2

Private Capital Flows to Emerging Markets

The global slowdown reduced capital market flows to developing countries

The global economic slowdown in 2001 translated into reduced private capital flows to developing countries. The reevaluation of prospective returns in technology investments severely reduced demand for developing countries' technology stocks. Further, the global slowdown and collapse of equities prices increased the riskiness of the debt of highly leveraged corporations, reduced investors' appetite for risk, and increased economic uncertainty. All of these had the effect of tightening bank lending criteria and reducing access by speculative-grade borrowers, which sharply depressed bank lending to developing countries. By contrast, bond issues by developing countries remained stable, because the share of developing-country investment-grade borrowers is greater among bond issuers than bank borrowers. The level of foreign direct investment (FDI) in 2001 was virtually unchanged from the previous year, with changes in flows largely driven by changes in the domestic economic environment, by large privatization transactions, or by a few major private sector acquisitions.

Financial crises highlighted the problems of rescue packages

The crisis in Argentina highlighted the challenges facing the international community in assisting countries in crisis. Fixed exchange rate regimes are vulnerable to asymmetric shocks. There are severe costs associated with hanging on to a pegged, overvalued exchange rate. The success of multilateral rescue packages depends critically on strong adjustment by recipient countries. Contagion can be contained through prudent external financial management, including flexible exchange rates, disciplined domestic monetary polices, and lower short-term debt. Finally, there is more work to be done on private sector involvement in crisis prevention and resolution. Recent experience has underlined the importance of a clear definition of the limits on official resources and of the role and responsibilities of the official sector, debtor countries, and their private creditors. This challenge points to the need to consider more ambitious proposals for facilitating orderly workouts of problematic private sector debts, and the recent proposal by the International Monetary Fund (IMF) to provide for a standstill of debt payments to allow time for an orderly restructuring will, no doubt, be debated in the year ahead.

No significant recovery in capital flows until 2003

Capital market flows are forecast to decline further in 2002. Investors are likely to remain cautious about emerging markets, because low growth and recession in industrial countries limits demand for developing countries' exports, financing constraints on banks and other investors remain tight, and the appetite for risk remains low. The recovery anticipated to begin in the second half of 2002, coupled with low interest rates, should spark a rise in capital market flows in 2003–04. Nevertheless, the increase in flows will remain modest, since commodity exports will continue to experience low export revenues, investors will remain concerned after the string of emerging market crises since the mid-1990s, and low rates of capacity utilization will reduce the need for capital in some of the more creditworthy developing countries. FDI flows should remain high, and perhaps rise somewhat, over the next few years, while growth in developing coun-

tries accelerates and they continue to enjoy the benefits from sustained improvements in policies over the past 10 years. FDI flows are likely to remain the largest source of external finance for developing countries.

Net resource flows

The global slowdown has depressed capital flows to developing countries

Developing countries' net long-term flows (gross inflows of capital less amortization) fell to an estimated $196 billion in 2001, or $65 billion below the previous year's level and $145 billion less than the peak in 1997 (see table 2.1, and see annex 2.2 for a definition of the measurement of capital flows used). Expressed as a share of gross domestic product (GDP), net long-term flows have fallen from 5.3 percent in 1997 to 3.1 percent in 2001. Deteriorating prospects for developing countries, the collapse in the price of technology stocks, the crises in Argentina and Turkey, and increased concern over risk have reduced demand for developing-country debt. Speculative-grade borrowers saw a sharp fall in access, with much higher spreads and sharply reduced flows. By contrast, investment-grade borrowers enjoyed improved terms from the decline in interest rates.[1] The decline in access to capital markets exacerbated the impact of the global growth slowdown on developing countries. This experience contrasts sharply with the early 1990s, when lower interest rates and increased access by developing countries helped to cushion the impact of the global recession. FDI, which is less sensitive to cyclical changes in output than capital market flows, was little changed from the previous year, and remained only $16 billion below the peak level of 1999.

Capital market flows

Developing countries' access to capital markets deteriorated substantially in 2001. Total capital market commitments (bank loans, bond issues, and portfolio equity) declined to an estimated $171 billion, about one-quarter less than the level in 2000 (see table 2.2). External factors played the predominant role in reducing external finance. The slowdown in industrial countries led to a decline in developing countries' export revenues, the impact of which was only in part mitigated by the drop in international interest rates. Because most developing-country borrowers are speculative grade, they were hurt by a widespread retreat from speculative-grade investments. Slower growth and the collapse of technology stock prices increased uncertainty and sharply reduced the wealth of investors in high-risk assets, and thus reduced their appetite for risk. Private flows failed to compensate for adverse cyclical conditions; the fall in developing countries' market access exacerbated the impact on growth of reduced demand for their exports.

Table 2.1 Net long-term resource flows to developing countries, 1991–2001
(billions of dollars)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000[a]	2001[b]
Net long-term resource flows	124.2	153.7	220.9	222.4	260.2	306.6	341.4	336.7	271.8	261.1	196.5
Official flows	62.2	54.3	53.4	46.0	54.1	30.3	40.7	53.4	47.4	35.3	36.5
Private flows	62.0	99.4	167.6	176.4	206.1	276.2	300.7	283.3	224.4	225.8	160.0
Capital markets	26.4	52.2	101.0	86.3	99.3	145.5	128.2	105.0	40.1	59.1	–8.3
Debt flows	18.8	38.2	50.0	51.2	63.3	96.5	98.1	89.4	5.6	8.2	–26.8
Bank lending	5.0	16.3	4.1	9.3	30.9	32.2	45.6	51.9	–23.3	–6.1	–32.3
Bond financing	11.0	11.1	36.7	38.1	30.7	62.3	49.6	40.9	29.5	16.9	9.5
Other	2.9	10.8	9.2	3.7	1.7	2.1	2.9	–3.4	–0.5	–2.5	–4.0
Equity flows	7.6	14.1	51.0	35.2	36.1	48.9	30.1	15.6	34.5	50.9	18.5
FDI	35.7	47.1	66.6	90.0	106.8	130.8	172.5	178.3	184.4	166.7	168.2

a. Preliminary.
b. Estimate.
Source: World Bank.

Table 2.2 Capital market commitments to developing countries, 1991–2001
(billions of dollars)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001[a]
Total	77	80	116	135	173	236	316	189	178	228	171
Bond issuance	11	20	50	46	53	98	114	73	68	68	68
Bank lending	61	54	57	73	113	125	179	108	90	125	93
Equity Placement	5	6	8	17	8	14	22	9	20	35	10

Note: The data in this table are gross commitments, and thus differ significantly from the data in table 2.1 which are gross disbursements minus amortization. The data on equity placements refer only to initial offerings of equity transactions marketed across borders, and do not include net purchases of securities by foreigners in domestic stock markets (which are included in the line "equity flows" in table 2.1).
a. Estimate.

Slowdown in world trade partially offset by lower interest rates

The growth slowdown in industrial countries reduced developing countries' export revenues, but the direct impact on borrowing capacity, at least for investment-grade borrowers, was softened by the fall in interest rates. The drop in world trade growth coupled with the continued fall in commodity prices (see chapter 1) reduced developing countries' export revenues by almost 1 percent in dollar terms in 2001.[2] The export revenues of the East Asian and Latin American regions, which accounted for almost three-fourths of developing countries' private-source debt in 2000, fell by 2 percent in 2001 (compared with a rise of 20 percent in the previous year). This decline would have increased the aggregate debt to exports ratio of the two regions by 3 percentage points (from 123 to 126 percent), if there had been no net borrowing in 2001. However, slower growth in industrial countries also resulted in a significant fall in short-term interest rates, because the demand for funds declined and central banks in the United States and Europe cut policy rates. The fall in interest rates resulted in improved terms on new lending for many developing countries. For example, in 2001 the interest rate on new bond issues by investment-grade sovereign borrowers among developing countries fell by 130 basis points, compared with the previous year. At unchanged debt levels, the two regions would have seen a decline in the ratio of interest payments to exports from 7.6 percent in 2000 to 7 percent in 2001.[3] Thus, the direct impact of the growth slowdown on borrowing capacity was relatively modest, particularly in comparison with the sharp deterioration in debt ratios during the recession of the mid-1970s and early 1980s (although debt ratios improved in the early 1990s recession—see table 2.3).

The impact of the technology crash

The reevaluation of prospective returns in technology sectors also had a role in reducing flows to developing countries. By the middle of 2000, markets perceived that the investment boom in telecommunications had created massive overcapacity, and that many of the newly formed Internet companies would be unlikely to generate the profits required to justify the investments made. This reevaluation of the likely profits from technology investments led to a general drop in technology stocks, while the slowdown depressed equities prices in general. The technology-heavy Nasdaq index fell 21 percent in 2001, and an index of global information technology and telecommunications stocks (the Morgan Stanley Global Industry Indices) fell 28 percent. By contrast, the more broad-based Dow Jones industrial index fell 7 percent.

Just as the boom in global stock markets in 1995–99 encouraged greater equity placements from developing countries, it appears that the sharp fall in stock markets is now associated with a decline in placements. Developing-country average stock market prices, after falling by 33 percent in 2000, dropped another 5 percent in 2001. The

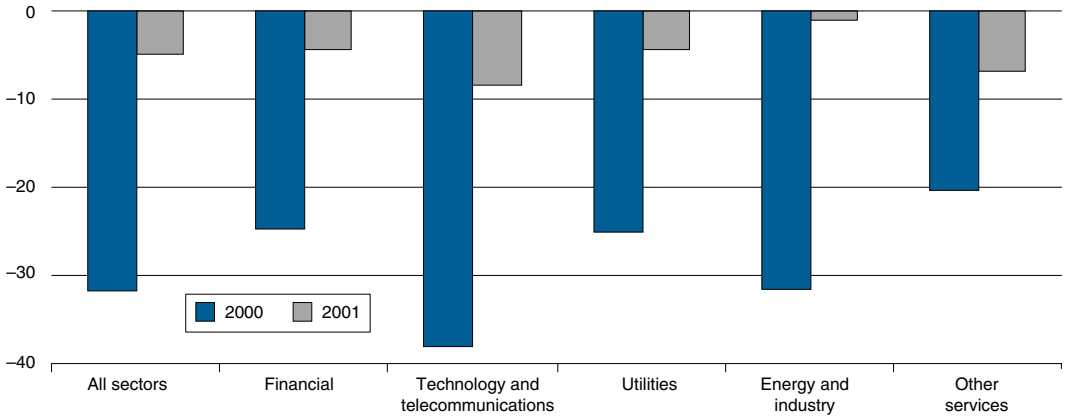
Table 2.3 Debt ratios during recessions, East Asia and Latin America
(percent)

	1973	1975	1980	1982	1991	1993
Debt to export	123	135	124	169	140	127
Interest to export	6.6	8.7	11.7	17.9	7.5	6.4

Source: World Bank.

