This chapter is from a prepublication version of Global Development Finance 1999. The pagination here will be different from the final book and there may be other minor editorial changes in the final version which will be available in April 1999.

2

Flows from International Capital Markets Decline

THE SURPRISING SEQUENCE OF CRISES IN emerging markets has reduced access to international capital flows to all but a handful of countries. The costs of the crisis in terms of forgone growth and social dislocation in the affected countries have been immense, and international investors have incurred large losses. In the year following the baht devaluation in July 1997, the decline in flows was largely limited to East Asia. But, as the deflationary effect of the massive import collapse in Asia became increasingly apparent, and as Russia defaulted, confidence faltered in emerging markets everywhere. Brazil, Colombia, Ecuador, Turkey, and South Africa were among the last to feel the full force of the storm. Brazil's situation remains highly uncertain, and it is impossible to predict the short-term evolution of capital flows with any degree of confidence at present. Even so, three broad trends are apparent:

- First, the Russian episode marked a new phase in the financial crisis. Investors deserted emerging market instruments for safer and more liquid assets, and they liquidated holdings to rebuild balance sheets damaged by the large writedown of Russian obligations. Debt commitments (bonds and syndicated loans) to developing countries dropped to $12 billion a month in the second half of 1998, compared with $18 billion a month in the first half. Secondary market spreads soared, and access became restricted predominantly to prime sovereign borrowers, while lending to corporate borrowers was cut in half. In 1998 private capital flows to developing countries from all sources fell to $227 billion, from $299 billion in 1997. Foreign direct investment held up, but flows from capital markets (bonds, bank loans, and portfolio equity) collapsed to $72 billion in 1998, from $136 billion in 1997.
- Second, factors driving the 1990s surge in capital flows to developing countries remain largely in place, including improved policies and large differences in factor endowments. A return of capital flows to near their precrisis level is thus likely in the medium term. But the near-term prospects for capital flows will depend on the recovery in world economic activity, and will be conditioned by the evolution of the situation in Brazil, among other factors. The crisis has underscored the risks associated with investing in emerging markets, including the possibility of large losses of principal, as happened in Russia. It may also encourage some countries to delay capital account liberalization measures, or restrict capital outflows. The most likely scenario is for capital flows to remain muted over the next year, although some recovery is likely from the very depressed levels at present. Capital flows may recover fastest in countries that were the first to experience the downturn, and that have shown the quickest progress on the reform front (Korea and Thailand).
- Third, many high-performing, low-income countries have come to rely on capital market financing in recent years, although most private capital flows have gone to middle-income countries. Flows to these low-income countries (concentrated in Sub-Saharan Africa and South Asia) fell to $5 billion in 1998, from $6 billion in 1997. The flows had financed 5–7 percent of domestic investment during 1995–97. Given the limits on raising domestic savings in low-

income countries, flows from capital markets will probably need to increase significantly over the next few years for the high rates of growth to be sustained.

Flows from international capital markets during the financial crisis

The financial crisis has severely reduced developing countries' access to the international capital markets. Net long-term flows from bonds, bank lending, and portfolio equity fell from the 1997 level of $136 billion to $72 billion in 1998, the lowest level since 1992 (table 2.1; figure 2.1).

Box 2.1 describes some of the limitations of the data on net long-term flows. Most importantly, net long-term flows provide only a limited picture of financial transactions between developing countries and the rest of the world because of the growing importance of capital outflows (box 2.2). In 1997, for example, the $30 billion increase in total net long-term flows to developing countries was offset by higher capital outflows, so that net external finance fell (table 2.2).

Increases in capital outflows played a more important role in reducing external finance to the East Asian crisis countries in 1997 than did declines in long-term inflows. Net long-term inflows to Indonesia, Korea, Malaysia, the Philippines, and Thailand fell by $15 billion, from $67 billion in 1996 to $52 billion in 1997 (table 2.3), a modest decline compared to these countries' GDP of almost $1 trillion. But net short-term flows dropped

Table 2.1 Net long-term resource flows to developing countries, 1990–98
(billions of U.S. dollars)

	1990	1991	1992	1993	1994	1995	1996	1997	1998[a]
Net long-term resource flows	100.8	123.1	152.3	220.2	223.6	254.9	308.1	338.1	275.0
Official flows	56.9	62.6	54.0	53.3	45.5	53.4	32.2	39.1	47.9
Private flows	43.9	60.5	98.3	167.0	178.1	201.5	275.9	299.0	227.1
From international capital markets	19.4	26.2	52.2	100.0	89.6	96.1	149.5	135.5	72.1
Private debt flows	15.7	18.6	38.1	49.0	54.4	60.0	100.3	105.3	58.0
Commercial banks	3.2	4.8	16.3	3.3	13.9	32.4	43.7	60.1	25.1
Bonds	1.2	10.8	11.1	37.0	36.7	26.6	53.5	42.6	30.2
Others	11.4	3.0	10.7	8.6	3.7	1.0	3.0	2.6	2.7
Portfolio equity flows	3.7	7.6	14.1	51.0	35.2	36.1	49.2	30.2	14.1
Foreign direct investment	24.5	34.4	46.1	67.0	88.5	105.4	126.4	163.4	155.0

Note: Net long-term resource flows are defined as net liability transactions of original maturity of greater than one year (see box 2.1).Although the Republic of Korea is a high-income country, it is included in the developing country aggregate since it is a borrower from theWorld Bank.
a. Preliminary.
Source: World Bank Debtor Reporting System.

Box 2.1 Limitations of net long-term flows data

Data on net long-term flows reflect liability transactions only (gross disbursements minus repayments). Capital outflows (such as net lending by developing country residents abroad), short-term flows, and net use of IMF credit are not included. This results in a substantial difference between net long-term flows as shown in *Global Development Finance* and net external finance as shown in the balance of payments.[1] Also, the data are available only on an annual basis, although data on certain components (for example, loan commitments and bond issues) are available at higher frequency. The quality of the most recent year estimates varies enormously by category: fairly accurate information is available from market sources on gross disbursements from bond markets and commercial banks; debt repayments are calculated from information on terms, although actual payments may vary; and data on portfolio equity flows are particularly difficult to estimate. While data on international equity issues are readily available, estimates of direct foreign purchases in developing-country stock markets are based on reports from exchanges that differ in accuracy and coverage.

Box 2.2 Estimates of capital outflows

It is extraordinarily difficult to estimate the size of capital outflows. Some of these transactions are illicit, and many countries lack the administrative machinery required to record even legal transactions. While partial information is available (for example, the Bank for International Settlements [BIS] collects data on changes in developing country residents' deposits in BIS-reporting banks), comprehensive data on outflows do not exist. One common approach is to calculate capital outflows as a residual from the balance of payments accounts, by subtracting recorded liability transactions from net external finance (the current account balance plus reserves changes). This approach is not ideal, as genuine errors in recording and valuation effects due to exchange rate changes may affect the measured level of capital outflows.

By this measurement, capital outflows increased substantially during the 1990s, from $56 billion in 1991 to $249 billion in 1997 when the crisis in Asia erupted, and moderated to $183 billion in 1998 (table 2.2). Over the 1990s, capital outflows rose, caused in part by the liberalization of capital accounts in emerging markets.[2] Also, some private sector borrowing may have been used for external lending, which would account for a portion of both the rise in net long-term flows and in capital outflows.

Estimates of capital outflows from developing countries are substantial and vary widely (see table). The cumulated capital outflows have been estimated to be as large as 80–90 percent of GDP for some geographical regions, and 30 percent for developing countries as a group. Studies have also shown substantial outflows from individual countries (for example, Brazil, Mexico, and Russia).

Researchers have tried to identify a subset of capital outflow transactions referred to as "capital flight." Cuddington (1986) estimates capital flight as the sum of reported short-term capital exports by the nonbank private sector plus errors and omissions (thought to capture unrecorded short-term capital flows). Dooley (1986, 1988) seeks to measure the stock of foreign assets held by the private sector that does not generate income reported to domestic authorities. Estimates of capital flight typically are smaller than the estimates of capital outflows shown above, but still significant. For example, Schineller (1997) finds that the Dooley method would generate flows of capital flight from developing countries of between 0 and 4 percent of GDP per year from 1978 to 1987, before turning negative in the early 1990s (indicating that residents repatriated short-term funds held abroad).

Estimates of capital outflows

Source	Region/country	Data covered	Amount
Chang, et al. 1997	Sub-Saharan Africa	Cumulative 1971–90	80% of 1990 GDP
	Middle East and North Africa	Cumulative 1971–90	90% of 1990 GDP
Schineller 1997	Latin America	Average 1978–93	1.4% of GNP per year
	Asia	Average 1978–93	0.8% of GNP per year
Claessens 1997	All developing countries	Average 1971–92	$20 billion per year
Collier, et al. 1998	East Asia	Flow in 1997	$80 billion
	Sub-Saharan Africa	Cumulative to 1990	39% of private wealth
Institute of International Finance 1998	All emerging markets	Flow in 1997	$161 billion
World Bank 1993	All developing countries	Cumulative to 1991	30% of GDP
	East Asia	Cumulative to 1991	20% of GDP
	Sub-Saharan Africa	Cumulative to 1991	90% of GDP
Lopez 1998	Mexico	Cumulative 1973–91	$27 billion
Pinheiro 1998	Brazil	Cumulative 1986–94	$25 billion
Tikhomirov 1997	Russia	Cumulative 1991–95	$60 billion
Loukine 1998	Russia	1991–95	$125 billion

by $19 billion, and capital outflows (including errors and omissions) increased by $23 billion in 1997, so net external finance fell by $57 billion (equivalent to 5 percent of these countries' GDP), and remained roughly at that level in 1998. Note that these are annual data: expressed as a share of GDP, the fall in net long-term inflows and the rise in capital outflows in the second half of 1997 compared to the first half were much larger.

Trends in debt flows

The decline in long-term debt flows to developing countries during the financial crisis has been marked by discrete stages. The decline started in

Table 2.2 Balance of payments of developing countries, 1991–98
(billions of U.S. dollars)

	1991	1992	1995	1996	1997	1998
Net long-term resource flows	123.1	152.3	254.9	308.1	338.1	275.0
Net short-term flows	22.0	37.6	64.2	30.7	21.6	10.2
Total net flows (liabilities)	145.1	189.9	319.1	338.8	359.7	285.2
Net external finance	89.0	108.7	183.1	169.3	110.8	102.1
Current account deficit	51.2	67.7	87.3	72.2	84.4	53.6
Change in reserves	–37.8	–41.0	–95.8	–97.1	–26.4	–48.5
Capital outflows and E&O[a]	–56.1	–81.2	–136.0	–169.5	–248.9	–183.1

a. Errors and omissions.
Source: World Bank.

