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The Joys and Woes of International Capital

Introduction

International capital has been central to the world economy since the earliest days of European expansion.[1] In the 16th century, Portuguese, Dutch, and British adventurers established far-flung trading posts spread from Malacca (1511) to Macau (1557) to Bombay (1534), while Spanish adventurers staked their lives and fortunes on Latin American gold and silver. In the 17th and 18th centuries, colonies were established, shortly followed by New World land booms and busts. The South Sea Company (1710-20) was only the most spectacular of several companies that blew up after mixing financial innovation with overseas exploration.

In the 19th century, international financial capital—which had originated with bills of exchange in the 16th century—came to predominate. Bonds and shares were issued in large volume to finance canals and railways in the Americas and Asia. Late in the 19th century, international manufacturing firms began to creep onto the scene—distinct from trading ventures like the Dutch East India Company and the Hudson Bay Company of an earlier era. Late in the 20th century, international bank loans, bond issues, portfolio equity, and foreign exchange trading changed the face of world capital markets.

With its long, varied ancestry, international capital has attracted both champions and critics. Broadly speaking, the criticisms fall into two categories: an older line that highlights the predatory behavior of investors, and a newer line that stresses boom and bust in capital markets.

1. Neal (1990) provides an engaging analytic account of international capital between the 16th to early 19th centuries.

Supply-Side Criticism

In this book, our concern is the newer line of criticism. Notwithstanding the Latin American debt crises of the 1980s and 1994-95, and the Asian crisis of 1997-98, we think that trends from the 1970s to the 1990s preview a long upswing in private capital flows to emerging-market economies. Demographic factors, innovation, and deregulation in financial markets of countries belonging to the Organization for Economic Cooperation and Development (OECD) will continue to magnify the size and speed of capital flows across borders. These changes will markedly increase the efficiency with which capital is deployed around the globe—benefiting billions of people—but they also raise the risk of future financial collapse.

Mainstream analysis of the international financial architecture largely addresses problems in, and reform by, the debtor countries and the international financial institutions. We call this demand-side criticism, and although we agree with the more tempered critics (such as the Council on Foreign Relations 1999), the demand side is not the focus of this book. The much smaller literature on creditor institutions conveys an implicit assumption: Financial institutions and supervisors in the sophisticated Group of Ten (G-10) markets—players who set the rules of the game—have their monitoring and incentive systems about right. The flaws in these sophisticated financial markets are, in any event, being corrected.

The main debate within the G-10 is whether private-sector players should bear more of the responsibility for and costs of managing crises when they do occur. This somewhat relaxed attitude is sanctioned by the fact that G-10 countries were barely affected by the Asian and Russian collapses—between 1997 and 1999, jobs, growth, and financial markets in the leading OECD countries did rather well. For most Americans, Europeans, and Japanese, the financial crises were distant spectacles.

Our focus is *supply-side* criticism. The G-10 suppliers of international capital and their supervisors deserve more scrutiny. The G-10 is a convenient label for 11 rich industrial countries that dominate the supply side of international capital: Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.[2] For the purpose of our policy recommendations, we add Spain to this group, because Spanish banks are major financial players in Latin America. We do not, however, address our policy

2. The ministers of finance and central bank governors of the G-10 usually meet twice a year, in the context of the spring and autumn meetings of the International Monetary Fund. In addition, the central bank governors meet monthly under the auspices of the Bank for International Settlements in Basel. The deputies of the G-10 meet as needed, normally two to four times a year. Ad hoc committees and working parties are established from time to time. G-10 communiqués are available at http://www.bis.org and http://www.imf.org.

recommendations to the entire OECD, because the 29 OECD members include many smaller countries (such as Denmark and New Zealand) and some not-so-wealthy countries (such as Mexico, Poland, and Turkey) that are not financial powerhouses.

Chapter Preview

Our account begins in this chapter with a comparative analysis of international capital flows since 1970, highlighting the crisis-prone nature of bank lending relative to other sources of capital, namely, portfolio investment and foreign direct investment (FDI). Although most financial crises are rooted in domestic mismanagement, the roots often draw nourishment from international capital. Strict capital controls (as urged, among others, by Eatwell and Taylor 2000) would sharply limit the extent of international nourishment—but at a high price. In this chapter, we make a case for the benefits of global capital flows—especially portfolio investment and FDI. In our view, the long-term growth benefits of these flows substantially outweigh crisis costs. Nevertheless, we argue that financial crises can be moderated in frequency and amplitude by measures that shift the composition of flows away from bank lending and toward portfolio equity and FDI.