Figure 2.1 Performance of developing-country stock markets by sector

Percent change from previous year



Note: Data for 2001 are until July.
Source: Bloomberg; Morgan Stanley Capital International; and World Bank.

technology sector, which accounts for about one-third of Morgan Stanley's emerging stock market index, suffered the largest price declines (figure 2.1). Capital market flows were pro-cyclical in response to booms and busts in equities prices. International equity placements by developing countries fell by 72 percent in 2001, to only $10 billion. All developing-country regions experienced a decline in equity placements, but China alone accounted for some three-fourths of the total fall (table 2.4). China had received over 60 percent of developing countries' equity placements in 2000, largely in technology sectors.

Table 2.4 International equity placement and performance of stock markets

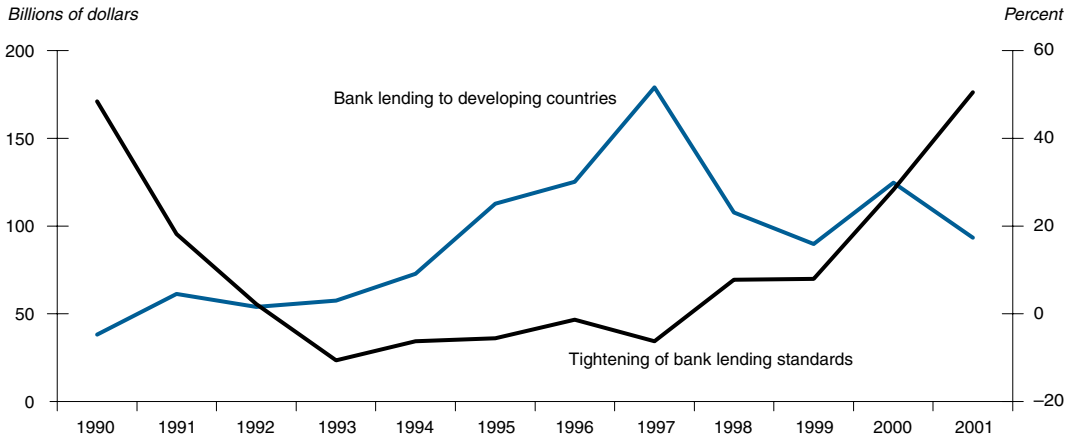
	2000	2001
Developing country equity placement *(billions of dollars)*	35.1	9.8
China	21.9	2.9
Other countries	13.2	6.9
Performance of stock markets *(percent change over previous year)*		
All developing countries	–33.1	–1.0
Asia	-44.8	11.9
China	–9.8	–19.5
Nasdaq	–39.3	–21.1

Source: Bloomberg; Capital DATA; Standard & Poor's/IFC.

A retreat from speculative-grade investments— The growth slowdown and collapse of technology prices also reduced capital market flows by reducing the demand for speculative assets in general. Spreads on global high-yield debt in 2001 were 203 basis points higher than the average in 2000, and shot up by about 400 basis points in the aftermath of the September 11th terrorist attacks (figure 2.3).[4] Since about two-thirds of developing-country sovereign borrowers (and a much larger share of private borrowers) are speculative grade, this implied a general decline in flows to developing countries. The retreat from speculative-grade assets reflected an increase in the riskiness of highly leveraged corporations, a fall in investors' appetite for risk, and increased uncertainty about economic prospects:

1. Speculative-grade corporations tend to be more highly leveraged, and thus more likely to default during recessions (they have less access to loans to support operations, but need to allocate a growing share of declining revenues to meet fixed debt service payments). The global default rate of corporations with speculative-grade credit ratings reached 9.8 percent in 2001, the highest level since 1992 (Moody's

Figure 2.2 Bank lending standards and bank credit to developing countries, 1990–2001



Note: Data for 2001 are until the second quarter. Tightening of lending materials refers to the share of banks in the United States that reported a tightening of their standards and terms on commercial and industrial loans over the past three months, as reported in the quarterly survey of the U.S. Federal Reserve Board.
Source: Capital DATA Loanware; U.S. Federal Reserve Board.

Investor Service). Therefore, when growth slows banks tend to tighten their credit standards to restrict loans to speculative-grade borrowers, both in reaction to the deterioration in the banks' portfolios while default rates increase and in anticipation of the impact of recession on highly leveraged corporations. The percentage of U.S. banks tightening their lending conditions exceeded that of the recession of the early 1990s (figure 2.2), and the volume of global cross-border bank lending commitments fell by 13 percent in 2001. While bank credit contracted in all categories of credit risk, the most severe pull back was from the high-risk borrowers.[5]

2. Reduced demand for speculative-grade assets also may have reflected investors' reduced appetite for risk after their wealth declined (see box 2.1), exacerbated by the events of September 11. Investors in high-risk assets have experienced a sharp fall in wealth: since its peak in early 2000, the market capitalization of the Nasdaq stock index has fallen by over $3 trillion.
3. Reduced demand for speculative assets may also reflect increased uncertainty about economic prospects. The collapse of technology stocks and the industrial countries' plunge from 3.4 percent growth in 2000 to 1 percent in 2001 may have increased the range of outcomes that investors feel they should consider. Increased uncertainty can cause risk-averse investors to reduce the share of high-risk assets in their portfolios.

For all of these reasons, the past year has seen a widespread retreat from speculative-grade borrowers. Because their share in total developing-country borrowers is three times that of industrial-country borrowers, the decline in loan commitments to developing countries was relatively large. Bank lending to developing countries dropped to $93 billion in 2001, or less than 75 percent of the 2000 figure—the second-lowest annual level since 1994. The decline in commitments was biased against new entrants to the market: the share of bank credit attributed to refinancing rose from 26 percent in 2000 to 34 percent in 2001. The cost of refinancing for investment-grade borrowers rose minimally. By contrast, the cost of refinancing for borrowers rated below-investment-grade rose sharply and loan maturities fell. Unlike the case for bonds (see next paragraph), the decline in bank lending affected most developing countries. Even excluding Argentina and Turkey, which are suffering severe domestic crises, and Brazil, which had been greatly affected by developments in Argentina during most of 2001, the decline in bank lending

Box 2.1 Evidence of changes in the appetite for risk and capital market flows

Changes in investors' appetite for risk are often associated with changes in developing-country access to private capital flows. The appetite for risk under conditions of uncertainty in part depends on the level of wealth (Guay 1999 shows this in a theoretical model of managers' behavior). Because each dollar of income becomes more important as wealth declines, risk-averse investors are less willing to undertake greater risks at lower levels of wealth. Clark (1998) finds that one reason for capital flows from rich to poor countries is that the higher wealth of rich countries' investors makes them more willing to undertake risky investments. The converse of this effect was important during the Russian devaluation of 1998, when huge losses suffered by investors in Russian securities reduced the appetite for risk (Kumar and Persaud 2001; Institute of International Finance 1998), and capital flows to developing countries collapsed.

However, apart from crises that are clearly related to changes in investors' wealth, it is difficult to determine whether changes in the appetite for risk have had an important impact on market access. The appetite for risk is extremely difficult to measure. Market sources, including Chase Securities, J. P. Morgan, and Credit Suisse–First Boston, do provide statistical approaches to measuring investors' appetite for risk. These indices generally include measures of market liquidity: for example, spreads between recently issued and off-the-run Treasury securities;[6] and measures of credit risk, including spreads between risk-free and high-risk assets, differences between the riskier small-cap stocks and the S&P 500, foreign exchange volatility, and changes in the price of options relative to their value if exercised (referred to as implied volatility). In general these indices do record reductions in the appetite for risk during periods when it is likely that such declines occurred, for example the Russian devaluation of August 1998. In addition, the J.P. Morgan index registers a substantial rise in risk aversion during July 2001 when the Argentine crisis deteriorated, and then immediately following the September 11th attacks.

However, these indicators face difficulties in distinguishing between changes in risk appetite and changes in the riskiness of assets. For example, deterioration in growth could harm credit quality and thus raise high-risk spreads in general. While risk appetite may also decline, the change in spreads would be a combination of the two rather than predominantly a measure of the appetite for risk. Similarly, greater willingness to hedge against risk (measured by increases in the implied volatility of options contracts) may represent reduced appetite for risk or the perception that the environment has become more risky (Kumar and Persaud 2001). Thus, the indicators have value in alerting market observers to changes in the demand for risky assets, but are less effective in determining the cause.

was about 25 percent. Bank lending is less tolerant of changes in risk than are bond markets, reflecting banks' high leverage and the greater concentration of their loan portfolio compared to investors in bonds.

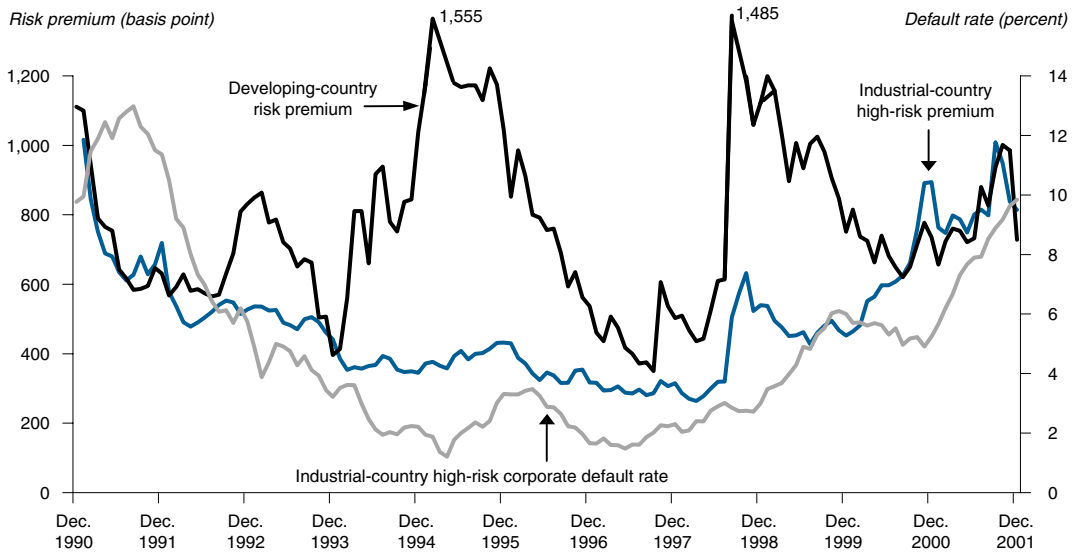
—might benefit developing-country bonds

Perhaps surprisingly, the reduced demand for high-risk assets may have helped support developing countries' bond issues, which remained stable in 2001, at $68 billion. Developing-country bond issuers have higher credit ratings, on average, than developing-country bank borrowers. Thus bond issues were less affected by increased uncertainty and reduced appetite for risk. Moreover, the decline in interest rates and a slight reduction in investment-grade spreads implied a significant reduction in interest rates for investment-grade borrowers, thus encouraging more of them to come to the market. The stability in bond volume in 2001 was supported by increased borrowing by higher quality borrowers (rated either investment grade or just below), including China, Hungary, Malaysia, Mexico, and Poland, as well as smaller borrowers, such as Colombia, Latvia, Panama, and Uruguay.