Table 2.3 Balance of payments of East Asia Crisis-5, 1996–98
(billions of U.S. dollars)

	1996	1997	1998
Net long-term resource flows	67.3	52.1	38.9
Net short-term flows	16.0	–3.2	–6.1
Total net flows (liabilities)	83.3	48.9	32.8
Net external finance	40.8	–16.2	–19.9
Current account deficit[a]	55.8	19.7	–66.1
Change in reserves	15.0	35.9	–46.2
Capital outflows and E&O[b]	–42.5	–65.1	–52.7

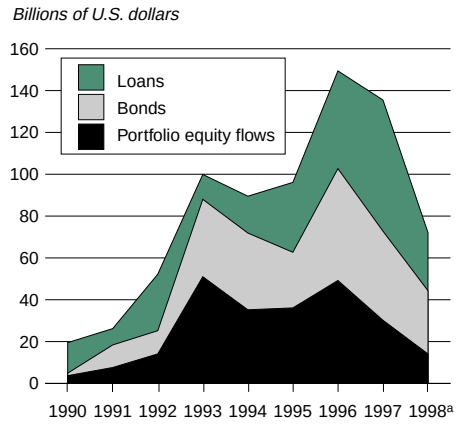
Note: East Asia Crisis-5 is Indonesia, the Republic of Korea, Malaysia, the Philippines, and Thailand.
a. Negative sign indicates current account surplus.
b. Errors and omissions.
Source: World Bank.

East Asia with the devaluation of the Thai baht in July 1997. The recession in the East Asian countries and the extent of investor withdrawal were worsened by the simultaneous contraction of most economies in the region. The shift toward restrictive macroeconomic policies in Japan during 1996–97 reduced demand for East Asian exports, requiring even greater import compression (and output decline) to adjust to reduced external finance. And the macroeconomic stance of the East Asian countries at the onset of the crisis became overly restrictive in light of the severity of the recession in the region (IMF 1999).

Debt flows to most other developing countries continued to increase in the third quarter of 1997, and then fell following the drop in global equities prices in late October. Flows began to recover in the first quarter of 1998. Investors began to differentiate more clearly among risks, and flows to Latin American countries started to rise. However, capital market financing began to decline in April and plummeted in August with the Russian debt moratorium, which marked a sharp change in investors' perception of the risks in emerging markets. Average bond issues and loan commitments dropped to $12 billion per month in the second half of 1998, compared with $18 billion in the first half and $25 billion in 1997. Financing dropped sharply after August in all regions except the Middle East and North Africa, and East Asia and Pacific (table 2.4). The relatively more affluent oil exporters in the region with substantial external assets were able to borrow to compensate for the drop in the price of oil, and China retained access to international capital markets, reflecting its low external indebtedness, abundant reserves, and current account surplus.

Secondary market spreads. Secondary market spreads on sovereign bonds followed the same pat-

Figure 2.1 International capital market flows hit their lowest point since 1992



a. Preliminary.
Source: World Bank Debtor Reporting System.

Box 2.3 The transmission of crises and the role of contagion

Crises in one developing country often spread to others: for example, in Latin America in the 1980s (Edwards 1989), in the aftermath of the Mexican crisis in 1995 (Calvo, Goldstein, and Hochreiter 1996), in East Asia in July 1997, and globally in October 1997 and August 1998. Financial disturbances also spread from the United States to Europe in September 1987 (King and Whadwhani 1990) and in Europe in 1992 (Eichengreen and Wyplosz 1993).

Various factors may account for crises spreading across countries. First, simultaneous crises may be triggered by a change in the external environment (for example, the spike in international interest rates during 1981–82). Second, crises can spread through trade and financial linkages (Eichengreen, Rose, and Wyplosz 1996; and Masson 1998*)*. Portfolio reshuffling by investors in response to developments in one country may affect another country's access to flows. For example, investors that have suffered large losses on leveraged portfolios may have to sell other assets to meet collateral requirements. Third, similarity of fundamentals with affected countries, such as geographical proximity or common development strategies (as in Latin America in the 1980s and Southeast Asia in 1997), can lead to crises spreading.

Finally, crises may spread for reasons that cannot be accounted for by fundamentals. This is a case of pure "contagion," and is usually attributed to herd behavior by investors. For example, if investors share some global information, but each has access to specific local information, an unusually strong reaction to global news by one investor can be read by others as an indication that the particular investor has privileged information, leading them to follow. Another explanation for contagion is that fund managers tend to be compensated based on comparisons with other managers ("benchmarks"). This creates strong incentives to follow each other's decisions. If foreign investors have less information than domestic investors, they may simply react to market performance—buying when prices rise and selling when prices fall, thus accentuating market swings (Brennan and Cao 1997). Foreign investors may also lump dissimilar markets together into a single "asset class"; the decision to sell one country's assets can thus trigger a sequence of transactions in other markets (see Calvo and Mendoza 1996).

Evidence has steadily accumulated about the existence of these different forms of crisis transmission. A speculative attack elsewhere in the world was found to increase the probability of a domestic currency crisis by about 8 percentage points in a sample of 20 Organisation for Economic Co-operation and Development (OECD) countries (Eichengreen, Rose, and Wyplosz 1996). There is substantial evidence that trade linkages are an important reason for the spread of crises (Eichengreen and Rose 1998; Glick and Rose 1998; and Kumar, Moorthy, and Perraudin 1998). Crises have spread owing to similarities in fundamentals (Sachs, Tornell, and Velasco 1996). Burki and Edwards (1995) and Calvo (1996) emphasize the selective nature of contagion effects.

A number of studies (but not all)[3] confirm the existence of contagion effects (Cashin, Kumar, and McDermott 1995; Valdes 1996; Frankel and Schmukler 1996; Calvo and Reinhart 1997). Evidence from the U.S. stock market suggests that institutional investors react to market performance, and that trading patterns are correlated among investors (Sias and Starks 1997), and U.S. investors in foreign markets appear to react similarly (Froot, O'Connell, and Seasholes 1998). Choe, Kho, and Stulz (1998) find evidence of herding (defined as a tendency for investors from the same country to buy or sell on the same day) by foreign investors in Korea before the crisis, but that the market adjusted quickly and efficiently.

tern as flows. In October 1997 average spreads on Brady bonds jumped from a historic low of 350 basis points at the end of September to 600 basis points by the end of October (figure 2.2). Spreads declined in the first four months of 1998, reflecting greater differentiation of risk by investors. For example, spreads on Indonesia's eurobonds rose during this period owing to increased economic and political turmoil, while the decline in Thailand reflected the notable improvement in policies (table 2.5). However, spreads began to rise in April and then skyrocketed with the Russian debt moratorium in August, when spreads on Brady bonds increased to almost triple the level of October 1997, comparable to the heights reached in January 1995. The increase in spreads on sovereign eurobonds was greatest in Russia, Indonesia, and Brazil.

Developments following the Russian debt moratorium. The Russian debt moratorium greatly

Table 2.4 Average monthly capital market financing, 1997–98
(billions of U.S. dollars)

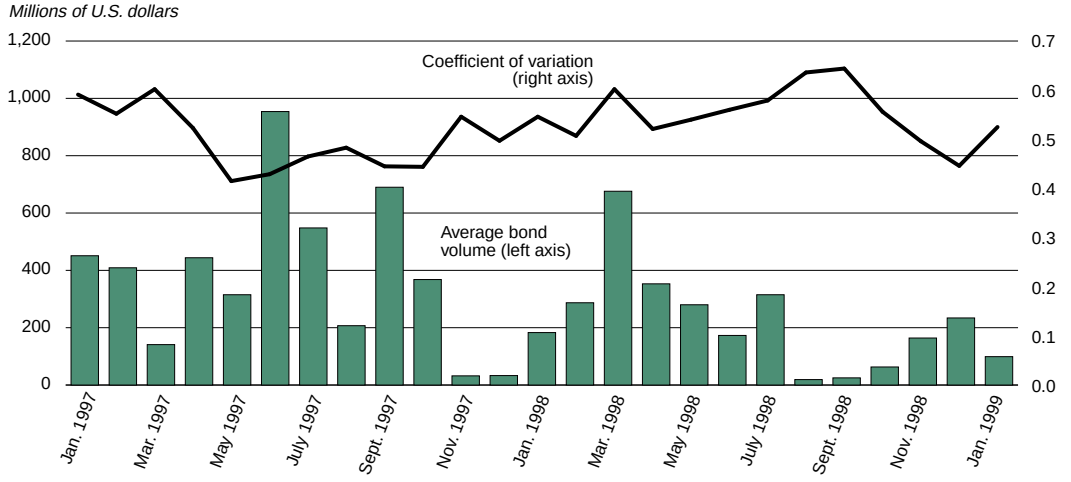
	1997		1998	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.
All developing countries	24.2	25.7	18.1	11.8
Sub-Saharan Africa	0.5	1.1	0.5	0.3
East Asia and Pacific	8.4	6.7	2.6	2.5
South Asia	0.9	1.0	0.4	0.1
Europe and Central Asia	4.1	4.2	4.1	2.8
Latin America and Caribbean	9.4	10.3	9.7	5.1
Middle East and North Africa	0.9	2.4	0.9	1.1

Note: Data reflect syndicated loan commitments plus bond issues.
Source: Euromoney Bondware/Loanware.

affected investors' views of emerging markets, as shown by changes in the dispersion across countries of secondary market spreads on sovereign bonds. The dispersion of spreads remained high in the immediate aftermath of the moratorium (figure 2.2). Investors' perception of the riskiness of most emerging markets rose, but some countries (particularly in Latin America) were affected more than others. However, in the months following the Russian moratorium, the coefficient of variation of spreads fell sharply, while bond volumes remained low. Investors appeared to retreat across a broad front; in the terms discussed in box 2.2, countries were affected by pure contagion. Interestingly, a similar failure to differentiate was observed during the period of rapidly declining spreads and high bond volumes in the first half of 1997. The sharp increase in the dispersion of spreads from May 1997 to August 1998 marked a departure from the lack of differentiation and market euphoria that characterized the first few months of 1997.

The decline in developing countries' participation in international capital markets since the Russian debt moratorium reflects several factors. The huge losses investors incurred (largely through the use of Russian treasury securities as collateral for highly leveraged derivatives transactions rather than actual investments in the Russian stock and bond markets—see chapter annex), have increased perceptions of the riskiness of emerging market investments. The lack of a rescue package heightened investors' fears over the potential for loss on other emerging market investments. The losses suffered in Russia led to a sell-off of other emerging market debt instruments because highly leveraged speculators sold emerging market bonds to meet collateral requirements. Investors' reactions to the Russian crisis were more severe than during the 1997 East Asian crisis, because the events in Russia coincided with increased concerns over the slowing of the global economy (see chapter 1).

