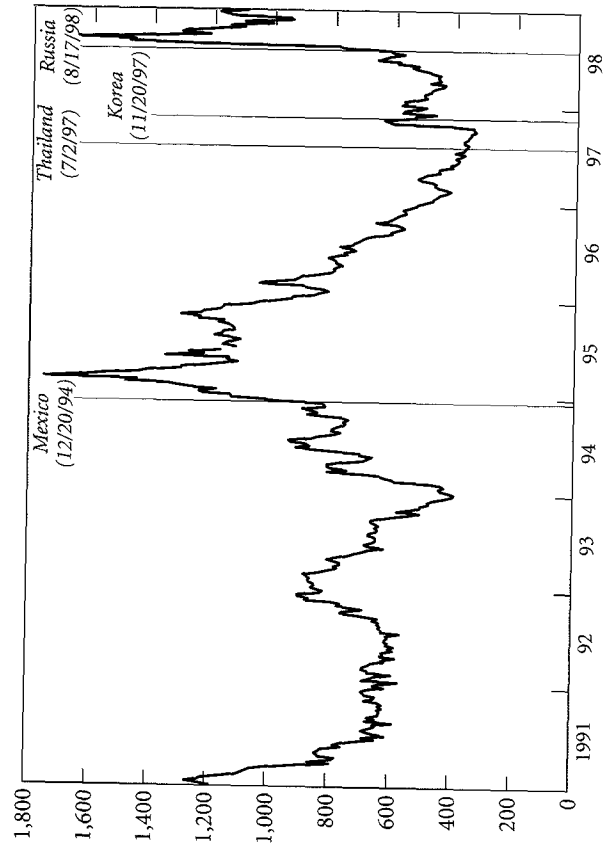


Sources: IMF, World Economic Outlook Database, and Bonds, Equities, and Loans Database.

Figures 1 and 2), not just in dollar terms, but also in terms of emerging markets' GDP, regardless of whether one focuses on net private capital flows registered in the balance of payments or on gross private financing in international capital markets.³ This is the manifestation of increasing capital market integration and capital account openness on the part of an important group of emerging market economies, accounting for most of the GDP of developing countries. Second, net private capital flows exhibit substantial medium-run swings. Two major boom-bust cycles can be identified. The first builds up in the 1970s and early 1980s and unwinds after the onset of the debt crisis in 1982-83. The second cycle begins in the late 1980s, with net capital flows rising until 1996, and begins to unwind in 1997. Interestingly, gross new flows of private capital to emerging markets do not peak until the summer of 1997, then fall sharply with the start of the Asian crisis, and

³The latter excludes foreign direct investment and only includes primary issues of international bonds, equity, and bank loans. For more details on the differences between the two concepts, see the appendix.

Figure 3. Emerging Market Bond Spreads in the 1990s¹
(In basis points)



Source: Blooming Financial Services, L.P.
¹JP Morgan Emerging Market Bond Index (Brady Narrow) sovereign spread over the theoretical U.S. zero-coupon curve.

then drop sharply again after the Russian default and devaluation in August 1998.

These major movements in aggregate capital flows mask somewhat higher frequency cycles in emerging market asset prices, one example of which is shown in Figure 3—emerging market bond spreads, based on a basket of external-currency-denominated debt instruments for 13 large emerging markets. Two main cycles are observable in the long ebb and flow movements of capital in the 1990s: a decline in spreads in the early 1990s, which ends with a sharp reversal after the Mexican crisis; and a similar decline that starts in late 1995 and continues through 1997, with an initial reversal at the time of the Korea crisis and a much larger reversal at the time of the Russian crisis. It is notable that the spreads continued to decline well into the Asian crisis, and that the peaks in spreads in 1995 and 1997 lagged the onsets of the Mexican and Asian crises by several months. This would suggest that the sharp rises in spreads did not occur only in reaction to the initial crises themselves, but were a reaction to (or a manifestation of) spillovers to other countries in the aftermath of the initial attacks.