Reduced capital flows partially reflect a fall in demand

Declines in the demand for capital played a modest role in determining the volume of capital market commitments in 2001. Most developing countries' access to foreign capital is constrained by the willingness of foreign investors and lenders to supply funds. However, a few countries could borrow more even at the current interest rate, but do not because their demand for capital is low. For example, during 1998–99 the demand for funds from the East Asian crisis countries collapsed with the

Figure 2.3 Corporate default rate and risk premiums, 1990–2001



Source: Moody's Investor Service; Merrill Lynch.

30 percent fall in investment, and they ran large current account surpluses. Capital market commitments to the crisis countries fell to about $30 billion per year during this period, compared with $74 billion in 1997. It appears that demand also remained low in the five crisis countries in 2001, since investment fell slightly and the government deficit improved by almost 1 percent of GDP. Capital market commitments fell to $34 billion. Thus low demand from the crisis countries most likely reduced the level of capital market commitments compared with what would have happened with a robust recovery. Nevertheless, there was no repeat of the experience of the 1998–99 period, when the drop in capital market commitments in the crisis countries had a noticeable impact on the total for developing countries. A few of the richer oil-exporting developing countries also reduced their capital market commitments in 2001, presumably choosing to increase saving in response to continued high oil prices.

Capital market commitments declined until late in the year

The overall decline in capital market commitments accelerated in 2001 while the global slowdown deepened. Capital market commitments fell to about $16 billion per month during the first half of 2001 (compared with $19 billion per month in 2000), and then dropped to only $9 billion per month following the September 11 terrorist attacks (table 2.5). Spreads on developing countries shot up to 924 basis points in the aftermath of the attacks, compared with 716 basis points in the first half of 2001, although the rise in spreads (excluding Argentina and Turkey, the two major countries most affected by domestic economic crises) was modest. Commitments recovered during the last quarter, but remained well below the 2000 level. The average spread excluding Argentina and Turkey fell to 400 basis points (100 basis points below the average of the previous year) while interest rates fell and optimism about an early recovery increased.

Trends in FDI

Net FDI to developing countries is estimated at $168 billion in 2001, almost unchanged from the previous year, and just 8 percent below the peak reached in 1999. The stability of FDI flows was achieved in the face of a significant fall in global FDI flows. Changes in FDI flows to developing countries in 2001 were driven more by

Table 2.5 Capital market commitments and spreads for developing countries

	2000	2001			
		January–June	July–August	September–October	November–December
(monthly average, billions of dollars)					
Capital market commitments	19.3	15.8	12.7	9.3	16.6
Bonds	5.7	6.9	4.1	2.5	6.8
Banks	10.6	7.7	7.9	6.7	9.1
Equity	3.0	1.2	0.6	0.2	0.7
(basis points)					
Developing-country spreads	707	716	844	924	865
without Argentina and Turkey	507	440	416	447	404

Note: Developing-country spreads refer to J. P. Morgan Chase's Emerging Market Bond Index Global, which uses country weights based on market capitalization of outstanding debt.
Source: Dealogic; J. P. Morgan Chase; World Bank staff calculations.

domestic economic developments (for example decisions over privatization transactions and policy improvements) in a few of the large FDI recipients than by changes in the global economy.

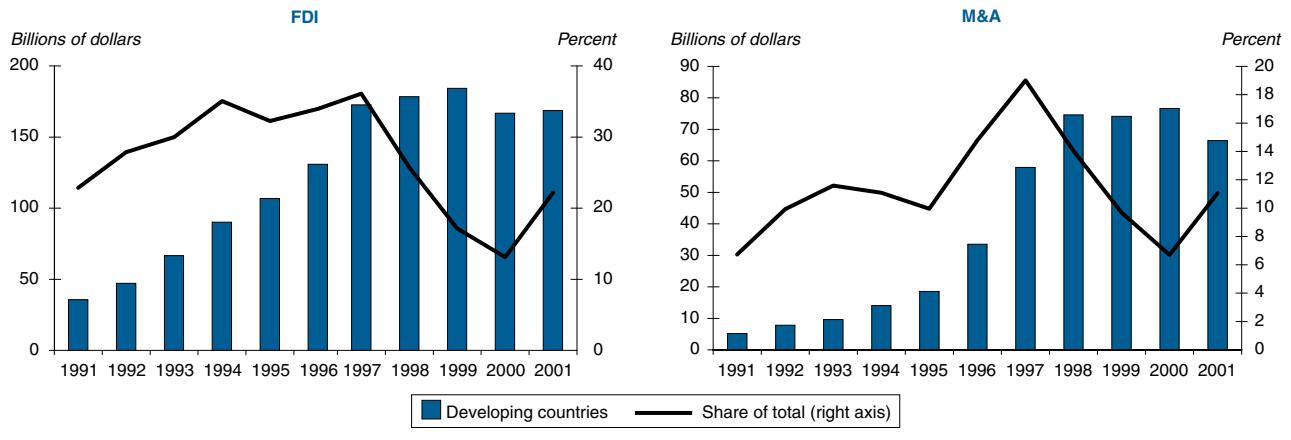
Global FDI in downturn—

Preliminary estimates from the United Nations Conference on Trade and Development (UNCTAD) indicate that global FDI flows fell massively in 2001, to $760 billion from about $1.3 trillion in the previous year. Global mergers and acquisitions (M&A) activity show a 45 percent drop in 2001. Slow growth or recession is often associated with a decline in FDI outflows (paralleling the decline in domestic investment) since multinational corporations face stringent financing constraints with the decline in profits and tightening of bank credit standards. For example, FDI outflows from the United States dropped from $19 billion in 1980 to only $1 billion during the 1982 recession year, and then recovered to $13 billion in 1984.

—but developing countries were less affected

The past years have seen considerable stability in FDI flows to developing countries, although their share of global FDI flows was cut in half in the wake of the Asian crisis. Essentially, the trends observed since FDI flows plateaued in the late 1990s have remained constant. Developing countries' share of global FDI flows turned up with the drop in global flows, but remained well below the 36 percent level reached in 1997 (see figure 2.4). FDI

Figure 2.4 FDI and M&A in developing countries, 1991–2001



Source: World Bank, *Global Development Finance: Country Tables* and sources cited therein, various years; UNCTAD, *World Investment Report 2001;* World Bank staff estimates for 2001.

flows continue to decline relative to developing countries' GDP, down to 2.3 percent in 2001 from 3 percent in 1998. FDI flows remain highly concentrated: as has been true for the past few years, the top 10 recipients of FDI received over 70 percent of total FDI to developing countries (box 2.2).

The stability of FDI flows in 2001 largely reflects offsetting changes in a few large countries rather than the impact of the economic slowdown or other global factors. Eight out of the top ten recipients saw changes (either increases or decreases) in FDI flows of 20 percent or more from the previous year. These changes were driven largely by internal factors, often privatization, private sector M&A transactions, or general domestic economic conditions. In Mexico the sale of Banamex-Accival

Box 2.2 The concentration of FDI flows

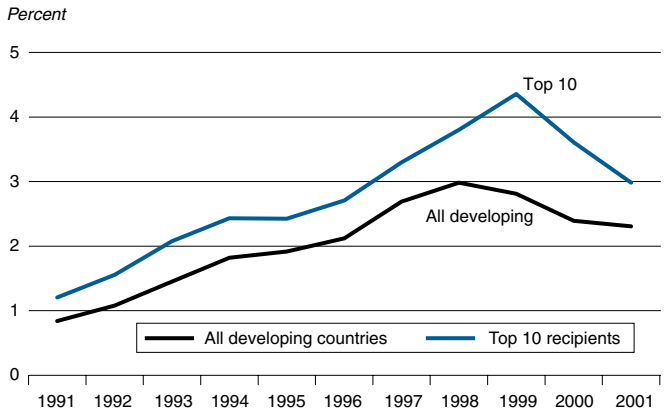
Most FDI flows have remained concentrated in just a few developing countries throughout the 1990s, when the share of the top 10 has never fallen below 64 percent.[7] Market size appears to be a major explanation of concentration: of the top 10 developing-country FDI recipients, 6 are also among the top 10 countries in terms of GDP, but market size is not the only factor. The average ratio of FDI to GDP in the top 10 recipients is almost a full percentage point higher than in developing countries as a group (figure 2.5). While Brazil, China, and Mexico alone account for about half of developing countries' FDI, they make up only a little more than one-third of developing countries' GDP. While FDI flows to India—the fourth largest developing country—have increased over the 1990s, the country remains 14th on the list of developing-country FDI recipients.

FDI is also concentrated in relation to other indicators of economic activity. Of the 10 largest FDI recipients, 7 are also the developing countries with the largest exports. UNCTAD (2001) developed a more comprehensive index that measures FDI inflows relative to economic size, as represented by an unweighted average of three ratios—a country's share in world FDI inflows to its share in world GDP, employment, and exports. By this measure, FDI is mildly concentrated; only 30 out of 102 developing countries had shares of FDI that equaled or exceeded their average shares of world GDP, employment, and exports. Only half the top 10 FDI recipients received more FDI than expected, based on their shares of global economic activity. The concentration of FDI flows does not mean that FDI only benefits the larger countries; all of the 10 developing countries with the highest ratio of FDI to GDP are relatively small-scale economies.

FDI to some of the larger recipients has been boosted by good policies. The largest FDI recipients have an average World Bank policy rating of 4.1, compared with 3.3 for other developing countries. Perhaps more important for determining FDI *flows*, however, is the change in policies. Countries that have undergone an improvement in the investment climate may see a large inflow of FDI until the stock reaches the levels desired by foreign investors. The huge surge in FDI to China with the introduction of market reforms is perhaps the most spectacular example of this phenomenon. Similarly, FDI flows to Mexico were boosted by Mexico's entrance into the North American Free Trade Agreement. FDI also has increased to countries with strong economic programs that liberalize the rules governing FDI; for example, FDI to the Republic of Korea rose from about $2 billion before the East Asian crisis to an average of $7 billion following the easing of rules against foreign investment (see World Bank 2000a). Finally, FDI has responded to government decisions on privatization programs; 7 of the 10 largest FDI recipients received more than $1 billion in foreign funds to finance privatization activities in 1999 (World Bank 2001).