Figure 2.2 Dispersion of secondary market spreads increased before the Russian crisis



Note: Figures are based on a sample of major borrowers.
Sources: World Bank and Euromoney Bondware/Loanware.

Table 2.5 Stock market spreads on sovereign bonds, 1997–98
(change in basis points from beginning to end of period)

Country	1997	1998			
	July–Dec.	Jan.–Apr.	May–July	Aug.–Sept.	Oct.–Dec.
Indonesia	357	51	211	901	–749
Korea, Rep. of	—	—	102	317	–444
China	46	–6	29	50	–35
Philippines	271	–109	73	0	–251
Thailand	388	–222	147	205	–377
Argentina	195	–89	–52	407	–93
Brazil	172	–136	26	968	–749
Mexico	89	–47	41	349	–190
Venezuela	133	10	345	345	–140
Hungary	68	–57	–9	26	–23
Poland	32	–11	0	95	–68
Russian Federation	170	–75	1,161	5,672	–508

— Not available.
Source: Bloomberg.

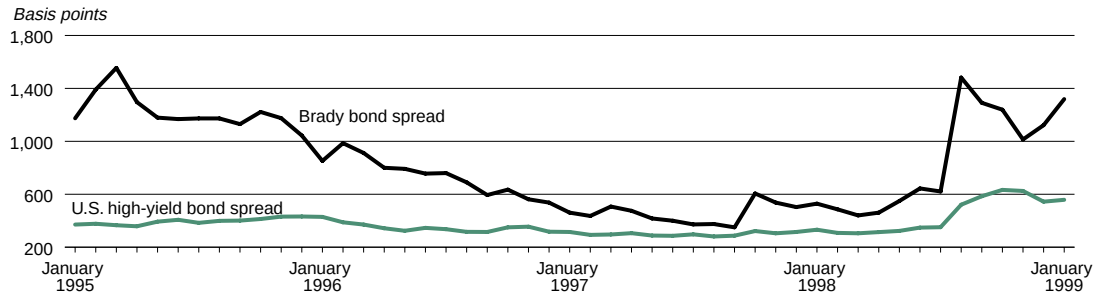
Investors' reduced willingness to assume risk was also reflected in a flight to quality in industrial country markets, as investors deserted high-yield bonds in general for safer and more liquid assets. Spreads over Treasuries on high-yield corporate bonds in the United States rose from 275 basis points in early August to 670 basis points in October (figure 2.3), a level not seen since the recession during 1990–91, and yields on U.S. Treasuries fell by 112 basis points from mid-August to the end of September. Europe's fledgling junk bond market also sustained large price declines (Atlas 1998). Investors' preference for liquidity in a time of market turbulence was even reflected in increased demand for newly issued ("on the run") Treasury bills compared to the older ("off the run") issues, which are equally safe, but slightly less liquid (Greenspan 1998a).

The periods of investor retreat from emerging markets followed by recovery of capital flows were accentuated by the tendency of the more creditworthy developing country borrowers to drop out of the market as borrowing costs rose, and then to re-enter as rates fell. Borrowers were concerned about establishing new benchmarks at times of very high spreads. A few borrowers introduced innovative products designed to tap the market without locking in the current high rates. Argentina, Colombia, the Brazilian development bank BNDES, and the Mexican oil company Pemex issued bonds with floating interest rates that change based on the secondary market spread on a benchmark bond.

The increase in risk perceptions did not affect all borrowers equally. More creditworthy developing country borrowers, particularly from the public sector, could continue to access the market, albeit at higher spreads. But the less creditworthy corporate borrowers experienced a sharp withdrawal of external finance. Debt commitments to public sector borrowers fell from $134 billion in 1997 to $102 billion in 1998, while commitments to private sector borrowers were cut by more than half (table 2.6). This trend was accentuated after the Russian debt moratorium: debt commitments to corporate borrowers fell to only $17 billion in the last four months of 1998, or about half the monthly rate during the first eight months of the year.

Following the Russian debt moratorium, syndicated bank lending initially remained resilient. In August and September bond volumes dropped to

Figure 2.3 Spreads on Brady bonds and U.S. high-yield bonds jumped after the Russian crisis



Sources: Bloomberg and World Bank.

Table 2.6 Debt commitments to developing countries, by sector, 1996–98
(billions of U.S. dollars)

	1996	1997	1998
Private sector	123.3	171.9	82.1
Bank lending	83.1	126.2	64.5
Bond financing	40.2	45.6	17.6
Public sector	107.3	134.3	101.6
Bank lending	48.2	64.0	45.1
Bond financing	59.0	70.3	56.5

Note: Debt commitments are defined as syndicated loan commitments plus bond issues.
Source: Euromoney Bondware/Loanware.

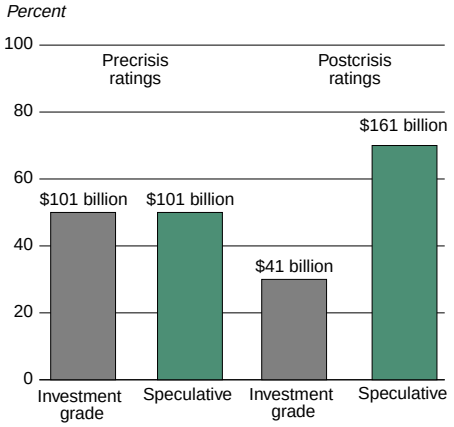
only $500 million per month, compared to $9 billion a month in the first half of 1998, while bank loans were $11 billion per month, slightly higher than the rate of the first half. Bond markets reacted to the downgrading by the major rating agencies since mid-1997 of 15 developing countries, 6 of which have switched from investment grade to speculative. Countries now rated below investment grade accounted for more than three-fourths of total commitments before the crisis (figure 2.4). These downgrades limit bond investments by institutional investors who are restricted by regulation to investment-grade instruments. Many institutional investors in the United States are likely to eventually sell their below-investment-grade securities, so without an improvement in ratings the bond market may experience continued selling pressure for some time to come.

The provision of new long-term bank loans may be more resilient than bond issues during times of financial stress. This may reflect the desire to maintain long-standing relationships and the availability of information on borrowers, which allows banks to differentiate more easily among risk classes. However, the same access to information may lead banks to withdraw short-term credit from the riskiest clients. By contrast, the arms-length nature of bond financing and bondholders' more limited access to information can result in a drying up of the market when risk perceptions increase. However, syndicated loan commitments also dropped sharply in the last three months of the year, probably reflecting the banks' desire to improve their balance sheets before issuing end-of-year reports.

The evolution of primary spreads in the bond and loan markets also exhibited major differences. The average loan spread rose by about 30 basis points between the second half of 1997 and the second half of 1998, while the average bond spread jumped by more than 350 basis points (table 2.7). The data on average primary spreads reflect both the rise in spreads to individual borrowers and changes in the composition of borrowers, particularly the exclusion of more risky borrowers. Primary bond spreads facing sovereign borrowers rose by hundreds of basis points after the Russian debt moratorium (figure 2.5).

Recovery of flows. Debt flows began a modest recovery in October 1998, supported by the commitment of greater resources to the IMF, the organization of the Brazilian rescue package, cuts in policy interest rates in the United States and Europe, the adoption of large fiscal stimulus and fi-

Figure 2.4 Share of precrisis flows of major emerging markets with bond ratings



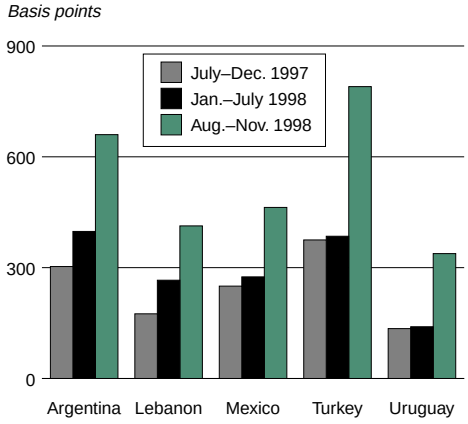
Note: Left two columns show bond issues and syndicated loan commitments from January 1996 to June 1997 to developing countries with credit ratings, broken down by investment grade versus speculative. Right two columns break out the same, precrisis flows data according to countries after the crisis.
Sources: World Bank and Euromoney Bondware/Loanware.

Table 2.7 Average primary market spreads, 1997–98
(basis points)

	1997		1998	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Loans	130	141	183	171
Bonds	247	264	361	616

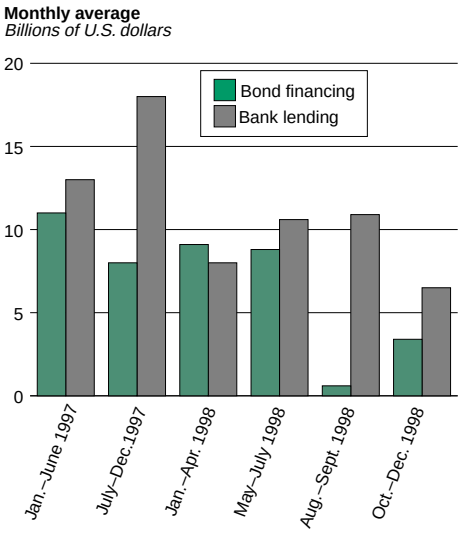
Sources: World Bank and Euromoney Bondware/Loanware.

Figure 2.5 Primary market spreads on sovereign bond issues rose in 1998



Sources: World Bank and Euromoney Bondware/ Loanware.

Figure 2.6 Emerging market bond financing and bank lending fell further in the second half of 1998



Sources: World Bank and Euromoney Bondware/ Loanware.

nancial restructuring packages in Japan, the strengthening of the yen, which helped to support recovery of East Asian currencies, and signs of a bottoming out of output declines and a recovery in stock markets in East Asian developing countries. Spreads on Brady bonds declined from the peak levels reached after the Russian crisis. Bond issues staged a modest recovery and were enhanced by a number of special features, such as securitization (for example, Pemex issued a bond secured by payments for oil sales), warrants, and international guarantees. But the average level of bond issues and loan commitments was under $11 billion a month in the last quarter, still well below even the modest levels of early 1998 (figure 2.6).