Trends in the Composition of Capital Flows

Since the 1970s, the share of the private sector as a *source* of capital flows to emerging markets has been high. The bust period after the debt crisis in the 1980s witnessed a temporary increase in the role of official financing, but it declined again in the 1990s (Figure 4). Where there has been remarkable change, however, is in the *recipients* of capital flows. The importance of the private sector as both an issuer of bond debt and as a recipient of foreign bank loans has risen dramatically since the mid-1980s (Table 1, top).

An equally dramatic change has occurred in the *composition of assets*. In the 1990s, flows of foreign direct investment (FDI) provided more than half of total net flows to emerging markets, and these flows appear to have been sustained quite well in the recent crisis. In addition to the rise in FDI as a share of net capital inflows, balance of payments data show a sharp increase in portfolio investment relative to bank loans, particularly since the late 1980s. This is corroborated by gross financing data, which show bond issues rising from just over 10 percent of total financing in the early 1980s to almost 50 percent in the mid-1990s, with bank loans exhibiting a corresponding decline (Table 1, bot-

Table 1. Composition of Private Capital Flows for Developing Countries¹
(In percent)

	1974-78	1979-83	1984-88	1989-93	1994-98
By sector of debtor					
Distribution of bank loans by issuer ²					
Banks	...	...	26.5	30.8	26.0
Public sector	...	...	42.7	35.2	23.8
Nonbank private sector	...	...	28.8	32.6	40.9
Distribution of bond stocks by issuer ²					
Sovereign	...	...	33.8	32.3	27.3
Other public sector	...	...	42.7	41.0	26.7
Private	...	...	23.6	26.7	46.1
By type of investment					
Distribution of net private capital flows					
Net foreign direct investment ³	37.1	47.9	68.0	33.6	72.9
Net portfolio investment ³	2.5	16.3	18.7	46.6	36.2
Portfolio debt securities liabilities					
Bank loans and net other private investment ^{3,4}	60.4	35.8	13.3	19.8	-9.2
Debt flows ⁵	64.2	48.8	15.4	50.2	15.3
Distribution of total gross private financing ⁶					
Fixed income issues	...	13.1	28.4	38.6	47.7
Equity issues	...	0.1	1.1	8.4	8.5
Loan commitments	...	86.8	70.5	53.0	43.8

Sources: IMF, *International Financial Statistics*, World Economic Outlook Database, Bonds, Equities, and Loans Database; and the Bank for International Settlements.

¹The definition of developing countries excludes countries in transition.

²Data on bank loans and bond stocks start in 1985; hence the first average is calculated from 1985-88.

³Expressed in percent of net private capital flows.

⁴Net other investment (private) is the difference between net other investment (balance of payments definition) and net external borrowing from official creditors.

⁵The sum of "Portfolio debt securities liabilities" and "Bank loans and net other private investment."

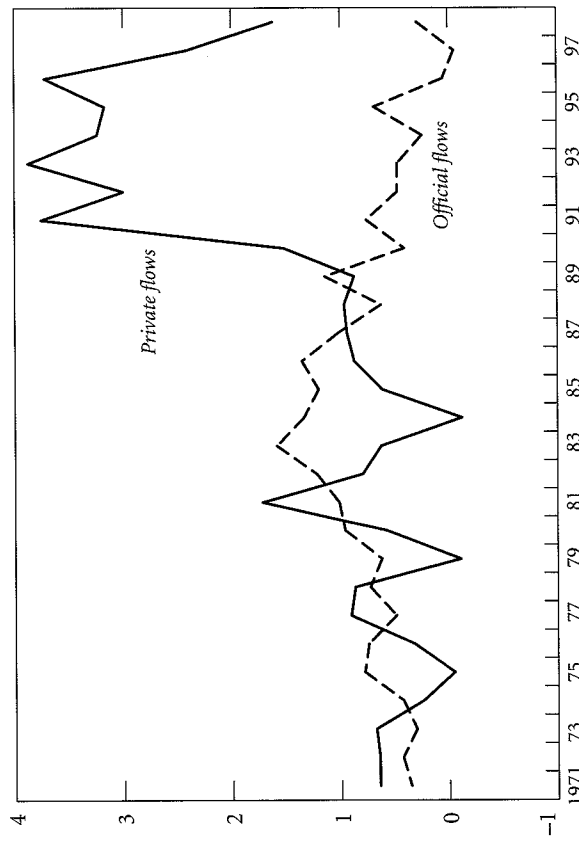
⁶Data on gross private financing start in 1980; hence, the first average is calculated from 1980-83.

tom). By the mid-1990s, bonds had replaced bank loans as the main source of external private financing in most regions of the globe (see also Appendix, Table A3). Notwithstanding the general decline in the importance of bank loans in the average level of capital flows to emerging markets, however, data from the BIS (Figure 5) show that these flows were particularly vulnerable to reversal in the Asian crisis.