In chapter 2, our focus shifts to why such measures are needed. We describe the market players—almost entirely based in the G-10 countries (plus Spain)—who dominate international markets and set the rules of the game. We note the special role banks play in any financial system. This special, somewhat anomalous role is both the rationale for, and the consequence of, public safety nets—created by national governments and in recent international crises by the international financial institutions. National and international safety nets were introduced to prevent bank runs and reduce the social costs of contagion by providing insurance.

Safety-net insurance, however, contributes to moral hazard, implicitly encouraging banking organizations to take more risks than they would if they had to accept the full cost of bad lending decisions. We examine the evidence for moral hazard and the efforts of national supervisors to offset it through prudential supervision—both at home and by cooperating with the Bank for International Settlements (BIS). We find that moral hazard is still an issue for banks, particularly in their short-term lending, and note that excessive leverage could become a similar problem in portfolio institutions.

In chapter 3, we explore ways G-10 governments might further reduce moral hazard and the volatility of short-term debt. One approach is for G-10 governments to change incentives and supervisory systems even more than they have. Our recommendations go further than the revised Basel Capital Adequacy Accord's three "pillars"—better alignment of banks' capital with their risk profiles, stronger supervision, and

more market discipline—to emphasize the importance of assessing the incentive structures for the supervisors themselves.

Another, complementary, approach is to create incentives for private players to lengthen the maturity of capital flows by changing the resolution of liquidity crises so that, ex ante, there is a clear framework for private-sector involvement. Although these two approaches are complementary, each requires major expenditures of political and economic resources—particularly with respect to changes in the role of international financial institutions. We conclude that available G-10 resources would be most efficiently deployed in improving their own supervisory systems and beefing up the international cooperation among supervisors.

In short, our analytic framework identifies an "unconnected pipe" on the supply side in the plumbing of the new financial architecture. Apart from national finance ministries and their parliamentary committees, no one has the capability to oversee G-10 financial supervisors. The BIS is *not* set up for formal monitoring with sanctions. The International Monetary Fund's (IMF's) capabilities are macroeconomic; it has neither the ability nor the power to tell the G-10 capital suppliers how to go about their business. The G-10 supervisors must do the task themselves.

Our core recommendation to G-10 finance ministers and appropriate parliamentary committees is this: Further review of instructions to financial supervisors. Pay more attention to proactive monitoring and moderating international capital flows originating with their major financial institutions. This means more attention needs to be paid to resources available to financial supervisors, and more public accountability for successes and failures in international financial-sector performance.

Relocating Capital

Unlike in earlier eras, economists today generally agree that international capital is a good thing. The policy question is not whether to restore hermetic seals around national capital markets, but rather what policy guidance could make international capital a better thing. Yet it is still important to enumerate the benefits of capital—to set the policy stage not for reducing the overall magnitude of capital flows but rather for widening the scope of beneficial investment.

World wealth grows when capital is moved from country A, where the return is low, to country B, where the return is high. This simple observation prompted the "debt cycle" or "young-debtor/mature-creditor" model.[3] Young debtor countries absorb capital from abroad, run current

3. See, e.g., Feis (1961), Taylor and Williamson (1994), Obstfeld and Taylor (1997), and Williamson and Mahar (1998).

account deficits, and invest at a high return. Mature creditor countries place capital abroad, run current account surpluses, and earn more on their foreign than domestic investments. In this model, young debtors are associated with poor countries, and mature creditors are associated with rich countries.[4]

In keeping with this model, a few "new world" countries—those populated by European emigrants—attracted capital inflows in excess of 3 percent of GDP annually for long periods in the late 19th and early 20th centuries. In the heyday of this trend (roughly 1870-1913), the United Kingdom placed more than half its outward foreign investment in Canada, Australia, Argentina, and the United States (Taylor and Williamson 1994). Indeed, capital flows to these favored countries reached 5 percent of their GDP in the 1880s (Obstfeld and Taylor 1997, 6).[5] The First World War interrupted this blissful world of free capital and the gold standard. After a faux revival in the 1920s, what remained came crashing down in the Great Depression.

The Sparse Record

Even before the Great Depression, most developing countries (other than those populated by European immigrants) received little foreign investment—and what they received was concentrated in the extractive industries. A striking feature of the world economy in the 20th century was the very low level of international capital flows to *all* emerging economies before the 1970s. Despite vast differences in wage rates and per capita income levels—and the potential gains from portfolio diversification—international capital flows from rich to poor countries were historically very modest relative to GDP in receiving nations, and tiny in comparison with GDP in sending nations.