The concentration of other flows is similar to that of FDI. The 10 developing countries with the largest domestic investment levels accounted for 70 percent of all investment in developing countries. This is unsurprising, because foreign and domestic investors are likely to respond to the same factors—market size and investment climate. Moreover, FDI inflows tend to crowd in domestic investment (World Bank 2001, chapter 3; Bosworth and Collins 1999). The concentration of capital market flows is somewhat higher than FDI; the top 10 recipients accounted for 75 percent of total flows. Access to capital market flows depends on the presence of relatively well-developed financial markets (Hausmann and Fernandez-Arias 2000). Thus while the poorest developing countries receive significant amounts of FDI, they receive almost no portfolio flows (see chapter 3). A concentration of FDI flows is often observed within countries as well. For example, nearly 90 percent of China's FDI stock is in the coastal regions, almost all FDI flows to Mexico were absorbed in central states and those bordering the United States (UNCTAD 2001), while in India the top five recipient states (Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, and Delhi) accounted for 75 percent of total FDI approvals in 2000. Again, the quality of policies appears to be a major determinant of the distribution of FDI flows in India (Dollar, Iarossi, and Mengistae 2001).

Figure 2.5 FDI as ratio to GDP, 1991–2001



Source: World Bank, *Global Development Finance: Country Tables* and sources cited therein, various years; World Bank, *World Development Indicators*, various years; World Bank staff estimates for 2001.

financial group to Citigroup for $12.5 billion boosted FDI flows, and in South Africa, a foreign firm took over De Beers mining company by acquiring shares worth $20 billion. In Poland lower FDI flows signaled the completion of major privatization transactions. In other countries changes in FDI flows reflected changes in the overall economic environment rather than the impact of a few transactions. Examples include Brazil, where economic uncertainty restrained greenfield FDI; Argentina, where lower FDI flows reflected a slowdown in private sector M&A transactions with the increasing economic difficulties; Korea, where the process of corporate and financial restructuring has slowed;[8] and China, where FDI boomed with the anticipation of accession to the World Trade Organization. The extent to which FDI inflows in China represent additional resources to the country remains open to question, because a significant portion of registered FDI to China may have originated in the country (box 2.3).

These major changes largely determined the regional trends. FDI continued to fall in Latin America, the largest recipient region, because cross-border M&A activity in the region dropped by around 5 percent. Several privatization plans have been postponed or delayed (examples include Copel, Brazil's electricity generation and transmission company, and Cintra, the holding company of Mexico's major airlines), whereas some foreign investors have withdrawn large-scale offers to acquire stakes in private companies (including two Brazilian telecommunications companies). FDI flows to Eastern Europe remained stable; while large-scale privatization programs in banking and telecommunications neared completion, the region received an increase in greenfield investment. Net FDI flows to Middle East and North Africa remained at about the level of the past few years. The De Beers sale boosted flows to Sub-Saharan Africa. FDI to East Asia and Pacific declined despite higher FDI to China, because of slow growth in several regional economies, low demand for funds in the high-tech industries, and reduced M&A transactions in the East Asian crisis countries (figure 2.6).

Developing countries may also be a growing source of FDI

While the data are incomplete, it appears that developing countries have become a major source of FDI flows to other developing countries. Out of $185 billion FDI inflows to developing countries in 1999, only $72 billion are identified by the Organisation for Economic Co-operation and Development (OECD) as coming from the industrial countries. Developing countries also receive about $40 billion in FDI flows from other high-income countries.[9] If these statistics are accurate, the remainder of developing countries' FDI inflows (about one-third or $70 billion) would have to be from other developing countries (figure 2.7). South-South FDI may also have contributed to the resiliency of FDI flows during the financial crisis. By these calculations, South-South FDI flows continued to rise in 1998 and 1999 despite the financial crises, during which total FDI flows from high-income OECD countries declined.

South-South FDI has increased at the same time as South-South trade was rising (intra-developing countries imports rose from 30 percent of their total imports in 1990 to 36 percent in 1999). Thus, the production and ownership structures of developing countries seem to have become more integrated through FDI, not only with the industrial countries, but also with other developing countries. In addition, major developing-country exporters who face quota restrictions in industrial countries may have invested abroad in order to export from countries that are less affected by such trade barriers.

Box 2.3 Round-tripping of capital flows between China and Hong Kong

FDI inflows to China surged in the 1990s, boosted by the acceleration of market reforms and the introduction of incentives for FDI, including concessions on tax, leasing of land and property, government guarantees for investments, and special arrangements regarding retention and repatriation of foreign exchange. Preferences for foreign capital are believed to have encouraged Chinese investors to move money offshore and then bring it back to China disguised as foreign investment (Sicular 1998). Another motivation for "round-tripping," or "recycling," is the concern that the government may impose exchange restrictions on residents, as occurred in July 1993 (Adams 1993; Gunter 1996). Some early studies estimated that round-tripping accounted for nearly a quarter of foreign inflows to China in 1992 (Lardy 1995, p. 1067; Harrold and Lall 1993, p. 24). The extent of recycling may have increased in recent years (box figure).

Throughout the 1990s, FDI inflows to China originated mostly outside the industrial countries, notably from Hong Kong (China). For example, FDI inflows from Hong Kong constituted nearly half of total FDI flows to China in 1996. Hong Kong's share has declined since 1997, to below 40 percent by 2000 (see table below). This decline has been offset by a comparable increase in FDI inflows reported from the Virgin Islands, however, which suggests that there is round-tripping through this offshore financial center. The FDI inflows from Hong Kong (and the Virgin Islands) appear to be highly correlated with outflows from China in the form of "other investment assets" (mostly bank deposits) held abroad by Chinese residents, and errors and omissions in China's balance of payments (see figure below). Hong Kong, in its turn, reports large amounts of FDI inflows from mainland China, and from offshore financial centers such as Bermuda and the Virgin Islands.

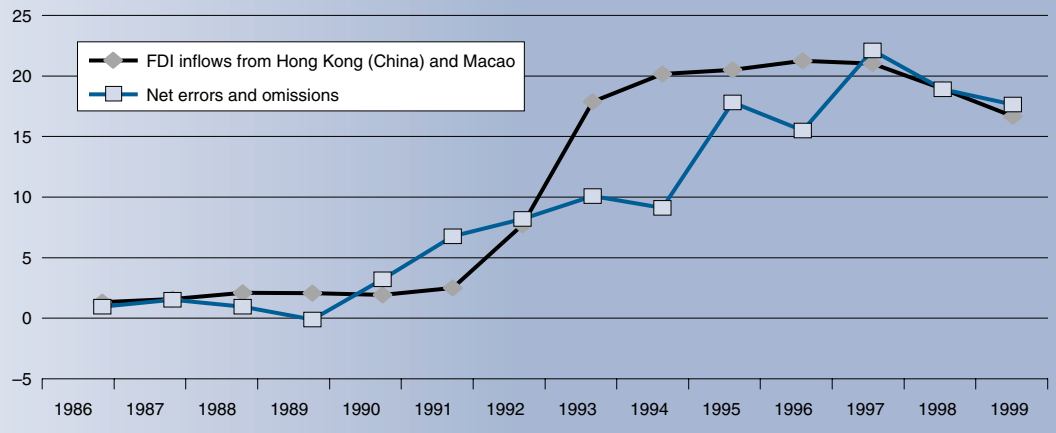
China's FDI by source

(percent)

	1996	1998	1999	2000
Hong Kong (China)	50	42	40	38
Virgin Islands (U.K.)	0	9	7	9
United States	8	9	10	11
Singapore	0	8	7	5
Japan	9	8	7	7
Taiwan (China)	8	7	6	6
Korea, Democratic People's Republic of	0	4	3	4
Germany	0	2	3	3
Netherlands	0	2	1	2
France	1	2	2	2
Others	24	7	14	13

Round-tripping of capital flows: China and Hong Kong (China), 1986–1999

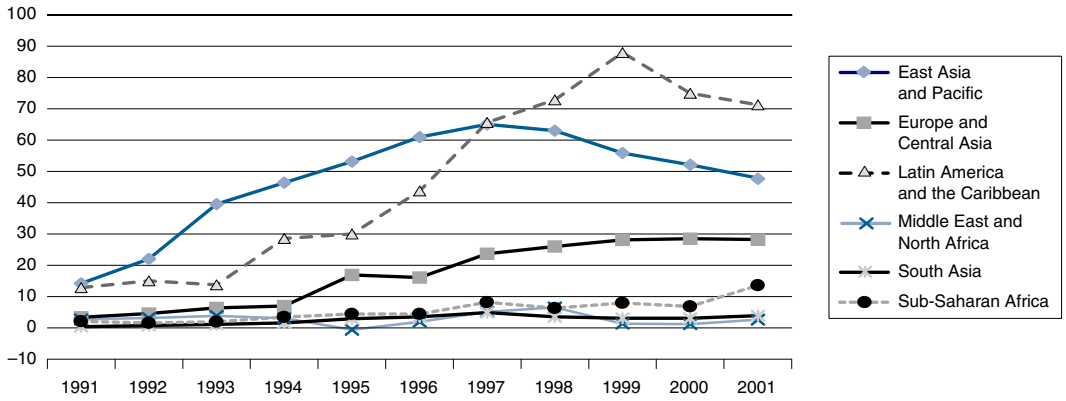
Billions of dollars



Source: World Bank staff estimates.

Figure 2.6 Regional trends of FDI flows, 1991–2001

Billions of dollars

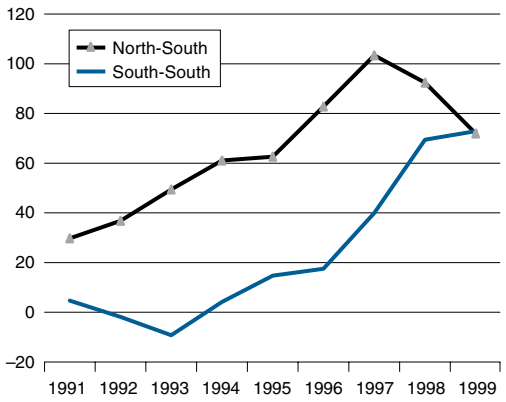


Source: World Bank, *Global Development Finance: Country Tables* and sources cited therein, various years; World Bank staff estimates for 2001.

Figure 2.7 North-South and South-South FDI, 1991–1999

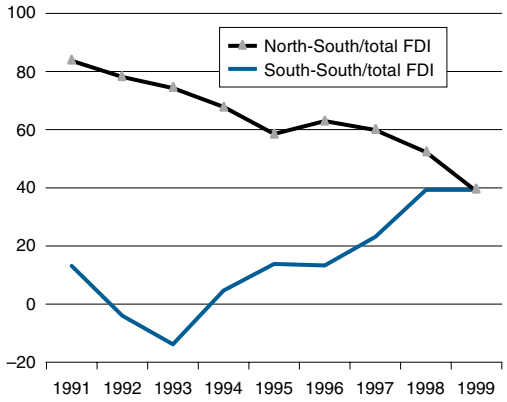
FDI flows to developing countries

Billions of dollars



South-South and North-South FDI shares

Percent



Source: World Bank staff estimates.