While the growing role of private recipients and of FDI and bonds as the main vehicles of private financing constitute clear trends, the trend toward shorter maturities is less immediately apparent (see the chapter appendix).

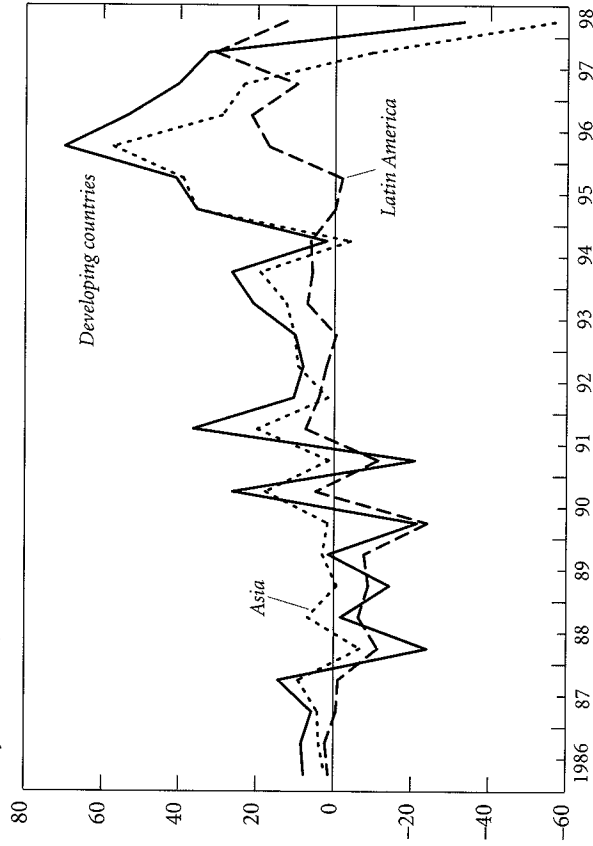
Figure 4. Developing Countries: Private and Official Capital Flows

(In percent of GDP)



Source: IMF, World Economic Outlook Database.

Figure 5. Developing Countries: Change in Bank Loans
(Billions of U.S. dollars)



Source: Bank for International Settlements.

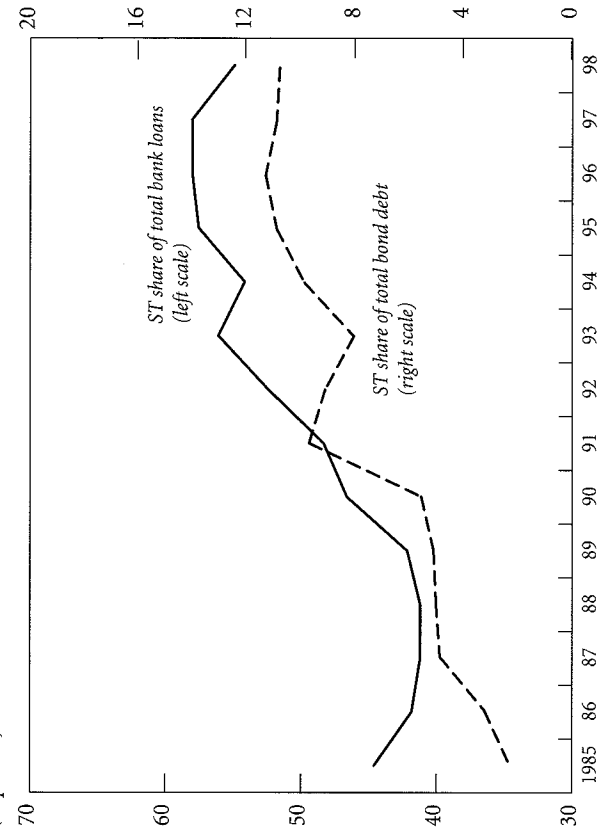
However, there is a clear shortening of (remaining) maturities for bank and bond issues during the boom phase of the 1990s, with some unwinding beginning in 1997 (Figure 6), as one would expect given the reduction in rollover rates that characterized the Asian crisis.