Lucas (1990), in an elegant theoretical paper, applied a basic neoclassical model to evaluate common explanations for the observed low level

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4. Of course, in recent years the poor-debtor/rich-creditor model of international capital markets has been turned upside down. The United States has become the world's most powerful magnet for overseas investment, and the US current account deficit has exceeded the current account deficits of all the emerging-market economies combined. See Frankel and Roubini (2000).

5. By the same measure, Obstfeld and Taylor (1997, 6) calculate that inflows fell to about 1 percent of GDP in the receiving countries in the 1950s and 1960s. Although the *net* magnitudes of international capital inflows to emerging markets have now regained approximately the same levels witnessed in the late 19th century, there is an enormous expansion in *gross* flows. In the late 19th century, "round-tripping" was much smaller than it is today. Round-tripping is not just confined to the foreign exchange markets. According to one set of estimates, cross-border sales and purchases of bonds and equities by US firms rose from 9 percent of US GDP in 1980 to 164 percent in 1996 (*The Economist*, 18 October 1997, 79-80).

of foreign investment. The main explanations: differences in human capital (one US worker may be the effective equivalent of five Indian workers), external economies in the use of human capital (when my colleagues are 10 percent more productive, I may be 3.6 percent more productive), and political risk in emerging markets.[6] Lucas concluded that the first two explanations probably explain a good part of the shortfall, but that the third explanation (the only one that is readily susceptible to policy intervention) must also be invoked.

A recent empirical study by Kraay and others (2000) examined gross and net foreign asset positions for a panel of 68 countries for the period 1966-97.[7] Their findings support Lucas (1990). Kraay and others reached three conclusions that are especially pertinent. First, a country's net foreign assets (on a per capita basis) are highly correlated with its wealth (domestic capital stock plus net foreign assets). Although most countries have negative net foreign assets, a few rich countries have positive net foreign assets. However, even the rich industrial countries with positive net foreign assets held less than 1 percent of their wealth abroad.

Second, although gross foreign assets are obviously larger than net foreign assets, the modest magnitudes for gross asset positions are surprising. Industrial countries hold about 3.3 percent of their gross equity wealth and 11 percent of their gross loan wealth in foreign assets. Conversely, developing countries issue about 2.8 percent of their gross equity and 8.8 percent of their gross debt to foreign holders. Third, the net and gross asset relationships are fairly persistent over time. The authors explain the modest size of these magnitudes, and their persistence over time, by the possibility of crises and default by emerging countries—in other words, political risk. The authors construct a model in which just two large-scale emerging-economy defaults in a century will generate magnitudes similar to those observed.

In other words, theoretical explanations, together with observed foreign asset stocks, suggest persistent low investment from rich to poor countries. Indeed, as recently as 1970, annual net-net flows of debt and equity capital (long-term and short-term, both public and private, net of repaid and repatriated capital, interest, and dividends) to emerging markets amounted to about 0.7 percent of the GDP of all emerging markets.[8] But the picture is slowly changing. In 2000, annual net-net flows may

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6. Lucas (1990) also analyzed the effect of monopoly capital practices in limiting investment in the colonies (before 1945) as a way of suppressing real wages. According to his calculations, monopoly capital practices could increase returns in the colonies to about 2.5 times their level in the home country.

7. Foreign assets are defined to include bank loans, portfolio bonds, and equity and FDI.

8. By "net-net capital flows," we mean capital flows net of loan repayments and FDI repatriation, and also net of interest, dividends, and retained FDI earnings. However, the net-net concept does *not* mean net of capital outflows *from* emerging markets.

have approached 3 percent of their combined GDP (table 1.1).[9] In relation to the combined GDP of the G-10 countries, the 1970 flow figure was only 0.3 percent, whereas the 2000 flow figure may have approached 1.0 percent.

Flows during the 1990s

Detailed statistics on net capital flows during the 1990s are provided in tables 1.2 and 1.3, on the basis of International Monetary Fund sources. IMF capital flows are expressed on a net basis: They are net of repayments and repatriations; however (unlike the net-net concept used in table 1.1), interest and dividends are not subtracted. In table 1.2, official IMF estimates of capital inflows in the 1990s to emerging markets are grouped geographically. Table 1.2 gives dollar estimates of net private-capital inflows of all types (bank loans and deposits, portfolio investment, foreign direct investment), as well as official flows, the change in reserve assets, and the current account balance.[10] In table 1.3, the dollar figures for private and official capital inflows are related to emerging-market GDP, measured at market exchange rates.[11] When all regions are combined, the net flows averaged about 2.4 percent of emerging-market GDP in the 1990s.