The data given above calculate South-South FDI by comparing developing countries' FDI inflows with recorded outflows from other regions. This is probably more reliable than basing the calculation on identified outflows from developing countries. The problem of under-reporting FDI outflows is acute in the developing countries, many of which have capital controls, exchange controls, and high taxes on investment incomes, combined with weak accounting rules and tax administration. Nevertheless, the trend of increasing outflows of FDI from developing countries is also evident from the data on identified outflows reported in the country pages of the IMF balance of

payments statistics. However, reported outflows from developing countries, which reached only $12 billion by 1998, are much smaller than the estimate given above, due to under-reporting of outflows by source countries.

Emerging market financial crises in 2001

The past year has seen a continuation of the severe economic crises of the 1990s that afflicted major middle-income emerging markets (Mexico in 1994–95, East Asia in 1997–98, the Russian Federation in 1998, and Brazil in 1998–99). The causes of each crisis differed in important respects, but in all of them shortcomings in external financial management and defects in corporate and financial sector governance played an important role. The past year's problems in Argentina and Turkey shared many features with these earlier crises.

A critical difference, however, is that contagion effects to other emerging markets, and other debt markets, have been limited (box 2.4). This is especially noteworthy since Argentina's crisis developed into a full-blown sovereign default. The only recent instance of such an extreme outcome by a major debtor was the Russian Federation in August 1998; that situation produced severe dislocation across global financial markets.

The crisis in *Argentina* has its roots in the buildup of vulnerabilities after the highly successful exchange rate-based stabilization of the early 1990s. After a long history of inflation (including a period of hyperinflation) and failed efforts to stabilize, the adoption of a dollar-based currency board in 1991 stopped the country's inflation in its tracks.[10] The country experienced a post-stabilization boom on the order of 7 percent growth in GDP, while the reduction in interest rates toward world levels stimulated domestic demand.

However, substantial vulnerabilities remained, and were increasingly exposed during the second half of the 1990s. Despite strong export growth, foreign exchange revenues were insufficient to finance buoyant import demands, rendering the country dependent on capital inflows. Fiscal policy was not only too loose on average, but was also unhelpfully procyclical—too expansionary in the recovery phase of 1996–97, leaving the authorities with no scope but to tighten policy into the downturn after 1998.[11] As a result, public sector debt remained high (at 50 percent of GDP in mid-2001), and maturities shortened.

The steady appreciation of the dollar in the second half of the 1990s and the sharp Brazilian devaluation led to a 15 percent real exchange rate appreciation between January 1997 and mid-2001, further constraining growth. Most importantly of all, deflation persisted throughout the economy (consumer prices have fallen by a cumulative 3 percent over the past three years), and the real economy remained stuck in recession, leading to a further rise in an already intolerably high unemployment rate. With nominal incomes across the economy falling sharply during 2001, there was little realistic chance for the authorities to meet the tax revenue projections that were the backbone to a planned "zero deficit" budget strategy. Market awareness of the sizeable dollar liabilities of both the public and private sectors completed a picture that made creditors leery of maintaining, let alone adding to, exposures as the end of the year approached.

Public disturbances—in part a reaction to limits imposed on cash withdrawals from the banks—led to the resignation of the Argentine president in December 2001. Soon after, the government formally defaulted on its debts and the currency was devalued. A floating exchange rate system was introduced in mid-February. It remains to be seen who will bear the considerable losses from the devaluation, but given all these dislocations, a phase of renewed output declines and rising unemployment seems inevitable. The only issue now is how long this situation will persist.

Turkey also faced a severe crisis in 2001, which was marked by efforts to control a large public sector deficit (12 percent of gross national product [GNP] in 2000), high levels of public sector debt (in the range of 90 percent of GNP by end-2001), and difficulties in rolling over short-term debt (100 percent of reserves). Adoption of a crawling peg in 1999 was aimed at reducing high levels of inflation. Fixing the exchange rate encouraged large capital inflows with a substantial buildup of foreign exchange liabilities of the banking system. In February 2001, the government was compelled to abandon the crawling peg, which led to a 26 percent real devaluation (year-on-year) by the end of 2001 and large losses in the banking sector that the government is now cleaning up. There are a number of reasons, however, why

Box 2.4 Financial market contagion from the Argentine crisis

There is little evidence that investors have retreated from most other emerging markets because of the crisis in Argentina. The correlation between secondary markets bond spreads between Argentina and 15 emerging markets rose from 0.27 in the months before the exacerbation of Argentina's difficulties in October 2000 to 0.47 from October 2000 to August 2001.[12] However, this period coincided with the global growth slowdown that was associated with a general rise in spreads and in the volatility of spreads (and measured correlations tend to rise with increases in volatility), so it is difficult to isolate the impact of the two crises. Brazil does appear to have been affected by the crisis in its neighbor to the south, perhaps because they compete in the same markets.[13] The correlation between Brazilian and Argentine spreads increased from 0.6 in mid-2000 to between 0.8 and 0.9 in each of the three-month periods from October 2000 to August 2001. However, late in the year market sentiment toward Brazil improved, and spreads narrowed despite the increasing problems in Argentina.

Looking at specific crisis episodes (October 2000, March/April 2001, July 2001, and December 2001), we can see some rise in the spreads on other emerging market bonds. However, the rise in spreads during the crisis periods varied, and spreads tended to return to former levels relatively quickly. The index of emerging market spreads was at almost the same level in December 2001 as in October 2000. Overall, spreads in emerging markets excluding the two crisis countries appear to have been little affected by the crisis in Argentina, and were stable until the September 11 terrorist attacks.[14]

There are various reasons why the Argentine crisis has generated such limited contagion effects so far, in marked contrast to the East Asian crisis and the Russian devaluation. Unlike these earlier crises, which were considerable surprises, investors have been aware of the problems in Argentina for some time. Thus most investors may already have taken whatever steps they felt necessary in absorbing the losses on Argentine bonds. Moreover, many investors are less leveraged this time around than during the Asian crisis (particularly after the debacle that highly leveraged speculators suffered with the Russian devaluation), which means that there is a reduced need to liquidate across-the-board to meet margin calls. At the same time, developing countries are less vulnerable than they were a few years ago. Currently, very few major emerging markets have pegged exchange rates, which proved to be particularly vulnerable to contagion from the collapse of other pegged exchange rates. Levels of reserves have risen while short-term debt levels have fallen, improving a key indicator of vulnerability. Several of the Asian countries are presently running current account surpluses, and so are less dependent on international capital markets. Finally, low international interest rates eased external financing pressures on heavily indebted emerging markets.

Change in spreads during crisis periods, 2000–01
(basis points)

	October 2000	April 2001	July 2001	December 2001
Argentina	317	363	874	3806
Developing countries (excluding Argentina and Turkey)	64	–1	68	–46

Note: Each crisis period is defined as the previous low point of spreads to the peak. The weights used for developing countries excluding Argentina and Turkey in December 2001 differ slightly from the previous periods.

Turkey's difficulties have been less severe than Argentina's:

- Despite the crisis, Turkey is making significant progress in improving the fiscal accounts: the primary balance of the consolidated public sector shifted from a deficit equivalent to 2 percent of GNP in 1999 to (an estimated) surplus of 5.7 percent of GNP in 2001.
- The exchange rate regime was less rigid and thus provided for an easier (albeit still very messy) exit mechanism.
- Turkey's debt is higher than Argentina's (relative to output), but a greater share is owed to domestic residents, which helped facilitate efforts at restructuring.
- A larger and more diversified export sector means that exchange rate depreciation can have a greater and more rapid impact on production.
- Turkey's strong ties to Europe and its importance as a front-line state following the September 11 attacks have helped to facilitate substantial financial support. However, the attacks also severely damaged Turkey's foreign

exchange receipts, due to the drop in revenues from tourism and slower export growth. A new IMF standby arrangement to help Turkey absorb this additional external shock and sustain its reform program is expected to be in place in February 2002.

Lessons of the turmoil in Argentina

The situation in Argentina is difficult, and the role of clear-sighted economic policy is critical. The challenge for the Argentine authorities now is to adopt appropriate measures to allow the economy to take advantage of the newfound flexibility of a floating exchange rate, while also addressing some the key structural problems that have been exposed and worsened by recent developments. It is worth noting that—in the cases of Mexico in early 1995, Thailand and Korea in the winter of 1997–98, the Russian Federation in the fall of 1998, and Brazil in early 1999—the early stages in the move to a free float were very difficult and it took time for signs of successful stabilization to be visible. The Argentine crisis is especially complex, since it combines large private sector foreign exchange exposure and public sector default.

It is not too early to draw important lessons from the developments in Argentina. Most of these lessons reinforce those that became evident during the East Asian and Russian crises of 1997–98. Five stand out:

- *Fixed exchange rate regimes are vulnerable to asymmetric shocks*. The success of fixed exchange rate regimes requires that the countries involved are affected similarly by shocks. Events of the past few years, including the decline in commodity prices and the Brazilian devaluation, required a devaluation in Argentina to restore external balance. But at the same time the dollar was appreciating, responding to a very different set of economic factors. The resulting appreciation of the peso depressed output, particularly given rigidity in labor markets which impeded real wage adjustment. The resulting recession in turn undermined support for the program.
- *There are severe costs associated with hanging on to a pegged, overvalued exchange rate*. In Mexico (December 1994) and Thailand (third quarter of 1997), failed defenses of currency pegs led to country credit crises. The Argentine authorities structured their economic system around the inviolability of the one-for-one exchange rate peg against the dollar. However, this structure encouraged investors to incur mounting dollar liabilities, in the belief that the government would maintain the peg. The size of dollar-denominated debt then greatly increased the economic costs when the peso was devalued.
- *The success of multilateral rescue packages depends critically on strong adjustment by recipient countries*. Crises can be successfully resolved only when policy implementation is strong; government commitment to taking difficult adjustment measures is critical. Multilateral financing is designed to support, not substitute for, adjustment. The size of potential outflows dwarfs the resources available to the multilaterals. Moreover, greatly increasing the size of rescue packages could encourage excessive risk taking by private investors, although so far the evidence that rescue packages have generally contributed to risk taking is inconclusive (box 2.5).
- *There is more work to be done on private sector involvement in crisis prevention and resolution. Recent experience has underscored the importance of clearer definition of the limits on official resources and of the rules and responsibilities of the official sector, debtor countries, and their private creditors*. Contingent credit lines can provide for new money in case of crisis. But the government's counter-parties can avoid increasing their exposure during a crisis by selling other holdings of government bonds, thus undermining confidence. In the case of Argentina voluntary debt exchanges were relatively easy to organize, but they did little to ease the country's financing difficulties. These challenges point to the need to consider more ambitious proposals for facilitating orderly workouts of problematic private sector debts, and the recent proposal by the IMF to provide for a standstill of debt payments in order to allow time for an orderly restructuring will, no doubt, be debated in the year ahead.
- *Contagion can be contained through prudent external financial management*. Most countries in Latin America and Asia that are dependent on private capital flows have strengthened their ability to withstand shocks through

Box 2.5 Moral hazard and rescue packages

Considerable concern has been raised that the expectation of multilateral support for crisis-hit countries may encourage excessive risk taking by investors in emerging market debt (Meltzer 2000; Calomiris 2000).[15] It is difficult to evaluate what might have happened in the absence of rescue packages, and so far the evidence that rescue packages have encouraged excessive risk taking is inconclusive. Zhang (1999) finds that spreads on emerging market bonds in the seven quarters following recovery from the Mexican crisis were no lower than precrisis levels, after controlling for other determinants of spreads. Lane and Phillips (2000) find no evidence that IMF-related news and announcements of rescue packages had an immediate impact on spreads. By contrast, Eichengreen and Mody (1998) find that, by 1996, spreads on emerging market bonds had fallen to levels that failed to adequately compensate for the risk of lending, and spreads fell further in 1997.