Markets were once again unsettled by the devaluation of the Brazilian real in January (see chapter 1). However, while Brazil faces a severe recession in 1999, the effects of the devaluation on other countries have remained limited. Secondary market spreads on sovereign bonds from Argentina, Colombia, and Mexico rose by about 100 basis points after the devaluation, but spreads in Eastern Europe generally declined (except Ukraine), and in East Asia changes in spreads were mixed. Interest rates in Argentina only rose marginally, suggesting little pressure on the exchange rate from capital outflows under the country's currency board system. However, bond issues to developing countries fell from $5.3 billion in December to $2.6 billion in January. It remains unclear whether this reflects concern over the Brazilian devaluation or other factors.

Short-term debt flows. Net short-term flows declined from $31 billion in 1996 to $5 billion in 1998 (table 2.8). The drop was concentrated in East Asia, where international banks reduced their exposure and China reduced its borrowing, and

Table 2.8 Short-term debt flows of developing countries, 1990–98

(billions of U.S. dollars)

	1990	1995	1996	1997	1998
All developing countries	19.5	61.1	31.2	21.1	4.9
East Asia and Pacific	11.9	43.1	19.1	2.7	–6.1
Latin America and the Caribbean	9.1	5.6	0.8	10.3	0.9
Middle East and North Africa	1.7	–0.6	0.0	–1.5	0.4
South Asia	1.6	2.1	1.2	–2.1	1.4
Sub-Saharan Africa	2.3	2.8	2.4	3.3	1.5
Europe and Central Asia	–7.0	8.2	7.7	8.4	6.9

Note: Short-term debt is defined as debt with original maturity of one year or less.
Sources: Bank for International Settlements and World Bank.

short-term loans were restructured into long-term obligations (see chapter 5). Short-term debt flows to developing countries have fallen by $56 billion from the peak level in 1995, and the ratio of short-term debt to exports was 24 percent in 1998, compared to 28 percent in 1995.

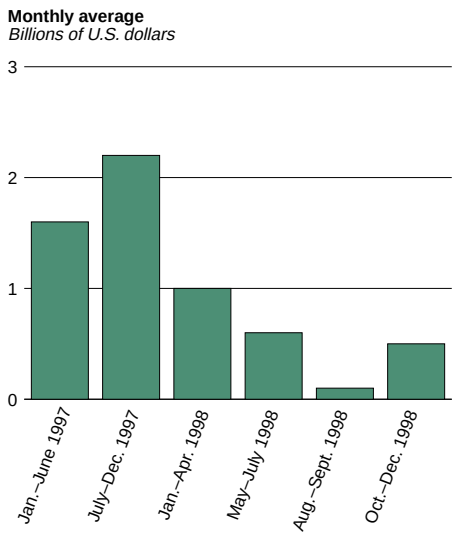
Portfolio equity flows

Portfolio equity flows to developing countries fell from $30 billion in 1997 to an estimated $14 billion in 1998, well below the peak figure of $49 billion in 1996. The evolution of portfolio equity flows over the past year can best be traced from data on international equity issues, available monthly.[4] Developing countries' equity issues on international markets fell to less than $1 billion a month in the first seven months of the year, compared to $2 billion per month in 1997, and then practically disappeared after the Russian debt moratorium. Issues from developing countries totaled only $143 million from August to September. Equity issues recovered somewhat toward the end of the year, averaging $0.5 million per month from October to December (figure 2.7).

Prices in developing country stock markets followed a pattern similar to that of secondary market bond spreads (see above). The International Finance Corporation's index of emerging market stock markets fell by 32 percent from the onset of the financial crisis in July 1997 to January 1998 (figure 2.8). The index then staged a brief recovery, began to decline in April 1998, and plummeted 28 percent with the Russian debt moratorium in August. Out of 15 major emerging stock markets, 8 have experienced declines in equities prices of 30 percent or more since June 1997, and all but 2 have fallen by more than 10 percent (table 2.9). These declines in stock market prices followed five years of relatively low returns compared to market gains in industrial countries (World Bank 1998).

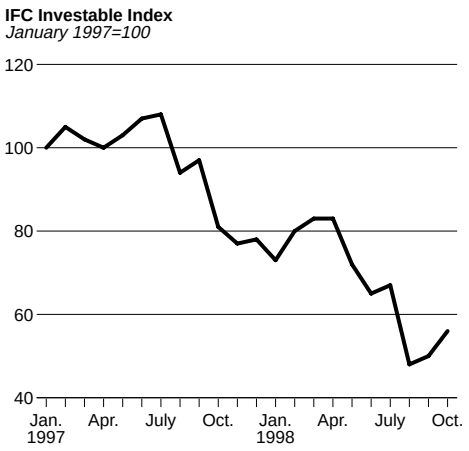
Portfolio equity flows to East Asia fell to $8 billion in 1998, $17 billion below the average of the four years before the financial crisis. In China, the only major East Asian country that actually saw a rise in stock market prices in 1998, international equity issues fell to $1 billion, compared with $9 billion in 1997. By contrast, portfolio equity flows to the East Asian countries most affected by the crisis increased from $800 million in 1997 to $7 billion in 1998, as investors were attracted by depressed equities prices and the huge exchange rate devaluations. Despite some rise in equity prices in the East Asian countries in late 1998, by the end of December the dollar value of

Figure 2.7 Emerging market equity issuance fell in 1998



Sources: World Bank and Euromoney Bondware/ Loanware.

Figure 2.8 Emerging market stock prices fell



Source: International Finance Corporation.

Table 2.9 Stock market performance of selected emerging markets, 1997–98
(percentage change, local currency index)

	1997	1998				June 1997–Dec. 1998	
	July–Dec.	Jan.–Apr.	May–July	Aug.–Sept.	Oct.–Dec.	*(local currency)*	*(U.S. dollars)*
China	–4	13	–1	–6	–7	–13	–12
Indonesia	–45	15	7	–43	45	–43	–83
Korea, Rep. of	–51	12	–18	–10	82	–27	–45
Malaysia	–45	5	–36	–7	59	–48	–65
Philippines	–34	17	–26	–22	60	–30	–53
Thailand	–34	11	–35	–5	40	–37	–57
Argentina	–16	2	–16	–35	23	–46	–46
Brazil	–22	15	–8	–38	14	–40	–47
Mexico	16	–3	–17	–16	17	–1	–21
Venezuela	–4	–29	–21	–18	33	–32	–42
Czech Rep.	0	1	–1	–27	12	–20	–12
Hungary	18	7	–4	–44	54	3	–13
Poland	–3	21	–7	–26	12	–21	–28
Russian Federation	–3	–21	–52	–33	92	–47	–85
South Africa	–16	32	–16	–29	14	–24	–42

Sources: Bloomberg and World Bank data.

stock market indexes in the countries most affected by the crisis varied between 45 and 82 percent below the level of June 1997 (table 2.9).

Portfolio equity flows to Latin America fell to under $2 billion, well below the $10 billion in 1997. All major Latin American stock market indexes declined significantly in 1998. Portfolio equity flows to Europe and Central Asia fell to $2.5 billion, half the 1997 level. The Russian market fell by 75 percent from January to September, by which time the market was totally illiquid (Euromoney 1998). Despite a sharp rise of the market late in the year, the market index remained at half its level in January 1998. The Middle East and North Africa, Sub-Saharan Africa, and South Asia regions have all seen net equity flows fall to near zero in 1998, significantly below the 1997 levels.

The prospects for flows from international capital markets

The financial crisis contributed to a large deterioration in the medium-term prospects for flows from international capital markets to developing countries. It is, nevertheless, important to note that most of the fundamental determinants of the 1990s surge in flows remain in place, including improved policies and relatively low capital-labor ratios in developing countries; technological innovations; investments in information gathering (for example, on market conditions, legal requirements for access, and monitoring arrangements) that have reduced transactions costs; the removal of barriers to capital flows; demographic trends in industrial countries that will tend to increase current account surpluses in several creditor countries; and the convergence of economic policies in industrial countries that has increased the benefits for portfolio diversification of investing in emerging markets (World Bank 1998; World Bank 1997). It remains likely that these fundamental factors will reassert themselves in the long term. However, over the next year or two the financial crisis will encourage both lenders and borrowers to adopt a more cautious approach to international financial intermediation than they did in the mid-1990s.

Risk perceptions and domestic financial systems

The crisis has underlined the risks to the sustainability of flows posed by fragile financial systems in recipient countries, including high levels of short-term debt, unhedged foreign exchange liabilities, and highly leveraged corporate sectors (World Bank 1999). There is now a better understanding of the contribution of implicit guarantees, a lack of transparency, and an inadequate legal framework to poor lending and investment decisions (Corsetti, Pesenti, and Roubini 1998; Krugman 1998a). The growth of contingent liabilities and other off-budget obligations in many developing countries has also contributed to increased risk perception (box 2.4). Ac-

Box 2.4 The growth of contingent liabilities and fiscal sustainability

The growth of indirect government liabilities in recent years has endangered the sustainability of fiscal policies and thus increased risk in many developing economies. The privatization of state assets and shifts from direct provision of services to guaranteeing outcomes (for example, through insurance) have greatly increased potential losses that are not reflected in the budget. Developing countries face particularly large hidden fiscal risks because they depend on foreign financing, and often have opaque ownership structures, limited information disclosure, and weak regulatory and enforcement systems. These shortcomings can escalate financial and corporate failures that put pressure on governments to offer bailouts.

Fiscal risks are of four types: direct or contingent, each of which is explicit or implicit (see table). *Direct explicit liabilities* are specific government obligations defined by law or contract. *Contingent explicit liabilities* are obligations that the government is legally bound to honor if a discrete event occurs—for example, state guarantees of the borrowing of parastatals or local government entities. Their fiscal cost is invisible until they are triggered. *Direct implicit liabilities* represent a government obligation based on public expectations and political pressures. These liabilities often arise from long-term public expenditure policies; for example, the obligations assumed in pay-as-you-go pension schemes. The least manageable are *contingent implicit liabilities*, in which the triggering event, the amount at risk, and the required government outlay are uncertain before a failure occurs. In most countries the financial system is the most serious contingent implicit government liability. Markets expect government support far beyond its legal obligation if financial stability is at risk. Fiscal authorities are often also compelled to cover the losses and obligations of the central bank, local governments, state-owned or large private entities, and budgetary and extrabudgetary agencies.