The figures on cumulative capital flows for the period 1990-2000 (11 years), classified by type of flow, are revealing (table 1.2). Cumulative bank loans and deposits were a *negative* $135 billion. Cumulative portfolio investments (excluding bank loans and deposits) were a positive $612 billion. Cumulative FDI was $954 billion. Cumulative official flows were a positive $205 billion—mostly timed to offset negative bank loans and deposits. In other words, portfolio investment and FDI were the big positive private-capital flows to emerging markets during the 1990s.

Data collected by the private Institute of International Finance (IIF), shown in appendix A, shed more light on bank activity. The text of appendix A explains the major differences between IMF and IIF data on

9. Although the upward trend in capital flows to emerging economies is clear, precise calculations depend on the data source and accounting conventions. See appendix A for an explanation of alternative data sources.

10. A current account deficit equals a capital account surplus, and vice versa. A positive number for reserves indicates an increase in official holdings of foreign exchange; a negative number indicates a decrease.

11. In making the evaluation, it matters whether GDP is measured at purchasing power parity (PPP) exchange rates, or at market exchange rates. PPP rates can increase the dollar measure of GDP in emerging economies by more than 100 percent, thereby diminishing the apparent relative importance of a billion dollars of capital inflow. In order to compare like magnitudes, we compare capital inflows with GDP measured at market exchange rates.

Table 1.1 Net-net capital flows to emerging markets[a]

Flows	1970	1980	1990	1998
	(billions of dollars at current prices)			
All emerging markets				
Long-term capital (net-net)	3.9	36.6	41.6	182.5
Bank loans and other debt (net-net)[a]	4.7	32.1	(10.0)	(12.6)
Portfolio equity and bonds (net-net)[b]	(0.1)	0.2	1.0	15.3
FDI (net-net)[c]	(4.2)	(19.3)	7.2	119.7
Official net transfers	6.1	39.2	40.8	56.4
Private net transfers	(2.2)	(2.6)	0.8	126.1
Short-term capital (net-net)	2.0	26.2	4.0	(23.3)
	(percent of GDP of emerging markets)			
Long-term capital (net-net)	0.5	1.3	0.9	2.9
Bank loans and other debt (net-net)[a]	0.6	1.1	(0.2)	(0.2)
Portfolio equity and bonds (net-net)[b]	(0.0)	0.0	0.0	0.2
FDI (net-net)[c]	(0.5)	(0.7)	0.2	1.9
Official net transfers	0.8	1.3	0.9	0.9
Private net transfers	(0.3)	(0.1)	0.0	2.0
Short-term capital (net-net)	0.2	0.9	0.1	(0.4)
	(percent of GDP of G-10)			
Long-term capital (net-net)	0.2	0.5	0.3	0.9
Official net transfers	0.3	0.6	0.3	0.3
Private net transfers	(0.1)	(0.0)	0.0	0.6
Short-term capital (net-net)	0.1	0.4	0.0	(0.1)
Memorandum:[d]				
GDP of emerging markets	797	2,927	4,747	6,364
GDP of G-10	1,999	7,093	14,997	20,187

	High scenario[e]			Low scenario[f]		
Flows	**2010**	**2020**	**2030**	**2010**	**2020**	**2030**
	(billions of dollars at 2000 prices)					
Total capital flows (net-net)	400	750	1,300	370	530	660
Bank loans and trade credits	0	50	50	(30)	20	20
Portfolio and FDI	400	700	1,250	400	510	640
	(percent of GDP of emerging markets)					
Total capital flows (net-net)	4.0	5.0	5.9	3.7	3.5	3.0
Bank loans and trade credits	0.0	0.3	0.2	(0.3)	0.1	0.1
Portfolio and FDI	4.0	4.7	5.7	4.0	3.4	2.9

(*table continues next page*)

Table 1.1 (*continued*)