Concern that some investors have escaped the losses associated with financial crises has boosted concern over moral hazard. It is difficult to estimate creditor losses from recent emerging market crises, although losses are less than they would have been in the absence of official support. International equity investors may have lost $166 billion during the Asian crisis (International Council of Securities Agencies 1999) and international banks $60 billion (UNCTAD 2001). Losses during the Asian and Russian crises may have totaled $350 billion (Institute of International Finance, various years). Nevertheless, the provision of multilateral funds undoubtedly facilitated the repayment of international banks during the Mexican and Asian crises. Authorities had to balance the erosion of market discipline with the consequences of a complete collapse, which could have had severe effects on many emerging markets.

While the evidence of moral hazard–induced excessive lending is inconclusive, given the uncertainties involved it is prudent to explore means of reducing the potential impact of multilateral support on moral hazard. Of the 15 largest emerging market borrowers in 1997 (which together account for 80 percent of capital market flows to developing countries), 8 had been the subject of rescue packages by 2001. Some of them received several individual loans. Some proposals have focused on limiting the flexibility of multilateral institutions by allowing rescue packages only for solvent borrowers who prequalify for loans (Meltzer 2000). Other proposals have emphasized prior actions that force private creditors to recognize losses or provide resources during a crisis. For example, eligibility for multinational assistance during a future crisis could be conditioned on the government's obtaining prior commitment by the private sector to roll over maturing claims or to provide new money. Still other proposals have focused on ex ante provisions that would facilitate the private sector absorbing losses. A modification to collective action clauses could permit the restructuring of bond instruments by majority vote of the creditors rather than unanimity. This would reduce the ability of small creditors to force repayment of their debts as the price of agreement to restructure and greatly ease the complexity involved in restructuring bonds. The implications of such modifications to collective action clauses are difficult to determine. Eichengreen and Mody (2000) found that collective action clauses with this provision tend to reduce the borrowing costs of more creditworthy borrowers and raise them for less creditworthy ones, which would strengthen market discipline. However, Becker and others (2001) found no evidence that such collective action clauses increase yields for either higher- or lower-rated issuers.

Another, complementary, approach is to provide for officially sanctioned standstills that would impose a cooling-off period to avoid investor panic (Eichengreen and Mody 2001); still another approach under some conditions is to use IMF facilities to continue lending to countries when borrowers are in arrears (Goldstein 1998; Fischer and Citrin 2000). The Bank of Canada and Bank of England (2001) have recommended adoption of an officially sanctioned standstill to provide a "time-out" during which governments can demonstrate their commitment to reform, and hence encourage investors to return. Kaufman and Litan (1998)[16] propose that multilateral support be contingent on changes in borrowing country laws that implement automatic write-downs on foreign currency denominated interbank loans.

All of these proposals face difficulties. Prequalification requirements could precipitate crises for countries that fail. Banks' prior commitments to rollover loans during a crisis can come at the cost of a sell-off of other assets, because banks attempt to limit their total exposure to the crisis country. It is difficult to define before the crisis what particular institutional arrangements would be most desirable to "bail in" private investors. This may depend, in part, on whether a liquidity or solvency crisis is involved. Standstills and write-down requirements could have a chilling effect on the provision of finance to emerging markets (although majority-based collective action clauses could support market discipline). Nevertheless, there is a growing recognition that greater attention to private sector participation in resolving crises is warranted. For example, the recent IMF loan to Argentina provided that the disbursement of some committed resources could be brought forward to support a voluntary and market-based operation to increase the viability of Argentina's debt profile. A review of international arrangements for crisis support that provided for greater private sector recognition of losses could help limit the potential for moral hazard in future lending.

flexible exchange rate regimes, disciplined domestic monetary policies and, most important of all, limited short-term external liabilities and near-term refinancing needs. These measures have helped limit the spread of problems from Argentina to other emerging markets over the past year.

The prospects for capital market flows and FDI

Capital market flows are expected to contract further in 2002—

Capital market commitments, after dropping from $228 billion in 2000 to only $171 billion in 2001, may moderate further to some $160 billion in 2002 (see table 2.6), which is the lowest level since 1994. Investors are likely to remain cautious about emerging markets in early 2002, because the synchronized economic slowdown in all major industrial countries limits demand for developing countries' exports, affecting the latter's ability to service external debt. Risk appetite remains low and financing constraints on banks and other investors remain tight in the industrial countries, so the demand for developing-country assets (especially subsovereign assets) is likely to remain low during the first half of 2002, at least. These influences are likely to outweigh the reduction in interest rates and increase in liquidity with the easing of monetary policy in the United States (and, to a lesser extent, in Europe) over the past year.[17]

—but a rebound is anticipated for 2003

The recovery in industrial countries that is anticipated to begin in the second half of 2002 should set the stage for a rise in capital market commitments, to $179 billion in 2003 and $216 billion in 2004. Capital flows should recover because economic growth in most of the major emerging market economies is expected to improve and international interest rates are expected to remain low. The recovery in flows will also be supported by the low levels of short-term debt and high levels of reserves in many emerging markets after the experience of the financial crises in the late 1990s. For 25 major emerging markets, the ratio of short-term debt to reserves fell from about one in 1997 to two-thirds by June 2001. Bond and bank lending flows are expected to rise by nearly a third by 2004, compared to the level in 2002, while equity flows are expected to recover rapidly from the extremely low level of 2001.

The pace of recovery in gross flows will also vary depending on creditworthiness and demand conditions in recipient countries. The trends in the forecast are driven by East Asia and Latin America, which accounted for over two-thirds of total capital market commitments in 2001. Flows to East Asia will increase relatively rapidly, largely because of China's forecast strong growth, low level of short-term debt, and high level of international reserves. By contrast, the recovery in flows to some of the East Asian crisis countries may be slower, because excess capacity continues to depress the demand for finance. In Latin America and the Caribbean flows will recover more slowly, in part because Argentina is likely to see impaired access to the capital markets in the wake of its restructuring of outstanding debt. Also, commodity exporters in the region will see only a limited rise in export revenues (and thus market access), because non-oil commodity prices are expected to rise by only 8 percent in 2003, and remain 25 percent below the level of 1997, and oil prices are expected to fall through 2003. By contrast, Mexico is expected to benefit from the recovery in the United States, and is likely to see a sharp

Table 2.6 Projected capital market flows to developing countries

(billions of dollars)

	2001	2002	2003	2004
Total	171	160	179	216
Bonds	68	55	66	76
Equity	10	32	24	30
Loans	93	73	89	110
East Asia and Pacific	41	54	59	82
Latin America and the Caribbean	75	60	68	77
Other	55	46	53	57

Note: These projections for 2002–04 are based on 53 separate vector autoregression (VAR) models (see annex 2.1 for a description) for bond, equity and bank lending flows to 21 emerging market economies (ranked according to the size of gross flows in 2001 starting with the top recipient country): Brazil, Mexico, Korea, Turkey, South Africa, Argentina, China, Poland, Malaysia, the República Bolivariana de Venezuela, Colombia, the Philippines, Russia, Lebanon, Hungary, Egypt, India, Thailand, Indonesia, Lithuania, Morocco. The flows covered in these models accounted for 81 percent of gross capital market flows to developing countries in 2001. The projected flows were then scaled up using 2001 actual flow numbers, to arrive at the total for all developing countries.

rise in flows due to improved economic conditions. Flows to the other regions will also rise, and they generally maintain their share of total capital flows during the forecast period.

Any rebound depends on developments in Argentina

The crisis in Argentina is a major risk to this forecast. Before the events of the past year Argentina accounted for 16 percent of emerging markets' bonds outstanding on the international capital markets. Proposals to restructure Argentina's bonds could reduce investors' willingness to take on emerging market assets, particularly if negotiations are lengthy and marked by confrontation.[18] However, there are several reasons why the contagion effects of the crisis could be limited. Over the past year the Argentine crisis has had only a limited and fleeting impact on the demand for the debt of other emerging markets (see box 2.4). The crisis in Argentina has been long anticipated, which has tended to mute the impact on investors in comparison with the crises in East Asia and the Russian Federation, which were major surprises. Secondary market prices on Argentine bonds have already fallen substantially, and reflect relatively low recovery rates. Many current bondholders are likely to have bought the bonds at low prices, or to already have adjusted their portfolios to account for losses, so they may not react significantly to a debt restructuring. In fact, a speedy settlement with creditors that involves a debt restructuring sufficient to enable Argentina to make regular repayments could improve market sentiment and increase secondary market prices of Argentine debt. The forecasts assume that any debt renegotiation will be settled quickly; although Argentina (and Turkey) receive little in the way of new commitments over the forecast period, these crises have a relatively limited impact on investors' willingness to lend to other emerging markets.

FDI is expected to rise steadily

FDI flows to developing countries are expected to be much less sensitive to cyclical developments than capital market flows.[19] In 2002 FDI to developing countries is forecast at $160 billion, a slight decline from the estimated $168 billion in 2001, consistent with slow growth in global output and little increase in world trade. The same resiliency of FDI flows was seen in 2001, when the recession in industrial countries, near stagnation in world trade, and a decline in global FDI flows were accompanied by rough stability of FDI flows to developing countries. This resiliency of FDI to developing countries in the face of adverse global economic conditions reflects the importance of domestic determinants of FDI flows (see section above on FDI trends in 2001). In addition, some of the major recipients of FDI flows, in particular China, are expected to continue to achieve robust growth despite the global slowdown.

While FDI flows are expected to remain resilient, the projected 4 percent per year increase from 2001–04 (2 percent in real terms) is less than half the rate experienced over the 1990s. We anticipate that the same forces that drove FDI in the 1990s—globalization in production due to technological innovations in communications and transport, coupled with better policies in developing countries—will continue over the next few years. However, the stock of FDI in developing countries is much larger now than 10 years ago, and exports, an important driver of FDI, are expected to grow at a much lower pace over the next few years (less than 3 percent more rapidly than GDP, compared with 6 percent during the 1990s). Moreover, M&A activity by multinationals, an important source of FDI flows, is declining after its peak in 2000. Although recent surveys indicate that multinationals' investment plans were relatively unaffected by the September 11th terrorist attacks, the full impact of the economic slowdown on multinationals' investments remains uncertain.[20] Thus it is unlikely that FDI flows would rise as rapidly over the next few years as they did over the last decade. Nevertheless, by 2004 FDI flows would remain the largest source of finance for developing countries.