Categorization of liabilities

Direct explicit Sovereign debt, state budget, legally binding expenditures in the long term	*Contingent explicit* State guarantees, state insurance schemes, obligations of state-guaranteed agencies
Direct implicit Social security schemes, future recurrent cost of public investment projects, future spending to satisfy membership requirements	*Contingent implicit* Bank and enterprise failures, liability clean-up prior to privatization, subnational government or central bank default on own obligations, environmental recovery, disaster relief

Recent studies indicate that the size of government liabilities incurred outside the budget is large. The preliminary results of ongoing research at the World Bank indicate that as much as half of the increase in direct sovereign liabilities over the past decade may have been a consequence of having to honor contingent and implicit government liabilities. Some of these liabilities relate to external obligations. In Indonesia, contingent state liabilities are estimated at 30 percent of GNP. A recent survey on Korea put government guarantees issued to the Chaebols at $20 billion. It is estimated that gross sovereign liabilities in Pakistan (largely to domestic sources) would rise by 15 percent of GNP if contingent liabilities were included. Estimates for China suggest that contingent liabilities are much greater than direct liabilities, which are on the order of only 10 percent of GNP.[5]

The government of the Czech Republic provides an example of useful steps to identify and disclose the full range of fiscal risks, and to analyze the consequences of these risks for public finances. The government aims to subject all activities of a fiscal nature, including guarantees and other off-budget items, to the same level of scrutiny, and to implement limits on state guarantees and off-budget programs.

Currently a significant number of government activities are financed outside the budgetary system, including state guarantees, the quasifiscal activities of the Czech National Bank, and spending on fiscal programs by state financial institutions. This "hidden" deficit is estimated at about 3.5 percent of GDP in 1998, significantly higher than the 2 percent of GDP deficit calculated through conventional methods. But the overall "true" deficit of 5.5 percent still compares favorably with that of other EU applicant countries. As a result of this off-budget financing the Czech Republic has accumulated a stock of public liabilities estimated at 15 percent of GNP (greater than the official public debt), which are not included in the fiscal accounts but are now recognized by the government.

cordingly, the capital markets have become more suspicious of large current account deficits associated with surges of capital inflows (Eichengreen 1998).

Given the time required to clean up the bad loans of the crisis countries' banking systems, to improve regulation and supervision of the financial sector, and to strengthen legal frameworks, enhanced perception of these risks is likely to have a deterrent effect on capital flows. The process of financial sector reform in the countries hit by the crisis has only begun. The banking systems of the crisis countries were fragile before the crisis (World Bank 1999), and the deep recessions of 1997–98 have exacerbated their difficulties. Of the 73 national banking systems rated by Moody's in June 1998, the five countries hardest hit by the financial crisis are close to the bottom of the list (table 2.10).

Risk perceptions and international financial support

Investors may have viewed the financial assistance organized for Mexico in 1995 as evidence that "important" countries (however defined) could count on substantial international support to avoid default. Investors' willingness to assume Russian risk in the face of the large budget deficit and increasing debt burden has been attributed by many to the belief that the G-7 countries would not allow Russia to default on its government debt. If the high level of capital flows in the mid-1990s was even modestly supported by expectations of rescue packages, the lack of assistance to Russia in the summer of 1998 should help discourage the notion. The refusal to provide funds to Russia without adequate policy reform should encourage investors to differentiate more accurately among countries.

Recent discussions of changes to the international financial architecture have underlined the need for private creditors to bear more of the costs of financial crises—for example, through the adoption of standstill agreements in times of crisis. Increased potential for debt moratoriums, or restructurings in which creditors take a large capital loss, could reduce moral hazard and improve incentives for debtor-creditor negotiations, thus leading to more efficient outcomes during a crisis. However, greater potential for losses will also tend to reduce the supply of finance.

Table 2.10 Banking systems in countries hit by crisis

	Ranking (out of 73 countries)
Malaysia	63
Russian Federation	64
Korea, Rep. of	70
Thailand	71
Indonesia	73

Source: Moody's Investor Service.

Risk perceptions and policies toward capital flows

The recent financial crisis may also lead debtor governments to take steps that limit flows from international capital markets over the medium term, or to delay capital account liberalization measures. The financial crisis has emphasized the vulnerability of small, open economies to swings in global financial markets. Countries that have open capital accounts, even if they have sound economic policies, can suffer from excessive lending, encouraging asset-market bubbles, and posing serious problems for macroeconomic policies, as well as sudden withdrawals of finance (Eichengreen 1998). These concerns have increased support for restrictions on capital flows (Wolf 1998; Wessel and Davis 1998; Rodrik 1998; Radelet and Sachs 1998; Cordella 1998) and have reduced political support for moves to liberalize capital accounts. For example, it now appears that the government of India will not move forward rapidly on the recommendations of the Tarapore Committee toward furthering capital account liberalization (EIU 1998).

Since a major source of vulnerability was the large stock of short-term liabilities of banks and corporates (World Bank 1999), countries may take steps to reduce the private sector's reliance on short-term flows; for example, by taxing them directly or increasing capital requirements for short-term liabilities of commercial banks. Whether such policies are desirable depends on the contribution of short-term flows to growth. Increases in short-term debt raise the vulnerability of the economy and (particularly with open capital accounts) governments generally need to hold higher reserves to compensate. But there is clearly a net loss for the economy as a whole if the private sector borrows short-term at London interbank offered rate (LIBOR) plus a spread, and the government places an equal amount of foreign exchange in external bank deposits at LIBOR. However, it is clear that all short-term borrowing

does not represent speculative transactions that increase risk; some short-term flows play an important role in facilitating external transactions. For example, businesses may borrow short-term to finance imports, and domestic affiliates of multinationals may turn to external borrowing to finance working capital. Any restrictions on short-term flows must therefore be carefully designed to avoid unnecessarily raising the costs of normal business transactions.

Some countries have recently eased restrictions on capital inflows in an attempt to compensate for declining export revenues and capital inflows. Colombia and Chile imposed reserve requirements on capital inflows that represented a tax on short-term holdings. The Chilean government has decided to zero rate this reserve requirement (Banco Central de Chile 1998). In September 1998, the central bank of Colombia reduced the tax on inflows from 25 percent to 10 percent, and the required holding period from 12 to 6 months.

Attitudes toward policies to stabilize capital flows are likely to be influenced by Malaysia's experiment with restrictions on capital outflows.[6] In February 1999 the government replaced some of these requirements with an exit tax, coupled with introduction of a capital gains tax on foreign portfolio investment. The stated objective of the capital market interventions was to curb currency speculation and to enable the government to lower domestic interest rates while maintaining a fixed exchange rate. An important objective of these policies is to avoid reducing foreign direct investment. In general, controls on short-term debt and portfolio flows are not inconsistent with an open regime toward FDI. For example, despite its restrictions on currency and portfolio capital flows, China is the largest recipient of FDI among developing countries. However, some investors have raised concerns that the controls will interfere with transfers related to FDI projects, such as remittances of dividends, profits, licensing fees, and interest on loans (Oxford Analytica 1998).

Cross-country evidence suggests that restrictions on capital outflows have significant costs (see below), but that they can sometimes provide a useful additional policy instrument in segmenting domestic money markets from international ones, allowing lower domestic interest rates and a stronger exchange rate than otherwise. Such restrictions have been used as an alternative or supplement to raising interest rates to defend a currency against a speculative attack—for example, by European countries in the first half of the 1980s (J.P. Morgan 1998; Eichengreen, Rose, and Wyplosz 1994).

The possible short-term benefits from the use of restrictions on capital outflows as a temporary monetary policy instrument need to be weighed against a variety of costs and risks. At the most general level, controls can prevent capital from seeking out its most efficient use, are costly to implement, and increase the scope for rent-seeking, bribery, and corruption. Adverse changes in the rules governing existing investments reduce confidence in the stability of these rules and may make investors reluctant to return after controls are dismantled. Controls may impose an externality on other countries, by increasing investors' perception of the riskiness of emerging markets in general. Further, controls can serve to delay necessary economic adjustments, sometimes rendering the costs of adjustment much greater when countries are finally forced to undertake it. The single most important question local and foreign asset holders will be studying is whether the monetary easing undertaken by Malaysia (in combination with restrictions on outflows) will be used to create a favorable general context in which to undertake the urgently needed comprehensive and vigorous financial restructuring program.

Near-term risk facing flows from the capital markets

Thus, it is likely that both creditors and debtors will adopt a more cautious approach to international financial intermediation than they did in the mid-1990s. Reductions in international interest rates and the signs of recovery in East Asia may encourage a rise in capital flows from the low level reached directly after the Russian debt moratorium, when bond issues and syndicated loan commitments averaged only $6 billion a month. But given the uncertain outlook for the foreign currency earnings of developing countries and the global economic slowdown, the recovery in flows is expected to be slow, with some years before the peak 1997 level is reached again. The spread of recovery is also likely to be highly differentiated, with some of the Asian crisis countries (for example, Korea and Thailand) seeing a faster resumption of capital flows.[7]

Investors' willingness to return to emerging markets will be influenced by the outcome of current developments in Brazil. Success of the Brazilian program would show that solvent borrowers

can avoid a liquidity crisis with a combination of strong policy measures and international assistance. However, some observers are concerned that an acceleration of capital outflows and a further depreciation of the real could reduce confidence in emerging markets and in the international financial institutions supporting them. The economic difficulties in Brazil should not have important effects on countries outside Mercosur through the trade channel, and it is to be hoped that the international capital markets will be able to differentiate sufficiently among countries to limit contagion effects from any deterioration of the Brazilian economy.

The prospects for private capital flows, particularly to East Asia, will also depend on the risks to the forecast outlined in chapter 1, particularly the dangers of a more severe recession in Japan, a sharp correction in stock markets, or a resurgence of protectionist pressures.

Private flows to low-income countries with good policies

The middle-income countries have received more than 90 percent of capital market flows to the developing world during the 1990s, and were at the center of the financial crisis. But the financial crisis also has reduced growth in many low-income countries owing to lower commodity prices and the slowdown in world trade—and capital market financing has been important to some low-income countries. Flows from the international capital markets have averaged about 1 percent of low-income countries' GDP from 1993 to 1997, compared with 2 percent for middle-income countries.[8] Flows from the capital markets to low-income countries increased from $2 billion in 1990 to $6 billion in 1997 (table 2.11). However, in 1998 flows to low-income countries from the international capital markets declined to under $5 billion, with India accounting for 70 percent of the total.

Private source debt flows to low-income countries largely went to the public sector during the early 1990s, although lending to the private sector increased markedly after 1994. Portfolio equity flows to low-income countries increased during the 1990s, largely reflecting investment in the Indian market. But capital market financing remains less important to low-income countries than FDI, which increased ninefold from 1990 to 1997. FDI flows to low-income countries have accounted for 56 percent of total private flows during the 1990s, as compared to 49 percent in middle-income countries. Chapter 3 discusses the importance of FDI to low-income countries.