Capital Flow Reversals and Financial Crises

Currency crises and sharp reversals in capital flows are not new phenomena, but it is difficult to find a trend, in the incidence of currency crises—defined as a sharp devaluation or a sudden loss in reserves—that have occurred since the end of the Bretton Woods system. The evidence that capital flow reversals were larger and more frequent in the 1990s is stronger, but even here, the result is sensitive to the type of data we use to measure capital flows (see the chapter appendix for details). On the whole, it is surprisingly hard to argue that the 1990s were a period of unique capital volatility, largely because of the precedent set by the debt crisis of the 1980s and its associated capital flow reversals.

Indeed, in at least one vital respect the financial crises affecting emerging market economies in the 1990s were similar to the debt crisis of the 1980s. For the countries most severely affected, the crises involved widespread actual or

Figure 6. Developing Countries: Short-Term Debt as Share of Total Debt¹
(In percent)



Sources: IMF, Bonds, Equities, and Loans Database and Bank for International Settlements.
¹Remaining maturity concept.

potential defaults, which imposed massive externalities, in terms of cost and availability of financing, on other national liabilities—and indeed, on other countries. In the 1980s, this problem arose primarily from sovereign default by the governments of some emerging market countries, mainly in Latin America, on credits owed to syndicates of industrial country commercial banks. In the 1990s, reflecting important changes in the character of financial flows to emerging markets, potential or actual systemic defaults took more diverse forms.

- For Mexico in the *tequila crisis* and Russia in 1998, the issue concerned marketable obligations of the sovereign (the tesobonos for Mexico and the GKO for Russia), as well as obligations of important parts of the banking system.
- For Indonesia, Korea, and Thailand, the threat of widespread default on private debts issued by financial institutions and by corporate entities (rather than direct obligations of the sovereign) were the primary concern.
- For Argentina during the *tequila crisis*, systemic default was arguably somewhat less of a concern, although there were substantial pressures on the

banking system and more general concerns about the financial consequences for banks and others in the event of a break in the convertibility plan.

- For Brazil, concerns about the ability of the government to roll over its (mainly domestic) debt and about the capacity of Brazilian entities more generally to meet external payments obligations were important issues at the height of the recent crisis, although the sustainability of the exchange rate regime was also a key problem.

In both the 1980s and the 1990s, other emerging market economies that also experienced pressures for capital flow reversals, but where this problem did not reach the level of potential systemic (or “national”) default, generally tended to escape the worst effects of the crises.

In other important respects, the crises of the 1990s were somewhat different from the crises of the 1980s. First, unlike the debt crisis, the emerging market crises were not preceded by major disruptions in the world economy nor did the crises substantially affect the major industrial economies. U.S. monetary policy was tightened in 1994 prior to the Mexican crisis; but this was nothing like the tightening that occurred in 1980–81. Growth was generally sluggish in Europe and Japan for most of the decade, and Japan fell into a steep recession beginning in 1997, but this was very different from the global recession that affected all the industrial countries in the early 1980s. There were substantial fluctuations in the yen/dollar exchange rate between 1995 and 1998 but the turbulence in global financial markets pales in comparison with the wide swings in exchange rates and in real and nominal interest rates experienced in the industrial countries in the late 1970s and early 1980s. Thus, while there were important external economic developments that influenced the recent crises in emerging markets, the crises primarily affected emerging market countries and were not part of a much larger global economic turbulence. This fact has focused attention both on the fundamental weaknesses in the emerging market countries most affected by the recent crises and on possible malfunction in the international financial system in dealing with difficulties originating from emerging markets.