Flows	High scenario[e] 2010	2020	2030	Low scenario[f] 2010	2020	2030
	(percent of GDP of G-10)					
Total capital flows (net-net)	1.5	2.1	3.0	1.4	1.5	1.5
Bank loans and trade credits	0.0	0.1	0.1	(0.1)	0.1	0.0
Portfolio and FDI	1.5	2.0	2.8	1.5	1.5	1.5
Memorandum						
GDP of emerging markets[g]	10,000	15,000	22,000	10,000	15,000	22,000
GDP of G-10	26,000	35,000	44,000	26,000	35,000	44,000

Flows	1970	1980	1990	1998
	(billions of dollars at current prices)			
Africa				
Long-term capital (net-net)[a]	1.0	8.7	11.7	13.5
Short-term capital (net-net)	0.4	0.4	0.6	(1.0)
Memorandum: GDP[b]	62.0	253.0	291.0	338.0
	(percent of GDP)			
Long-term capital (net-net)	1.6	3.4	4.0	4.0
Short-term capital (net-net)	0.6	0.2	0.2	(0.3)
	(billions of dollars at current prices)			
Middle East				
Long-term capital (net-net)[a]	(1.6)	(4.2)	(0.1)	12.3
Short-term capital (net-net)	0.3	(1.1)	6.6	2.3
Memorandum: GDP[c]	45.0	456.0	475.0	600.0
	(percent of GDP)			
Long-term capital (net-net)	(3.5)	(0.9)	(0.0)	2.0
Short-term capital (net-net)	0.6	(0.2)	1.4	0.4
	(billions of dollars at current prices)			
Asia Pacific				
Long-term capital (net-net)[a]	3.0	13.1	20.0	81.1
Short-term capital (net-net)	0.5	4.6	6.2	(16.6)
Memorandum: GDP[b]	278.0	648.0	1,353.0	2,116.0
	(percent of GDP)			
Long-term capital (net-net)	1.1	2.0	1.5	3.8
Short-term capital (net-net)	0.2	0.7	0.5	(0.8)
	(billions of dollars at current prices)			
Europe				
Long-term capital (net-net)[a]	0.5	10.9	3.9	39.1
Short-term capital (net-net)	0.1	6.3	(7.9)	3.2
Memorandum: GDP[b]	568.0	804.0	1,480.0	1,176.0

(*table continues next page*)

Table 1.1 Net-net capital flows to emerging markets[a] (*continued*)

Flows	1970	1980	1990	1998
		(percent of GDP)		
Long-term capital (net-net)	0.1	1.4	0.3	3.3
Short-term capital (net-net)	0.0	0.8	(0.5)	0.3
		(billions of dollars at current prices)		
Latin America				
Long-term capital (net-net)[a]	0.9	8.2	(0.1)	36.6
Short-term capital (net-net)	0.7	16.1	6.6	(6.8)
Memorandum: GDP[b]	171.0	740.0	1,149.0	2,135.0
		(percent of GDP)		
Long-term capital (net-net)	0.5	1.1	(0.0)	1.7
Short-term capital (net-net)	0.4	2.2	0.6	(0.3)

FDI = foreign direct investment
G-10 = Group of Ten countries; see note below.

a. Bank loans and other debt include "loans from private banks and other financial institutions," and "credits from manufacturers, exporters, and other suppliers of goods, and bank credits covered by a guarantee of an export credit agency." Loan repayments of principal are subtracted to obtain net loans. Interest payments on long- and short-term debt are subtracted from new loans to calculate the net-net amounts. In 1998, for example, net new bank and other loans were $52.7 billion, but interest payments were $94.3 billion, resulting in net-net flows of ($41.6) billion.
b. Dividends and interest payments on portfolio equity and bonds are subtracted to obtain net-net amounts.
c. Profits on FDI are subtracted from new FDI flows to calculate the net-net FDI flows. In 1998, for example, profit remittances and reinvested earnings were $35.3 billion and new FDI flows (including reinvested earnings) were $155.0 billion.
d. GDP is expressed in dollars at market exchange rates (current prices).
e. In the high scenario, net-net capital flows from developed countries (mainly G-10 countries) to emerging markets are projected to rise gradually from about 1 percent of G-10 GDP in 2000 to 3 percent in 2030. Underlying the projected rise is our assumption that household savings rates in G-10 countries will rise (mainly through private pension funds), while the demand for physical capital will fall. The capital stock projections in table 1.4 are generated by the capital flow assumptions in table 1.1. In our projections, Bank loans and trade credits are limited to a small portion of total capital flows for two reasons: (1) we assume that regulators adopt a more cautious stance, for the reasons argued in this monograph; (2) in any event, we think banks will become more risk averse. Portfolio investment (equity and bonds) plus FDI flows are calculated as a residual between total capital flows and bank loans and credit.
f. In the low scenario, net-net capital flows are derived from the assumption that the foreign-owned capital stock in the emerging markets remains a fixed 70 percent of emerging market GDP (table 1.4). Bank loans and trade credits are limited to a small share of total capital flows for the reasons already given. Portfolio and FDI are calculated as a residual.
g. GDP in emerging markets is projected to grow at 4.0 percent per year in real terms.