In part, the increase in private flows to low-income countries before the financial crisis responded to a marked improvement in policies. Efforts to strengthen macroeconomic stability, reduce price distortions, and improve the performance of the public sector have borne fruit in an acceleration

Table 2.11 Net private capital flows to low-income countries, 1990–98
(billions of U.S. dollars)

	1990	1991	1992	1993	1994	1995	1996	1997	1998[a]
Total private flows	3.5	4.9	5.0	11.2	13.1	11.3	14.6	17.0	15.2
International capital markets	2.4	1.8	1.8	6.3	7.6	4.0	5.3	6.4	4.7
Debt	2.3	1.8	1.4	4.2	0.5	1.3	–0.4	4.0	4.3
Banks	2.2	0.4	1.6	3.7	0.4	1.0	–0.6	1.7	4.7
Bonds	0.1	1.4	–0.3	0.6	0.1	0.3	0.2	2.3	–0.4
Portfolio equity flows	0.1	0.0	0.4	2.1	7.1	2.7	5.7	2.4	0.4
Foreign direct investment	1.1	3.1	3.2	4.8	5.5	7.3	9.3	10.6	10.6
Memo items (percent)									
Private flows/GNP	0.6	0.8	0.9	2.0	2.2	1.7	1.9	2.1	1.8
International capital markets/GNP	0.4	0.3	0.3	1.1	1.3	0.6	0.7	0.8	0.6
Foreign direct investment/GNP	0.2	0.6	0.6	0.9	1.0	1.1	1.3	1.4	1.4
Public and publicly guaranteed debt flows/GNP	0.4	0.3	0.2	0.6	0.0	0.0	–0.2	0.2	0.4
Private non-guaranteed debt flows/GNP	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.0

Note: Unlike in previous editions of *Global Development Finance,* China is now included as a middle-income country.
a. Preliminary.
Source: World Bank Debtor Reporting System.

of growth in many of the low-income countries in Sub-Saharan Africa and South Asia. The countries in Sub-Saharan Africa and South Asia that are considered good performers (according to the World Bank's ratings of policy performance) have achieved average growth rates of 7 percent over the past three years, compared with about 4 percent in the early 1990s. The acceleration of growth has been supported by some rise in the share of investment in output, from 21 percent in the early 1990s to 25 percent during 1995–97 (table 2.12).

A portion of the rise in investment in these countries was supported by higher private capital flows, which financed 7 percent of investment during 1995–97, compared with only 3 percent in the early 1990s. But private capital flows during 1995–97 remained a much smaller share of investment there than in the predominantly middle-income regions of East Asia and Pacific (12 percent) and Latin America and the Caribbean (25 percent) (table 2.12).

The limited rise in investment achieved to date may not be sufficient to sustain high growth rates over the medium term in these high-performing countries. The incremental capital-output ratio (ICOR), which relates the share of investment in output to the rate of growth, fell from 5.6 in the early 1990s to 3.5 during 1995–97. Thus, each unit of investment is producing a substantially larger amount of output than in the early part of the decade. The main reason for the fall in the ICOR is probably a surge in economic activity as various price distortions have been removed. Over time, however, sustained growth will probably require higher, as well as more efficient, investment.

In other countries with growth rates of 7 percent, investment typically exceeds 30 percent of GDP. There may be little room for squeezing consumption in these very poor countries, particularly as many expenditures counted as consumption (such as some health and education services) are really investment in human capital and are as essential to growth as physical investment. And the overall shortfall in investment is predominantly accounted for by private investment, as public investment is broadly comparable to the middle-income regions. A major portion of increased investment rates will therefore probably have to be financed by private capital inflows. Improvements in the legal and contractual environment surrounding private investment are important to encourage increased private capital flows to low-income countries (Collier and Dollar 1998). Chapter 4 discusses how international assistance can be effective in attracting more private capital flows to these countries.

Table 2.12 Economic aggregates in countries with good performance in Africa and South Asia
(percent)

	1990–92	1993–94	1995–97
GDP	3.7	6.2	7.2
Investment/GDP	20.6	21.6	25.1
Private capital inflows/ investment[a]	2.8	9.0	7.1
Incremental capital-output ratio	5.6	3.5	3.5
Private capital inflows/investment			
East Asia	7.9	15.1	12.3
Latin America	9.4	20.0	24.7

Note: Countries include Côte d'Ivoire, Eritrea, Ethiopia, Ghana, Lesotho, Senegal, Uganda, Bangladesh, Bhutan, India, Maldives, and Sri Lanka.
a. Private capital inflows are defined as net long-term lending from private sources, portfolio equity, and foreign direct investment, as in table 2.1.
Source: World Bank.

Annex: Derivatives and the financial crisis

Derivatives have proved a double-edged sword during the financial crisis. While they can be effective instruments that help manage and reduce risks, at times of very sharp changes in market prices and reduced liquidity the highly leveraged positions that derivatives facilitate may be a significant source of increased risk. Their inappropriate use may have accentuated the drying up of capital flows to developing economies.

The growth of derivatives transactions in developing countries

Derivatives permit the separation of the various risks that may be involved in a single transaction, and the transfer of risks to the parties most willing to assume them. The ability to off-load undesirable risks can increase the attractiveness of cross-border capital movements to investors (Garber 1998). For example, foreigners may be more willing to invest in developing countries with active derivatives exchanges that facilitate hedging against changes in the exchange rate. Derivatives have played

an important role in attracting capital to countries with rapid improvements in policy, such as Mexico in the early 1990s.

Both over-the-counter and exchange-traded instruments have entered the mainstream of emerging currency and securities markets in recent years. Brazil now boasts the third-largest futures exchange in the world, with a reported $223 billion in trades in the first half of 1997. There are several exchanges offering listed derivative products in East Asia, Eastern Europe, and Latin America, and the use of standardized equity derivatives has increased (World Bank 1998; Swan 1996).

The volume of transactions in over-the-counter arrangements also appears to have increased significantly, although there is a lack of consistent data on their use in emerging markets. The World Bank's study of the East Asian bond market noted the rapid growth of informal foreign exchange futures with the opening of capital accounts (World Bank 1995). During the Mexican peso crisis, 'swap and forward' contracts on tesobonos increased by 40 percent before the end of 1994, at which point Mexican institutions had $16 billion in swaps (Nussbaum 1997). Credit derivatives are increasingly being used to permit investors to hedge the default risk of emerging market bonds and to gain exposure to markets that may be off-limits for legal or regulatory reasons (Grant 1998).

Table 2A.1 Estimates of losses from over-the-counter exposure, selected emerging markets
(billions of U.S. dollars)

Country	Institution	Range of loss
Indonesia	Private corporations	15
Korea, Rep. of	Merchant banks	2.5
Russian Federation	Russian commercial banks	10
	Foreign banks	20–90

— Not available.
Sources: Industry estimates, Kleiman International Consultants, Inc.

Losses during the financial crisis

The availability of derivatives instruments, coupled with weak institutional and legal frameworks, increased opportunities for speculation that resulted in significant losses with the downturn in markets during the financial crisis. The use of forwards, futures, swaps, and other derivatives instruments enabled investors to take on greater exposure relative to their capital, and to greatly increase the potential for loss. For example, the investor who is short in the foreign exchange futures market can lose many multiples of her investment, compared to spot transactions in which the downside is limited to the currency held.

The Russian debt moratorium imposed huge losses on both foreign and domestic creditors trading in over-the-counter derivative instruments, perhaps as much as $90 billion (see annex table). Exposure by foreign investors to risk from ruble-denominated debt (GKO) was magnified by techniques to increase leverage, such as investing borrowed funds from commercial banks. Some banks accepted GKOs as collateral supporting total-return swaps based on GKOs. The collapse of the GKO market meant that the banks were due substantial sums from the swaps, but collecting the amount due was problematic because the value of collateral that could be seized to enforce payment had plummeted. Similarly, investors were willing to invest in GKOs in part because they were able to use forward contracts to hedge their ruble exposure. However, foreign currency hedges could not protect investors from the sudden drying up of liquidity in the market because of the debt moratorium and Russian government prohibitions against servicing debt (Clow 1998). It is unlikely that investors would have assumed the same level of exposure to GKOs if derivatives had not been available.

Derivatives losses were significant during the East Asian crisis as well. The ready availability of derivatives instruments made it easier for both foreign and domestic companies to take advantage of the large interest rate differentials between U.S. and local markets through off-balance-sheet transactions. For example, banks could enter into swaps under which they received the return on domestic money market instruments and paid the return on U.S. investments. These swaps earned profits as long as the East Asian exchange rate remained fixed, but resulted in huge losses once the exchange rates depreciated. The swaps were off-balance-sheet transactions that could be funded by a limited margin (as opposed to tying up substantial amounts of capital by dealing in the underlying securities), and often were not subject to adequate scrutiny. Korean commercial banks may have lost $2.5 billion in over-the-counter derivatives contracts with the collapse of the won. The Indone-

sian crisis led to severe losses. When Hong Kong–based Peregrine Securities collapsed in January 1998, it held $10 billion in interest and currency swaps in Indonesia, and its off-balance-sheet liabilities exceeded on-balance-sheet by 10 to 1. Foreigners may have lost $15 billion in swap transactions with Indonesian corporates that went bankrupt with the collapse of the rupiah; these losses are not covered in the INDRA private debt restructuring program.

Public policy concerns

The fact that investors lost money through derivatives is not, by itself, a cause for concern by policymakers. Normally, the loss of one investor is another's gain; even very substantial losses by an investor do not necessarily imply any change in society's net wealth (Miller 1996). And the growing use of derivatives has generated substantial benefits to developing countries (World Bank 1998). However, there are four aspects of the use of derivatives that raise public policy concerns of direct importance to emerging markets: the difficulties in enforcing certain derivatives transactions, the implications of derivatives transactions for transparency, the potential contribution of derivatives to increasing systemic risk, and the use of derivatives to accumulate market power.

Enforcement of derivatives transactions. Losses were increased during the financial crisis by the uncertain legal status of many over-the-counter derivatives instruments. The enforceability of over-the-counter derivatives has been undermined by differences in interpretation of basic legal terms, such as insolvency, maturity, and default. Collecting on derivatives transactions has been further complicated by the costs and uncertainties involved in cross-border litigation. An important example was the refusal by Korean counterparties to make payments to a U.S. dealer on total return and currency swap transactions (BIS 1998). In Indonesia, corporates' over-the-counter derivatives were often informal and documentation was poor. A recent Moscow court judgment held that some of the GKO trades were not eligible for protection under the civil code. More generally, the legal status of over-the-counter instruments is evolving even in industrial-country markets, and the legal risks of some over-the-counter instruments remain significant (Asserson 1996; Figlewski 1998). Their extension to the less-developed legal systems in many emerging markets can raise significant questions concerning the enforceability of contracts.