Second, the recent emerging market crises affected a *much larger share of world output* than earlier crises, both because relatively large countries were affected and because the number of countries that were hit was relatively high. In contrast to the debt crisis of the 1980s, which affected primarily Latin American economies, the recent crises involved Asia, Latin America, and Russia as well as some other transition economies. Moreover, initial output losses in most cases have been as large or larger than the initial output losses suffered by the countries worst hit in the debt crisis of the 1980s (see Table 2).

Table 2. Cumulative Output Loss¹ for Crises in the 1980s and 1990s
(In percent)

	After One Year [t to t+1]	After Three Years [t to t+3]	After Five Years [t to t+5]
1980s			
Mexico	-15.4	-40.2	-80.8
Argentina	-8.5	-46.5	-73.9
1990s			
Mexico	-15.3	-18.8	-21.6
Indonesia	-15.8	-61.8	-108.9
Korea	-6.4	-25.0	-40.1
Malaysia	-4.3	-32.5	-66.8
Philippines	-2.1	-12.6	-23.2
Thailand	-19.6	-55.9	-89.8

Sources: IMF, World Economic Outlook Database; and IMF staff estimates.

¹Calculated as the sum of the output gap for two, four, and six years after the crisis, starting with the crisis year. Output gap is the percentage difference between actual and potential output (which is based on a potential output growth estimate); potential output growth for Mexico in the 1990s was taken as the average output growth from 1990 to 1994 while potential output growth for the rest of the cases was taken as 4 percent.

Third, while the direct adverse effects of recent emerging market financial crises have involved a larger share of world output, the *global* systemic threat from these crises appears to have been less than the threat posed by the debt crisis of the 1980s. In particular, large exposures of commercial banks in industrial countries to potential losses in the 1980s do not appear to have a nearly equivalent counterpart in the 1990s crises, when potential losses to industrial country banks were generally a much smaller fraction of bank equity. Consequently, the emerging market crises of the 1990s posed much less of a systemic threat to the global financial system than did the earlier debt crisis⁴—with the exception of the 1998 Russian default, which, combined with the Long-Term Capital Management (LTCM) crisis, provoked a very substantive widening of risk spreads in developed financial markets as well. This development reflects the declining importance of bank credit flows in total capital flows as well as in credit flows to emerging market economies in the 1990s, as compared with in the late 1970s and early 1980s. Interestingly, the decline in importance of bank credit flows and the potential vulnerability of banks to large-scale losses undoubtedly made it more difficult and less relevant to attempt the strategy used to deal with the debt crisis in the 1980s.

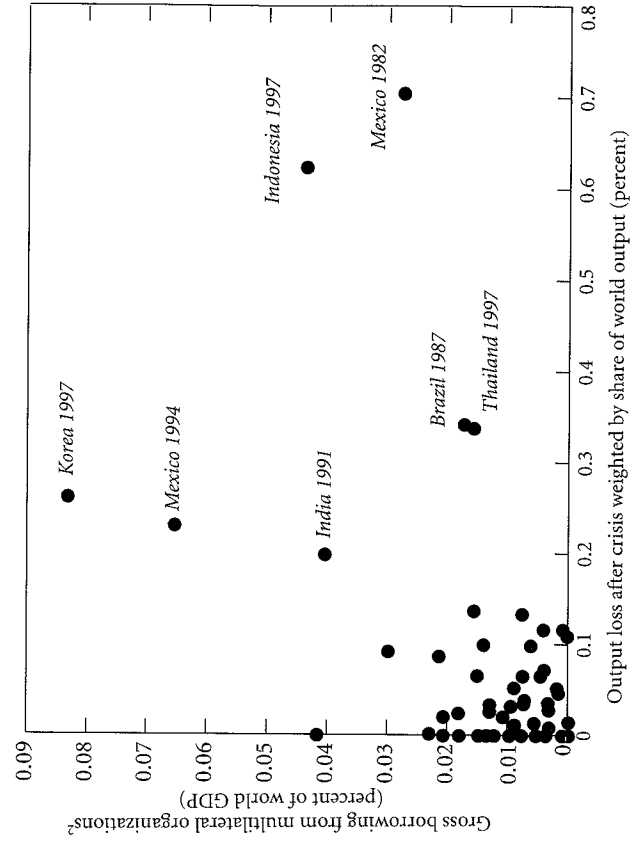
⁴The substantial difficulties of the industrial countries and general financial market turbulence in the early 1980s also contributed importantly to global systemic risks at that time.