The bulk of FDI inflows are forecast to continue to go to countries with relatively large market size and reasonably good policies. Brazil, China, and Mexico attract more than half of flows to the sample countries. The growth rate of FDI is high to countries with good policies and rapid expansion of trade. FDI in East Asian economies is expected to rise by over 10 percent per year, due to robust increases in flows to China, where the new commitments are already rising significantly, as well as to Korea and Thailand, where strong recovery in GDP and exports is expected. The anticipated economic growth is likely to boost FDI flows in South Asia, largely driven by India. On the other hand, Latin America's share of FDI to

developing countries will decline, because privatization transactions (which made up a substantial share of FDI to Latin America in the 1990s—see World Bank, *GDF*, 2001: appendix 4) is likely to play a less significant role in attracting FDI.

Annex 2.1: Forecasts of Private Flows to Developing Countries

Capital market flows

The econometric framework used for generating the forecasts for capital market flows to developing countries follows Taylor and Sarno 1997, which extended the framework developed by Fernandez-Arias and Montiel 1996. In this framework equilibrium, or "desired" level, of capital flows to a developing country is affected by both global factors and country-specific factors. Changes in current capital flows are then determined partly by the difference between desired and actual capital flows in the previous period and partly by the changes in the factors determining the desired level of capital flows.

Global factors include growth in the industrial countries (proxied by the U.S. GDP), global liquidity (indicated by the U.S. interest rates), risk aversion on the part of international investors (proxied by U.S. high-yield spread and Emerging Market Bond Index [EMBI] spread), and the prices of oil and non-oil commodities. Developing country–specific variables include domestic economic growth (proxied by the index of industrial production), domestic consumer price index, domestic credit, domestic interest rates, the level of international reserves relative to short-term debt, and (separately) relative to imports, and the stock price index.[21] The global variables are assumed to evolve exogenously, without being influenced by developing-country variables. The latter variables, however, are jointly determined along with capital flows, since they affect and are in turn affected by capital flows. The econometric framework uses the vector autoregression (VAR) technique that determines country-specific variables endogenously on the basis of their lagged values, taking the global variables as exogenous.

The model is estimated separately for bonds, equity, and loans for each of the 21 major developing countries, using monthly data for the period from January 1990 to December 2001.[22] The flow forecasts are then summed up, and a scaling factor (equal to actual flows to all developing countries divided by the model-generated flows in 2001) is used to compute flows for all developing countries as a group.

The 21 countries included in this round accounted for 81 percent of gross capital market flows in 2001 (85 percent of bond flows, 96 percent of equity flows, and 75 percent of bank lending). The coverage of these countries in various types of flows as well as in different regions is summarized in table 2A.1. Also in 2001, the countries covered in these forecasting exercise accounted for 99 percent of all flows to East Asia, 81 percent of flows to Latin America, 73 percent for Europe and Central Asia, 83 percent for South Asia, 57 percent for Sub-Saharan Africa, and 58 percent for the Middle East and North Africa.

Forecasts generated by these VAR models indicate that industrial-country growth had a positive impact on the supply of capital flows to developing countries. Increases in interest rates reduced capital flows, while increases in U.S. high-yield spreads were positively associated with increases in EMBI spreads, which in turn had a negative effect on capital flows. In simulations with the model for last year's *Global Development Finance* (World Bank 2001) changes in industrial-country growth had a significantly larger impact on capital flows than changes in interest rates. Indeed, changes in U.S. interest rates and the U.S. high-yield spread caused only a slight deviation in capital flows from their original trends, and flows soon began to revert to their original values (Mody and others 2001). The effects of oil and non-oil commodity prices varied depending on whether a country was

Table 2A.1 How representative is the forecasting model?

	Flows to 15 countries as percent of 2001 actual flows
Bond total	85
Equity total	96
Loan total	75
East Asia and Pacific	99
Latin America and the Caribbean	81
Europe and Central Asia	73
South Asia	83
Sub-Saharan Africa	57
Middle East and North Africa	58
Total	81

Table 2A.2 Comparison of forecasts with actual capital market flows to developing countries
(billions of dollars)

Year	Forecast	Actual
1990	42	38
1991	63	68
1992	76	80
1993	127	114
1994	140	133
1995	169	172
1996	253	233
1997	320	315
1998	206	188
1999	187	179
2000	240	238

a net exporter or importer of oil and non-oil commodities in a given year.

Domestic economic factors also played a critical role in determining capital flows to developing countries. However, these domestic factors are also treated as endogenous in the model, so that they both affect, and are affected by, capital flows. A decline in capital flows was generally associated with decreases in the level of domestic credit, domestic industrial production, and stock prices. Increases in reserves were associated with higher capital inflows, while increases in short-term debt reduced flows. A moderate increase in the price level was positively associated with capital inflows, whereas a strong upsurge in prices tended to discourage capital flows (Mody and others 2001).

Table 2A.2 compares the flows estimated using the methodology outlined above with their historical trend. Evidently, the model performs fairly well.

FDI

The forecast of FDI included in the text is based on an econometric model of the determinants of FDI, expressed as a share of developing countries' GDP. Large and growing markets can accommodate more suppliers and help them achieve scale and scope economies (UNCTAD 1998), and the size of the recipient country's internal market as measured by GDP is one of the most frequently applied variables in the past research on determinants of FDI.[23] The determinants of FDI include:

1. The average growth rate of GDP over three years prior to the current period is a proxy for investors' view of future economic performance. GDP growth has been found to be associated with larger FDI inflows in several studies (Root and Ahmed 1979; Nigh 1985).
2. The ratio of exports to GDP represents export-orientation, which should increase a country's attractiveness to multinationals by providing greater access to export markets (Caves, Porter, and Spence 1980; Saunders 1982). A third of world trade is accounted for by intrafirm transactions by multinationals, who also provide the bulk of FDI flows.
3. The GDP growth rate of the top seven industrial countries is used to account for a change in the relative attractiveness of emerging markets to international investors. Thus higher industrial-country growth is associated with lower FDI inflows to developing countries.
4. A better investment climate, in terms of sound macroeconomic policies, open regimes toward FDI, and nondiscriminatory frameworks for business facilitation, is likely to induce FDI inflows to the recipient economy (see chapter 3; UNCTAD 1998).

The model is estimated for the panel data from 1981–2000, which covers 30 developing countries that account for more than 80 percent of FDI flows to developing countries.[24] GDP growth in developing countries, GDP growth in industrial countries, and exports are lagged under the assumption that FDI is determined largely on the basis of long-term commitments by multinationals (World Bank 1999). Note that this approach to estimating FDI flows does not take into account cyclical effects, as was done with the forecasts of capital market flows. Such effects are probably of less importance to FDI, which typically is based on the prospects for growth over a longer time horizon than for capital market flows.

The constant variable $\{\hat{\alpha}_i\}$ (i=1,..,30) and coefficients $\{\hat{\beta}_k\}$ (k=1,..,5) are estimated from the equation below, and applied to the set of expected values for the independent variables to forecast FDI flows for 2001–04.[25]

$$FDI_i = \hat{\alpha}_i + \hat{\beta}_1 (GGDP_i) + \hat{\beta}_2 (EX_i) + \hat{\beta}_3 (G7_i) + \hat{\beta}_4 (IC) + \hat{\beta}_5 (T)$$

FDI, *GGDP*, *EX*, *IC*, *G7*, and *T* represent, respectively, FDI as ratio to GDP, average growth rate of

Table 2A.3 Statistics for the forecast of FDI

Independent variable	
GDP growth rate	0.047[a]
Exports	0.043[a]
G-7[b] GDP	–0.046[c]
Investment climate	1.093[a]
Time	0.079[a]
Adjusted R^2	0.50

a. Denotes significance at the 1 percent level.
b. Group of Seven: Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.
c. Denotes significance at the 5 percent level.
Source: World Bank, *Global Development Finance: Country Tables* and sources cited therein, various years; *World Bank, World Development Indicators*, various years; and World Bank staff estimates.

GDP over three years, export volume as ratio to GDP, investment climate index, annual growth rate of GDP of the G-7 countries, and time trend.

Annex 2.2: Measuring resource flows to developing countries

International organizations that collect and report data on international financial transactions use different approaches to measuring the movement of financial resources to and from developing countries. The IMF's *World Economic Outlook* reports flows in a balance of payments framework. An alternative approach is to aggregate from more specialized systems that independently compile statistics for different types of flows: the World Bank takes a recipient country or debtor perspective and operates the Debtor Reporting System. The OECD takes a donor or creditor country perspective: its data are derived from information on aid activities reported to the Development Assistance Committee and on export credits reported through the Creditor Reporting System. The Bank for International Settlements also takes a creditor perspective and compiles information on a quarterly and on a semi-annual basis on the claims of its reporting banks on developing countries.

In *Global Development Finance* (*GDF*) the World Bank uses a broad concept of net aggregate resource flows: equal to net disbursements on long-term loans, direct investment, portfolio equity flows, and official and private grants. These data are presented in the text and summary tables of volume I of *GDF*. The World Bank also presents a narrow measure of net flows on debt for individual countries in volume II of *GDF*.

The data on net aggregate resource flows presented in *GDF* 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 *GDF* and net external finance as shown in the balance of payments.

These data are available only on an annual basis. However, data on certain components (for example loan commitments and bond issues) are available at higher frequency. The analysis of capital flows in this chapter depends heavily on this higher-frequency data. The quality of the most recent year estimates varies depending on the lending category. Reasonably 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. 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.

Notes

1. Moody's Investors Service classifies Barbados, Botswana, Chile, China, Croatia, the Czech Republic, El Salvador, Estonia, Hungary, the Republic of Korea, Lithuania, Malaysia, Mexico, Mauritius, Oman, Poland, Saudi Arabia, the Slovak Republic, Thailand, Trinidad and Tobago, Tunisia, Uruguay, and South Africa as investment-grade countries.

2. In part, this reflects dollar appreciation. In Special Drawing Rights (SDRs), developing countries' export revenues increased by 2.6 percent.

3. This calculation reflects the fall in European and U.S. interest rates, the share of floating rate debt, and the share of euro- and dollar-denominated debt. It is a lower bound of the impact of lower interest rates, since countries could switch to dollar-denominated debt to take advantage of the larger decline in U.S. interest rates.

4. The largest rise in speculative-grade spreads reflected, in part, the problems of telecommunications and other technology firms. However, the increase was wide-

spread (only 5 out of 15 high-yield sectors saw a decline in spreads in 2001).

5. The global volume of credit to investment-grade borrowers rose by 4 percent in 2001, while credit to speculative-grade borrowers fell by 23 percent.