Difficulties in enforcing derivatives transactions can be reduced by encouraging greater use of the standardized derivatives contracts provided by exchanges. Derivatives exchanges also provide clear procedures and mechanisms to resolve conflicts, and help ensure that adequate liquidity is available to support trading. The International Organization of Securities Commissions (IOSCO) has published a set of guidelines and recommendations on the appropriate regulatory and legal framework for cross-border derivatives markets, which have proved to be effective in the industrial countries (IOSCO 1998).

Derivatives and transparency. The use of derivatives by some East Asian governments during the financial crisis had the effect of obscuring the impact on central bank reserves of efforts to support East Asian currencies. By mid-1997, the Thai central bank had committed to over $20 billion in nondeliverable forwards and swaps that were not readily observable by financial markets. The Bank of Korea also relied on forward commitments during the attack on the won in late 1997, and lost when the won collapsed (Schuman 1997; Schuman and Cho 1997).

The complexity of derivatives transactions has also made it more difficult for the owners of capital to observe the risks incurred by their agents. In many of the more spectacular derivatives-related failures (for example, the collapse of Barings, the bankruptcy of Orange County in 1994, Proctor and Gamble's $150 million debacle in 1994 with put options on long-term bond prices, and Metallgesellschaft's losses in attempts to hedge oil prices in 1993), the principals did not appear to fully understand the risks being assumed (Miller 1996). And once a huge loss has been incurred, managers may have an incentive to take on additional risks in the hope of recouping their position before reporting to their superiors.

Systemic risk. Although the proper use of derivatives can reduce risk, derivatives also have the potential to increase systemic risk. Given the significant credit exposures in over-the-counter derivatives among the largest financial institutions, counterparty credit losses on derivatives transactions could be a significant conduit for the transmission of financial shocks (BIS 1998). Counterparties that lack sufficient liquidity to absorb

unexpected losses may be forced to sell other positions, resulting in a spiral of price declines that impose large, and perhaps unnecessary, losses to other investors (McClintock 1996). The danger of a systemic collapse is heightened under disorderly market conditions, as systems of settlement and short-term financing may already be under strain (Cornford 1995). With deposit insurance, substantial losses by banks may raise issues concerning government solvency and the sustainability of economic policies. In short, while losing money is a normal phenomenon in efficient financial systems, extremely large losses in highly leveraged transactions (particularly when they concern the banking system) can have severe implications for the overall economy.

Derivatives have figured in some of the more spectacular failures that were thought to pose systemic problems. One example was the inability of the Hong Kong Futures Guarantee Corporation to meet widespread defaults following the 1987 stock market crash. A collapse of the corporation could have led investors on the Hong Kong Futures Exchange to dump stocks hedged with futures contracts, and the government felt compelled to rescue the corporation to maintain an orderly equity market (Cornford 1996).

A more recent example in industrial countries was the danger that the unwinding of the huge positions of Long-Term Capital Management (LTCM) could bring about sharp price declines and a severe drying up of market liquidity (Greenspan 1998a). There was particular concern over the exposure of commercial banks to LTCM through over-the-counter derivatives. While the banks' exposure was largely collateralized, in the conditions of market turmoil feared with a collapse of LTCM the liquidation value of collateral could have been greatly reduced, leaving the banks exposed to losses estimated at $3–5 billion (Basle Committee on Banking Supervision 1999). Further, a default of LTCM could have had wider repercussions, increasing volatility and reducing liquidity in related markets beyond those in which LTCM was involved, which would have greatly increased the potential bank losses from a failure of LTCM.

Market power. Can the huge leverage that derivatives provide be used by large traders to reap substantial profits by engineering changes in key market prices? Box 2A.1 discusses how the potential for self-fulfilling crises is supported by the presence of large traders capable of exerting a major influence on market prices.

Box 2A.1 Self-fulfilling expectations and financial crises

Financial crises can arise even in the presence of sound fundamentals. Diamond and Dybvig (1983) show how bank runs can exhaust the reserves of solvent banks. Depositors take their money out because they fear other depositors will withdraw their funds; the run is due to the self-fulfilling expectations by creditors, rather than fundamentals. In the light of the ERM crisis of 1992–93, Obstfeld (1996) extended this framework to show how market expectations can drive a government's decision to devalue. Calvo and Mendoza (1996), Cole and Kehoe (1996), and Sachs, Tornell, and Velasco (1996) all argue that the Mexican peso crisis can best be understood in these terms. (For a critical review, however, see Krugman 1996.)

A highly stylized model that illustrates a currency attack based on self-fulfilling expectations is found in Obstfeld (1996). There are three players: a government selling reserves to defend its exchange rate peg and two holders of domestic currency. If neither trader has sufficient resources to exhaust the government's reserves but together they do, the peg will be sustained if neither believes the other will attack, and will collapse if each believes the other will attack. Fundamentals—in the form of the reserves—are important here: if reserves are very low the currency would surely collapse, and if reserves were massive there could be no attack. But with intermediate levels of reserves, the way is open for expectations to play a critical role.

However, the existence of many small traders reduces the risk of self-fulfilling attacks, because it is difficult to coordinate the activities of hundreds of traders. A little uncertainty about the behavior of other traders (technically, "lack of common knowledge") may lead to a unique equilibrium driven by fundamentals, because individual traders, unsure of what other traders are planning, will use the level of reserves as a guide (Morris and Shin 1998). In this view, self-fulfilling attacks only occur if there are large traders who can coordinate their activities or serve as guides for the universe of small traders.

It may be difficult for a few traders to dominate financial markets in the more advanced developing economies even with the leverage offered by derivatives, owing to the depth of these markets and the potential for many traders to assume large positions. For example, speculation against East Asian currencies in 1997 reflected participation by a host of domestic and foreign investors, not by a few large traders (Eichengreen and Mathieson 1998). But concerns have been raised about the role of large traders in the subsequent attack on the Hong Kong currency board system in the summer of 1998. Speculators are believed to have employed what was referred to as a "double play" in which they shorted the stock market before attacking the currency. Under the currency board mechanism, as speculators moved out of HK dollars and reserves fell, interest rates rose. As a result, speculators' profits would be huge if the speculative attack succeeded, and if it failed losses would be covered by the gains from shorting the equities market. In the event, however, officials fended off the attack by buying heavily in the stock market. On the basis of the regular pattern of currency sales accompanied by the shorting of stocks and futures, the Hong Kong Monetary Authority believed that large traders engineered the attack (Krugman 1998b).

Notes

1. Other sources of this discrepancy include time lags in data reporting, discrepancies in reporting, cash (*Global Development Finance*) versus accrual (balance of payments) accounting, difficulties in accounting for derivatives, and inadequate data from off-shore financial centers.

2. The growth in trade and financial transactions during the 1990s may also have generated larger gaps and errors in data collection.

3. Hamao and Mei (1996) find no evidence of herding among Japanese investors.

4. Only annual data are available on foreign purchases of shares in domestic stock markets.

5. China's contingent liabilities could be as high as 50 percent of GNP. Estimates of the size of contingent liabilities are taken from *Standard and Poors* (for China and Pakistan), and work done by IMF staff in conjunction with the Bank of Korea and Bank Indonesia.

6. The discussion of the Malaysian capital controls is based on World Bank economic and sector work.

7. A faster recovery in the United States and Europe may lead to higher interest rates than envisaged in the baseline forecast. However, it is likely that flows will continue to be constrained by perceptions of risk rather than global liquidity conditions for the next few years. For the impact of global liquidity conditions on flows to developing countries, see Fernandez-Arias 1994; Calvo, Liederman, and Reinhart 1992; Cline and Barnes 1997; and Dooley, Fernandez-Arias, and Kletzer 1994.

8. China is now classified as a middle-income country, which results in a significant fall in the volume of capital flows to low-income countries, compared with earlier editions of *Global Development Finance.*

References

The word *processed* describes informally produced works that may not be commonly available through libraries.

Asserson, Trevor. 1996. "OTC Derivatives: The Litigation Risk." *Derivatives Use, Trading and Regulation* 2(2). United Kingdom.

Atlas, Riva. 1998. "Déjà Junk." *Institutional Investor.* October.

Banco Central de Chile. 1998. Press Release, September 16.

BIS (Bank for International Settlements). 1998. *OTC Derivatives: Settlement Procedures and Counterparty Risk Management*. September.

Basle Committee on Banking Supervision. 1999. *Banks' Interactions with Highly-Leveraged Institutions.* Switzerland. Processed.

Brennan, M. J., and Cao, H. H. 1997. "International Portfolio Investment Flows." *Journal of Finance* 52: 1851–80.

Burki, Shahid, and Sebastian Edwards. 1995. "Latin America After Mexico: Quickening the Pace." World Bank, Washington, D.C. Processed.

Calvo, Guillermo. 1996. "Capital Flows and Macroeconomic Management: Tequila Lessons." *International Journal of Finance and Economics* 1: 207–23

Calvo, Guillermo, and Enriques Mendoza. 1996. "Reflections on Mexico's Balance of Payments Crisis: A Chronicle of a Death Foretold." *Journal of International Economics.*

Calvo, Guillermo, M. Goldstein, and E. Hochreiter. 1996. "Private Capital Flows to Emerging Markets after the Mexican Crisis." Institute for International Economics, Washington, D.C.

Calvo, Guillermo, L. Leiderman, and C. Reinhart. 1992. "Capital Inflows and Real Exchange Rate Appreciation in Latin America." IMF Working Paper. International Monetary Fund, Washington, D.C.

Calvo, S., and C. M. Reinhart. 1997. "Capital Flows to Latin America: Is There Evidence of Contagion Effects?" In Calvo, Goldstein, and Hochreiter, "Private Capital Flows to Emerging Markets after the Mexican Crisis," 151–71. Institute for International Economics, Washington, D.C.

Cashin, Paul, Manmohan S. Kumar, and C. Joyn McDermott. 1995. "International Integration of Equity Markets and Contagion Effects." IMF Working Paper

WP/95/110. International Monetary Fund, Washington, D.C.

Chang, P. H. K., S. Claessens, and R. E. Cumby. 1997. "Conceptual and Methodological Issues in the Measurement of Capital Flight." *International Journal of Finance and Economics,* April.

Choe, H., B. Kho, and R. M. Stulz. 1998. "Do Foreign Investors Destabilize Stock Markets? The Korean Experience in 1997." Unpublished working paper. Ohio State University, Canton, Ohio.

Claessens, Stijn. 1997. "Estimates of Capital Flight and its Behavior." *Revista de Analisis Economico*. June.