Such a strategy featured agreements by bank syndicates on restructuring their claims on the governments of emerging market economies as the principal means for avoiding disorderly national defaults.

Fourth, the 1990s crises elicited responses from the international community that, in certain cases, involved unusually large quantities of official financial support. In contrast, in the debt crisis, official international financial support (measured relative to GDP of the affected countries) was relatively limited, and much greater reliance was placed on organizing the restructuring of private credits as the means for avoiding explicit defaults. Figure 7 plots the initial output cost and magnitude of multilateral financing for 66 crisis episodes in 17 large developing countries in 1975–98. The main insight from the figure is that the four large recent crises of 1994–97 (Mexico, Thailand, Korea, and Indonesia) constitute outliers in terms of both output cost and financing. There are only three other comparable outliers during 1975–97. (Note that the figure understates the difference in overall international official financing between the 1990s and earlier crisis episodes as it does not take into account bilateral assistance.)

Fifth, despite high initial output losses, it appears that the longer-run costs of recent emerging-market financial crises (relative to the size of the affected economies) will not be exceptionally large compared with the standard set in the 1980s debt crises, which lasted longer and led to exceptionally large cumulative losses (see Table 2 and Table A10 in the appendix). For Mexico and Argentina during the tequila crisis, it is known that access to private international capital flows was rapidly restored after the crisis passed and that, after sharp recessions in 1995, recoveries were quite vigorous, especially in comparison with the prolonged period of stagnation following the debt crisis. For the Asian crises countries (except Indonesia), access to private capital flows generally has been reestablished. Korea has started a vigorous recovery, with Thailand, Malaysia, and the Philippines lagging somewhat behind. It appears that the total cumulative output loss for Korea and Malaysia was about the same order of magnitude as that of Mexico in the 1995 tequila crisis (around one-quarter of annual GDP in the precrisis year). Output loss for Thailand and, especially, Indonesia, where the crisis was more protracted and had set in somewhat earlier, total cumulative losses were substantially larger (Table 2), although still smaller than those of the debt crisis. Thus, the benefit of the relatively large international support packages provided in the recent crises clearly did not avoid substantial costs for the countries receiving such support. Rather, the benefit would appear to lie in helping to avoid a prolonged disruption of normal international (and domestic) financial relations for these countries, thereby facilitating earlier and more vigorous recoveries from the (virtually) unavoidable initial slumps. Leaving aside

Figure 7. Gross Borrowing from Multilateral Organizations and Weighted Output Loss After Crisis, 17 Large Developing Countries¹



Sources: IMF; World Economic Outlook Database, *International Financial Statistics*; World Bank, Global Development Finance Database; and staff estimates.

Note: The 1998 numbers for Korea are from the IMF Staff Report for the Fifth Review Under the Stand-By Arrangement as of March 8, 1999, and cover loan disbursements from the International Bank for Reconstruction and Development, the International Finance Corporation, and the IMF.

¹The sample comprises Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Thailand, Egypt, South Africa, and Turkey.

²Including the IMF.

Indonesia and Russia, situations of potential national default appear to have been dealt with (if not completely resolved) more expeditiously in the emerging market crises of the 1990s than was achieved for countries that were seriously caught up in the debt crisis of the 1980s.

In summary, five related features are characteristic of the development of international capital flows since the mid-1970s:

- (1) a secular trend toward the integration of developing countries in international capital markets;
- (2) a trend toward more diverse and atomistic agents at both ends of capital flows—bondholders rather than banks in the creditor countries, private agents rather than governments in the debtor countries;

- (3) long booms ending in abrupt reversals, which exhibit larger repercussions across emerging markets in the 1990s as compared with earlier decades;
- (4) a continuing phenomenon of financial crises periodically spreading across a number of emerging market economies, with very high costs in terms of lost economic output and all of the attendant damage that such losses imply; and
- (5) little indication that, even with the relatively large official support packages provided in some recent crises, it has been possible to avoid substantial short-run costs when crises do occur. There is some suggestion, however, that by helping to avoid a prolonged disruption of normal international financial relations, recovery may be abetted and longer-run costs may be reduced.