6. The most recently issued Treasury securities tend to be more frequently traded, and hence more liquid, than securities that were issued earlier. Since both recently issued and off-the-run Treasury securities have the same risk-free return, the spread between the two is used by some observers as an indicator of liquidity preference. However, this spread may also reflect technical market factors (Duffie 1996).

7. The top 10 developing country FDI recipients (in order of the size of flows) are China, Brazil, Mexico, Argentina, Poland, Chile, Malaysia, Korea, Thailand, and the República Bolivariana de Venezuela.

8. A number of planned sales of domestic firms have been delayed or called off, including a long-standing acquisition plan of Daewoo Motors by General Motors and the cancellation of a plan by Deutsche Bank's subsidiary to purchase Seoul Bank.

9. About $25 billion of this amount represents flows through Hong Kong (China) that may have originated in China.

10. In the face of capital mobility, fixing the exchange rate limits the ability of the central bank to print money. The exchange rate–induced stabilization of import prices also enhances credibility by showing evidence that inflation is coming down. Agreement to forgo further wage and price increases requires a metric against which mark-ups and contracts can be gauged; a pegged exchange rate provides just such a measure. In contrast, other approaches to stabilization—keying on reductions in the rate of money growth or on the central bank's inflation target—are harder to verify and therefore less credibility-enhancing. Fischer (2001a) observes that few if any countries have successfully brought down high inflations without first stabilizing the exchange rate.

11. Fiscal policy was tightened by 1.7 percent of GDP in 1999, 1 percent in 2000, and 1.3 percent in 2001, according to J. P. Morgan estimates (Werling 2001).

12. Similarly, the correlation of spreads on Turkish bonds with other emerging markets rose from 0.12 before the crisis to 0.39 afterwards.

13. Twenty-six percent of Argentine exports go to Brazil and 11 percent of Brazilian exports are to Argentina. Moreover, each country's top 10 markets (which for Argentina and Brazil cover 57 percent and 64 percent of exports, respectively) are also the top 10 for the other country, with the exception of Mexico (for Argentina) and Uruguay (for Brazil).

14. The evidence of contagion effects is even weaker if we look at stock market prices. There is almost no evidence from stock market prices that the Argentine or Turkish crises affected other emerging markets, again with the exception of the impact on Brazil.

15. There is also concern that rescue packages may encourage borrowers to pursue unsustainable policies in anticipation of being bailed out. This is unlikely, considering the economic costs to countries hit by the crises and the loss of power of politicians who governed in the run-up to crises.

16. Cited in Helfer 1998.

17. This forecast for capital market flows is based on an econometric model that takes into account global macroeconomic developments (such as industrial-country growth and interest rates) that are largely exogenous to individual developing countries, as well as domestic macroeconomic developments in individual countries (see annex 2.1).

18. The debt workout process may be difficult. Some recent events have made it more attractive for holdout investors (that is, those who do not agree to a bond restructuring). See the case of the Elliott Associates vs. Peru as discussed in World Bank 2001.

19. This forecast is based on an econometric model (estimated from panel data for a sample of 30 countries that account for 80 percent of FDI flows to developing countries), where the major determinants of FDI are the level of GDP, the past growth rate of GDP, growth in industrial countries, the share of exports in GDP, and the policy environment (see annex).

20. A. T. Kearney 2001; UNCTAD 2002.

21. See World Bank 2001, chapter 2, for more on the explanation of the choice of variables.

22. We did not estimate a VAR model for an individual type of commitment (bank lending, bond issues, or portfolio equity flow) if it constituted less than 5 percent of total flows received by the country.

23. Literature includes Root and Ahmed 1979; Schneider and Frey 1985; Papanastassiou and Pearce 1990; and Wheeler and Mody 1992. See also UNCTAD 1998 for detailed discussions.

24. Some adjustments were made to FDI data for select countries where a small number of large-scale privatization transactions distorted the trend, or the major privatization programs have reached completion, or both.

25. The set of constant variables represents fixed effects across countries.

References

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

Adams, A. H. 1993. "Hong Kong's Charms." *The China Business Review* (November–December).

A. T Kearney. 2001. "FDI Confidence Index—Flash Survey." Presented at OECD Global Forum on International Investment—New Horizons and Policy Challenges for Foreign Direct Investment in the 21st Century, November 26–27, Mexico City.

Bank of Canada and Bank of England. 2001. "Resolution of International Financial Crises." February. Processed.

Becker, Torbjorn, Anthony Richards, and Yungyong Thaicharoen. 2001. "Bond Restructuring and Moral Hazard: Are Collective Action Clauses Costly?" IMF Working Paper *01/92*. International Monetary Fund, Washington, D.C.

Bosworth and Collins. 1999. "Capital Flows to Developing Economies: Implications for Saving and Investment." IMF Seminar Series. No. 1999-21, pp. 1–44.

Calomiris, Charles. 2000. "When Will Economics Guide IMF and World Bank Reforms?" *Cato Journal* 20 Spring/Summer.

Caves, R. E., M. E. Porter, and A. M. Spence. 1980. "Competition in the Open Economy." Harvard University Press, Cambridge.

Clark, E. 1998. "Risk Aversion, Wealth and International Capital Flows." *Review of International Economics* (U.K.) 6: 507–15.

Dollar, David, Giuseppe Iarossi, and Taye Mengistae. 2001. "Investment Climate and Economic Performance: Some Firm Level Evidence from India." Prepared for Economists Forum, May. World Bank, Washington, D.C.

Duffie, Darrell. 1996. "Special Repo Rates." *Journal of Finance*. June.

Eichengreen, Barry, and Ashoka Mody. 1998. "What Explains Changing Spreads on Emerging Market Debt: Fundamentals or Market Sentiment?" NBER Working Paper W6408, Cambridge, Mass. February.

———. 2000. "Would Collective Action Clauses Raise Borrowing Costs?" World Bank Policy Research Working Paper 2363. May. Washington, D.C.

Fernadez-Arias, Eduardo, and Peter J. Montiel. 1996. "The Surge in Capital Inflows to Developing Countries: An Analytical Overview." *World Bank Economic Review* 10: 51–77.

Fischer, Stanley. 2001a. "Exchange Rate Regimes: Is the Bipolar View Correct?" *Finance and Development* June.

Fischer, Stanley, and D. Citrin. 2000. "Strengthening the International Financial System: Key Issues." *World Development:* 1133–42.

Goldstein, Morris. 1998. *The Asian Financial Crisis: Causes, Cures, and Systemic Implications*. Institute for International Economics: Washington, D.C.

Guay, W. 1999. "The Sensitivity of CEO Wealth to Equity Risk: An Analysis of the Magnitude and Determinants." *Journal of Financial Economics* (Netherlands) 53 (1): 43–71.

Gunter, Frank R. 1996. "Capital Flight from The People's Republic of China: 1984–94." *China Economic Review* 7 (1): 77–96.

Harrold, P., and R. Lall. 1993. "China, Reform and Development in 1992–93." World Bank Discussion Papers 215, Washington, D.C.

Hausmann, Ricardo, and Eduarto Fernandez-Arias. 2000. "What's Wrong with International Financial Markets?" Inter-American Development Bank, Research Department Working Paper 429, Washington, D.C.

Helfer, R. 1998. "Rethinking IMF Rescues." Brookings Institution Conference Report #1. http://www.brookings.org/pa/conferencereport/cr1/cr1.htm.

International Council of Securities Agencies. 1999. "Private Burden Sharing: A Voluntary Approach." http://www.sia.com/international/html/burden.html.

Institute of International Finance. Various years. "Capital Flows to Emerging Market Economies."

IMF (International Monetary Fund). Various years. *World Economic Outlook*. Washington, D.C.

Kumar, Manmohan S., and Avinash Persaud. 2001. "Pure Contagion and Investors' Shifting Risk Appetite: Analytical Issues and Empirical Evidence." IMF Working Paper 01/134, Washington, D.C.

Lane, T., and S. Phillips. 2000. "Does IMF Financing Result in Moral Hazard?" IMF Working Paper 00/168.

Lardy, N. 1995. "The Role of Foreign Trade and Investment in China's Economic Transformation." *China Quarterly* (U.K.) 144: 1065–82.

Meltzer, A. 2000. "Report of the International Financial Institutions Advisory Commission." U.S. Congress, Washington, D. C.

Mody, Ashoka, Mark P. Taylor, and Jung Yeon Kim. 2001. "Modeling Economic Fundamentals for Forecasting Capital Flows to Emerging Markets." World Bank, Washington, D.C. Processed.

Nigh, D. 1985. "The Effect of Political Events on U.S. Direct Foreign Investment: A Pooled Time-Series Cross-Sectional Analysis." *Journal of International Business Studies* 16: 1–17.

Papanastassiou, M., and R. D. Pearce. 1990. "Host Country Characteristics and the Sourcing Behaviour of U.K. Manufacturing Industry." Discussion Papers in International Investment and Business Studies, Series B, Vol. 2 (140), Department of Economics, University of Reading. United Kingdom.

Root, F. R., and A. A. Ahmed. 1979. "Empirical Determinants of Manufacturing Direct Foreign Investment in Developing Countries." *Economic Development and Cultural Change* 27: 751–67.

Saunders, R. S. 1982. "The Determinants of Inter-Industry Variation of Foreign Ownership in Canadian Manufacturing." *Canadian Journal of Economics* 15: 77–84.

Schneider, F., and B. S. Frey. 1985. "Economic and Political Determinants of Foreign Direct Investment." *World Development* 13 (2): 161–75.

Sicular, T. 1998 "Capital Flight and Foreign Investment: Two Tales from China and Russia." *World Economy* (U.K.) 21: 589–602.

Taylor, Mark P., and Lucio Sarno. 1997. "Capital Flows to Developing Countries: Long- and Short-Term Determinants." *World Bank Economic Review* 11.

UNCTAD (United Nations Conference on Trade and Development). 1998. *World Investment Report: Trends and Determinants*. Geneva.

———. 2001. *World Investment Report 2001: Promoting Linkages*. Geneva.

———. 2002. "FDI Downturn in 2001 Touches Almost All Regions." Press Release TAD/INF/PR36, January 21, Geneva.

Werling, Vladimir. 2001. "Argentine Confidence Crisis: Facing a Policy Dilemma." *Economic Research*, Morgan Guaranty Trust Company. August 10.

Wheeler, David, and Ashoka Mody. 1992. "International Investment Location Decisions: The Case of U.S. Firms." *Journal of International Economics* 33: 57–76.

World Bank. 1999. *Global Development Finance*. Washington, D.C.: World Bank.

———. 2000a. *Global Economic Prospects*. Washington, D.C.: World Bank.

———. 2000b. *Global Development Finance*. Washington, D.C.: World Bank.

———. 2001. *Global Development Finance*. Washington, D.C.: World Bank.

Zhang, Xiaoming Alan. 1999. "Testing of Moral Hazard in Emerging Market Lending." Institute of International Finance Research Papers, 99–1. August. Washington, D.C.