Cline, William R., and Kevin J. S. Barnes. 1997. "Spreads and Risks in Emerging Market Lending." IIF Research Paper 97-1. Institute of International Finance, Washington, D.C.

Clow, Robert. 1998. "Risk Rediscovered." *Institutional Investor*. October.

Cole, H. R., and T. J. Kehoe. 1996. "Self-Fulfilling Debt Crisis." *Journal of International Economics.*

Collier, Paul, and David Dollar. 1998. *Aid, Risk and Private Investment.* Processed.

Collier, Paul, Anke Hoeffler, and Catherine Pattillo. 1998. *Capital Flight as Portfolio Choice.* World Bank, Washington, D.C. Processed.

Cordella, Tito. 1998. "Can Short-Term Capital Controls Promote Capital Inflows?" IMF Working Paper WP/98/131. International Monetary Fund, Washington, D.C. September.

Cornford, Andrew. 1995. "Risks and Derivatives Markets: Selected Issues." *UNCTAD Review.* Geneva.

_____. 1996. "Some Recent Innovations in International Finance." *Journal of Economic Issues* 30(2). June.

Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. 1998. *What Caused the Asian Currency and Financial Crisis.* Processed.

Cuddington, John. 1986. "Capital Flight: Issues, Estimates, and Explanations." *Princeton Studies in International Finance* 58. Princeton University, Princeton, N.J.

Diamond, David, and P. Dybvig. 1983. "Bank Runs, Deposit Insurance and Liquidity." *Journal of Political Economy* 91: 401–19.

Dooley, Michael P. 1986. "Country-Specific Risk Premiums, Capital Flight, and Net Investment Income Payments in Selected Developing Countries." IMF Memorandum 86/17. International Monetary Fund, Washington, D.C.

_____. 1988. "Capital Flight: A Response to Differences in Financial Risks." IMF Staff Papers 35: 422–36. September. International Monetary Fund, Washington, D.C.

Dooley, M., E. Fernandez-Arias, and K. Kletzer. 1994. "Is the Debt Crisis History?" Working Paper 1327. World Bank, Washington, D.C.

Edwards, Sebastian. 1989. *Real Exchange Rates, Devaluation, and Adjustment.* Cambridge, Mass.: MIT Press.

Eichengreen, Barry. 1998. *International Financial Cooperation: Lessons and Questions from the Asian Crisis*. Prepared for the United Nations Development Programme Project on Global Public Goods. Processed.

Eichengreen, Barry, and Donald Mathieson. 1998. "Hedge Funds and Financial Markets: Implications for Policy." In Eichengreen et al. "Hedge Funds and Financial Market Dynamics." IMF Occasional Paper 166. International Monetary Fund, Washington, D.C.

Eichengreen, Barry, and Andrew Rose. 1998. "Contagious Currency Crises: Channels of Conveyance." In Takashito Ito and Anne O. Kreuger, eds., *Changes in Exchange Rates in Rapidly Developing Countries*, forthcoming.

Eichengreen, Barry, and Charles Wyplosz. 1993. "The Unstable EMS." *Brookings Papers on Economic Activity* 1: 51–124. Brookings Institution, Washington, D.C.

Eichengreen, Barry, Andrew Rose, and Charles Wyplosz. 1994. "Is There a Safe Passage to EMU? Evidence on Capital Controls and a Proposal." CEPR Discussion Paper 1061. Centre for Economic Policy Research, London.

_____. 1996. Contagious Currency Crises. NBER Working Paper 5681. National Bureau of Economic Research, Cambridge, Mass.

EIU (Economist Intelligence Unit). 1998. *Country Report, India, Fourth Quarter 1998.* London.

Euromoney. 1998. "A Superpower Falls Apart." *Euromoney Magazine* (September).

Fernandez-Arias, E. 1994. "The New Wave of Private Capital Inflows: Push or Pull?" Working Paper 1312. World Bank, Washington, D.C.

Figlewski, Stephen. 1998. "Derivatives Risks, Old and New." In Robert E. Litan and Anthony M. Santomero, eds., *Brookings-Wharton Papers on Financial Services.* Washington, D.C.: Brookings Institution Press.

Frankel, J. A., and S. L. Schmukler. 1996. "Crisis, Contagion, and Country Funds: Effects on East Asia and Latin America." Working Paper PB96-04. Federal Reserve Bank of San Francisco, San Francisco.

Froot, Kenneth A., Paul G. J. O'Connell, and Mark Seasholes. 1998. "The Portfolio Flows of International Investors. NBER Working Paper 6687. National Bureau of Economic Research, Cambridge, Mass. August.

Garber, Peter. 1998. "Derivatives in International Capital Flow." NBER Working Paper 6623. National Bureau of Economic Research, Cambridge, Mass. June.

Grant, Jeremy. 1998. "Concern: Hidden Risks in Credit Derivatives." *Financial Times* (November 2).

Glick, Reuven, and Andrew Rose. 1998. "Contagion and Trade: Why are Currency Crises Regional?" Prepared for a Centre for Economic Policy Research/World Bank Conference, "Financial Crises: Contagion and Market Volatility," London. May.

Greenspan, Alan. 1998a. Transcript of remarks at National Association of Business Economists Meeting. October 7.

_____. 1998b. Testimony on private-sector refinancing of long-term capital management before the Committee on Banking and Financial Services, U.S. House of Representatives. October 1.

Hamao, Y., and J. Mei. 1996. "Living With the 'Enemy': An Analysis of Investment in the Japanese Equity Market." Unpublished working paper. Columbia University, New York, N.Y.

IIF (Institute of International Finance). 1999. *Report of the Working Group on Financial Crises in Emerging Markets.* Institute of International Finance, Washington, D.C. January.

IMF (International Monetary Fund). 1999. *IMF Supported Programs in Indonesia, Korea and Thailand: A Preliminary Assessment.* International Monetary Fund. Washington, D.C.

IOSCO (International Organization of Securities Commissions). 1998. *Framework for Supervisory Information about Derivatives and Trading Activities.* Joint Report by the Basle Committee on Banking Supervision and the Technical Committee of the International Organization of Securities Commissions (IOSCO). Basle, Switzerland.

J. P. Morgan. 1998. *World Financial Markets*. New York. October.

King, Mervyn, and Sushil Whadwhani. 1990. "Transmission of Volatility between Stock Markets." *Review of Financial Studies* 3(1): 5–33.

Krugman, Paul. 1996. "Are Currency Crises Self-Fulfilling?" *NBER Macroeconomics Annual*: 355–78.

Krugman, Paul. 1998a. "What Happened to Asia." Speech given at a conference in Japan in January.

_____. "The Return of Dr. Mabuse." *New York Times Magazine.*

Kumar, Manmohan S., Uma Moorthy, and William Perraudin. 1998. "Determinants of Emerging Market Currency Crises and Contagion Effects." Paper presented at the Centre for Economic Policy Research. "Financial Crises: Contagion and Market Volatility: A Centre for Economic Policy Research/World Bank Conference," London. May.

Lopez, Julio. 1998. "External Financial Fragility and Capital Flight in Mexico." *International Review of Applied Economics.*

Loukine, Konstantin. 1998. *Estimation of Capital Flight from Russia: Balance of Payments Approach.* Processed.

Masson, Paul. 1998. "Contagion: Monsoonal Effects, Spillovers, and Jumps Between Multiple Equilibria." IMF Working Paper WP/98/142. International Monetary Fund, Washington, D.C.

McClintock, Brent. 1996. "International Financial Instability and the Financial Derivatives Market." *Journal of Economic Issues* 30(1). March.

Miller, Merton H. 1996. "The Social Costs of Some Recent Derivatives Disasters." *Pacific-Basin Finance Journal* 4: 113–27.

Morris, Stephen, and Hyun Song Shin. 1998. "Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks." *American Economic Review* 88: 587–97.

Nussbaum, David. 1997. "Seeing is Believing." *Risk* 10(9). August.

Obstfeld, Maurice. 1996. "Models of Currency Crises with Self-Fulfilling Features." *European Economic Review*.

Oxford Analytica. 1998. Daily Brief. September 15.

Pinheiro, Israel. 1998. *Exchange Controls and Capital Flight*. Instituto Cultural Minerva, Institute of Brazilian Issues, The George Washington University, Washington, D.C.

Priest, Andrew. 1997. "The Russian Revolution." *Risk* 10(8). August.

Radelet, Steven, and Jeffrey Sachs. 1998. *The Onset of the East Asian Financial Crisis.* Harvard Institute for International Development. Processed.

Rodrik, Dani. 1998. *Who Needs Capital Account Convertibility.* Harvard University, Cambridge, Mass.

Sachs, Jeffrey, A. Tornell, and A. Velasco. 1996. "Financial Crises in Emerging Markets: The Lessons from 1995." NBER Working Paper 5576. National Bureau of Economic Research, Cambridge, Mass.

Schineller, Lisa. 1997. "A Nonlinear Econometric Analysis of Capital Flight." *International Finance Discussion Papers* (October).

Schuman, Michael. 1997. "South Korean Won is Mostly Unscathed, Providing Clues for Staving off a Crisis." *Wall Street Journal* (October 27).

Schuman, Michael, and Namjo Cho. 1997. "Korea's Won Slides as Bureaucrats Feud." *Wall Street Journal* (November 18).

Sias, Richard W., and Laura T. Starks. 1997. "Return Autocorrelation and Institutional Investors." *Journal of Financial Economics* 46: 103–31.

Swan, Ned. 1996. "The Potential for Derivatives in Emerging Markets." *Derivatives Use, Trading and Regulation* 2(1).

Tikhomirov, Vladimir. 1997. "Capital Flight from Post-Soviet Russia." *Europe-Asia Studies* 49: 591–615. June.

Valdes, Rodrigo O. 1996. "Emerging Market Contagion: Evidence and Theory." Massachusetts Institute of Technology, Cambridge, Mass. Processed.

Wessel, David, and Bob Davis. 1998. "Currency Controls are Getting a Hearing Amid Asian Crisis." *The Wall Street Journal* (September 4).

Wolf, Martin. 1998. "Wisdom of Free Flows Questioned," *Financial Times*, London, (October 2).

World Bank. 1993. *World Debt Tables.* Washington, D.C.

_____. 1995. *The Emerging Asian Bond Market.* Washington, D.C.

_____. 1997. *Private Capital Flows to Developing Countries: The Road to Financial Integration.* A Policy Research Report. Washington, D.C.

_____. 1998. *Global Development Finance 1998*. Washington, D.C.

_____. 1999. *Global Economic Prospects 1998/99.* Washington, D.C.