Excepting substantial improvements in other aspects of the architecture of the international financial system, these trends do not plausibly suggest that the problems surrounding unstable capital flows to emerging markets, and management of financial crises such as instability engenders, will become less pressing in the future than they have been in the past. Instead, the secular trend in capital flows to emerging markets, and the fact that much of these flows are denominated in foreign currencies, may imply increasing vulnerability on the part of these countries to sharp capital flow reversals. Moreover, the trend toward more diverse and atomistic providers and recipients of capital is likely to create coordination problems which make both the prevention and the resolution of crises more difficult.

Explaining the Instability of Capital Flows

The instability of international capital flows in the 1990s has revived old debates about whether the blame for crises should be put on national policymakers, adverse shocks, or some failure in the working of the international financial system. On the one hand, there is no shortage of domestic policy failures and adverse shocks to which the capital account instability of the 1990s can be attributed. On the other hand, there is also clear evidence of a systemic component to the instability of international capital flows in the 1990s. International linkages created contagion across emerging economies that were distant and dissimilar, and this contagion did not spare, in some cases, countries with sound fundamentals. To many it appears obvious that the international financial system has exhibited a tendency to amplify and propagate the effects of policy failures and shocks, rather than to mitigate or absorb

them. Even for those who do not entirely share this view, the large-scale losses that countries have suffered and the widespread effects of recent crises across emerging market countries have raised questions about whether the international system can be improved in order to reduce the likelihood and severity of such crises in the future.

Domestic Policy Failures and Adverse Shocks

The road to the international financial crises of the 1990s was paved by fundamental weaknesses in the form of domestic policy failures (including regulatory failures and implicit guarantees) and compounded by adverse external shocks. One lesson that had to be relearned in the 1990s was that the range of fundamental weaknesses that must be considered when assessing country risks is very wide. Risk factors are not limited to the traditional macroeconomic imbalances, such as overvalued currencies, current account, or fiscal deficits; they also include microeconomic financial fragilities, and their implications for default risk in the corporate and banking sectors.⁵

In some cases, such as Mexico in 1994 or Russia in 1998, macroeconomic imbalances were a major driving force behind the crisis, along with adverse internal and external shocks. In Asia, macroeconomic problems, though less clearly due to unsustainable policies and less acute, were not completely absent either. During the 1990s, several Asian currencies, most notably the Thai baht, experienced some appreciation in their real exchange rates. This may help to explain why by summer 1997, sizable current account deficits had emerged in Malaysia and Thailand and, to a lesser extent, in Indonesia and the Philippines. Both a real exchange rate appreciation and widening current account deficits resulted despite generally high rates of domestic savings and were, at least in part, a reflection of pressures from capital inflows seeking higher returns than generally seemed available in the industrial countries. Furthermore, the sharp appreciation in the U.S. dollar relative to the yen and the European currencies in the two years leading up the crisis led to a worsening of cost-competitiveness in the Asian countries whose currencies were effectively pegged to the dollar. These exchange rate developments were compounded by sector-specific shocks such as a fall in the demand for semiconductors in 1996 and adverse terms of trade fluctuations which caused a significant slowdown of export growth in Southeast Asian countries between 1996 and 1997.

⁵This feature, while more prevalent in the 1990s, is not new. Chile in 1979–82 gave an example of a crisis where financial fragility played an important role, alongside macroeconomic imbalances (see Milesi-Ferretti and Razin, 1996).

Microeconomic financial fragilities were also prevalent in many of the crisis-hit countries. This point applies not just to the Asian crisis. Analyses of the 1994–95 Mexican crisis, while focusing on macroeconomic imbalances as the proximate source of financial difficulties, point to the weakness of the banking system as one important reason why the government was unable to defend the peso when it came under attack. Financial fragility is emphasized more forcefully in fundamentals-based explanations of the Asian crisis because it is more difficult, in this case, to account for the magnitude of the crisis mainly by pointing to macroeconomic imbalances. Asian economies gave a number of signs of insolvency in the corporate and banking sectors prior to the crisis. For example, the rate of nonperforming loans before the crisis was above 15 percent in Thailand, Indonesia, Korea, and Malaysia. In Korea, 8 of the largest 30 conglomerates were, in reality or by law, bankrupt by mid-1997 (Corsetti, Pesenti, and Roubini, 1998).

The reasons why an unusually large fraction of capital inflows was directed to insolvent projects prior to the Asian crises have been widely discussed elsewhere. They generally stress the moral hazard generated by the combination of implicit bailout guarantees given by governments to domestic projects, financial liberalization that allowed, in some countries, the entry of a large number of new competitors into the banking sector, and poor banking supervision.⁶ Capital inflows also contributed to bidding up asset prices, which in turn enhanced the borrowing capacity of domestic agents by increasing the apparent value of their collateral but also their vulnerability to an abrupt fall in asset prices. These problems were aggravated by the operation of exchange rate bands and governments' stated commitment to maintaining them, which meant that there was little perceived exchange rate risk to deter capital inflows in the form of domestic borrowing in international currencies.

Systemic Fragilities

It is difficult, however, to argue that domestic policy failures and adverse shocks completely explain both the massive buildup of capital flows to emerging market economies on increasingly attractive terms until summer 1997 and the persistence and extent of the subsequent widespread financial crises. The fundamental deficiencies that are now widely diagnosed as contributing to recent crises were not entirely unrecognized before the crises erupted. Granted that predicting the timing of crises is difficult even when vulnerabilities are recognized, the fact of a rising tide of finance on increasingly attractive terms up until

⁶See IMF (1997b, 1998a, and 1998b); Lane and others (1999); McKinnon and Pill (1997); and Krugman (1998).

the crisis hit is difficult to reconcile with the image of global financial markets entirely guided by fully rational and well-informed investors. At a minimum, it is suggestive of the relevance of bubbles, manias, panics, and other anomalies.⁷

Market participants themselves generally report that shifts in "market sentiment" play an important role in driving developments in the capital markets, especially under circumstances of an evolving crisis. While events signaling possible changes in the fundamentals clearly play some role in triggering changes in market sentiment, this is not all that is going on. The internal dynamics of the operation of global capital markets are also important in the evolution of crises.⁸

The view that there is a significant systemic component to the instability of international capital flows is also strongly supported by the contagion of financial crises across countries. Such contagion appeared in the tequila crisis following the Mexican peso devaluation in December 1994, which spread effects across several Latin American countries. It appeared more broadly in October 1997 following the initial attack on the Hong Kong dollar peg. And it engulfed virtually all emerging market economies in the turbulence during August–October 1998 following Russia's devaluation and default and the general fragility of international financial markets apparent in the LTCM crisis. The different explanations that have been proposed for contagion all suggest that this phenomenon is, to some extent, an intrinsic feature of a globalized economy (see Box 1). First, trade and international financial linkages, by which crises can spread from one country to another via a kind of "domino effect," have been magnified by the increasing international integration of goods and financial markets. Second, international investors, faced with the task of analyzing credit risk in larger countries, tend to classify emerging economies in wide regional groups and do not necessarily pay attention, in times of crisis,

⁷Berg and Pattillo (1999) find that fundamentals-based models would not, in general, have been very useful in predicting the Asian crises on the basis of data available at the beginning of 1997, except possibly in the case of Thailand. Market participants, moreover, do not appear to have been any better than econometricians at predicting crises, as shown by the optimistic views that generally prevailed concerning Asian emerging markets well into 1997 (despite information about banking problems in several countries). The difficulty in predicting financial crises can be interpreted as (weak) evidence that, in addition to observable fundamentals, other factors must have been at work in triggering crises.

⁸The IMF's *International Capital Markets* reports of April 1993 and September 1998 go into considerable detail to describe the internal dynamics of capital market developments in connection with the ERM crisis of 1992 and the Asian crisis of 1997–98, respectively. The specific role of hedge funds in the early phases of the Asian crisis is taken up in Eichengreen and Mathieson (1998). Capital market dynamics in the wake of the Russian and LTCM crises are taken up in the *World Economic Outlook and International Capital Markets Interim Assessment* (IMF, 1998c). It is clear from these descriptions that a considerable variety of (sometimes complex and surprising) mechanisms have operated to spread contagion through international financial markets during recent crises.