Note: The World Bank terminology for "net-net" flows is "aggregate net transfers." The G-10 is made up of 11 industrial countries (Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States). The GDP of the G-10 is projected to grow at 2.5 percent per year in real terms.

Sources: World Bank, *Global Development Finance,* 1998, 1999; World Bank, *World Tables,* 1983. All projections by the authors.

capital flows. The biggest difference surrounds bank operations. The IIF data on "bank loans and other debt (net)" record loans made by (and repaid to) foreign banks (principally G-10 banks) in the emerging markets. Unlike the IMF, the IIF does *not* record deposits by local banks, other firms, or residents of the emerging markets in the G-10 banks and the banks based in other advanced countries. The result is a startling difference in the cumulative size of bank operations in emerging countries between 1990 and 2000. The IIF records a cumulative *positive* figure of $269 billion, in contrast to the IMF cumulative *negative* figure of $135 billion. Most of the difference reflects deposits by residents of emerging markets in the banks of G-10 countries. In other words, local banks, firms, and residents of emerging markets placed about $400 billion in deposits in G-10 banks during the 1990s.

There is nothing bad about "reverse" deposits from emerging markets into G-10 banks. Emerging-market firms and residents are perfectly entitled to bank where they find safety and convenience. We concur with Michael Dooley in making a stronger statement: Residents of emerging markets may do better by investing in G-10 financial and industrial firms than local institutions.[12] The competitive pressures created by giving each investor, wherever he or she lives, an array of investment opportunities could do a great deal to improve the performance of emerging-market firms.

But when "reverse" deposits are cumulated over a decade, the magnitudes underscore a important proposition: If both loans and deposits are counted, G-10 banks have not been, and are not likely to become, large net suppliers of funds to emerging markets during a sustained period of time. Well-managed banks can dramatically improve the efficiency of capital allocation, a contribution that deserves to be emphasized. At the same time, through their lending and deposit-taking patterns, G-10 banks can contribute to volatility, a problem that we explore later in this chapter.

Regional Experience

Turning to regional data, in dollar terms, Asia and the Pacific and Latin America attracted the most private investment (table 1.2). In relation to GDP, however, the picture is somewhat different (table 1.3). The Middle East was the winner (4.7 percent of GDP), with a few high years in the early 1990s. For the decade, Latin America was next best (3.2 percent of GDP, with a far steadier average rate of inflow than the Middle East), followed by Africa (2.3 percent), and Asia and the Pacific (1.7 percent).

12. Michael Dooley, personal comment, November 2000.

Table 1.2 Net capital flows to emerging markets, by area, 1990-2000
(official estimates, billions of dollars at current prices)

Flows	1990	1991	1992	1993	1994	1995
Emerging markets						
Total private capital inflows (net)	47.7	123.8	119.3	181.9	152.8	193.3
Bank loans and other debt (net)[d]	11.9	55.6	32.7	11.5	(35.5)	55.4
Portfolio investment (net)[e]	17.4	36.9	51.1	113.6	105.6	41.2
Foreign direct investment (net)	18.4	31.3	35.5	56.8	82.6	96.7
Net official flows	26.6	36.5	22.3	20.1	1.8	26.0
Change in reserve assets	66.1	75.1	31.5	83.9	90.9	123.1
Current account balance	(27.2)	(79.0)	(69.7)	(107.2)	(69.7)	(96.0)
Asia Pacific						
Total private capital inflows (net)	19.6	34.1	17.9	57.3	66.4	95.1
Bank loans and other debt (net)[d]	13.0	18.4	3.3	11.7	11.7	34.4
Portfolio investment (net)[e]	(2.7)	1.4	21.0	9.4	9.4	10.9
Foreign direct investment (net)	9.3	14.4	33.0	45.3	45.3	49.8
Net official flows	8.4	10.9	10.3	8.5	10.5	6.7
Change in reserve assets	47.4	45.9	6.9	43.0	78.3	47.7
Current account balance	1.7	4.5	3.6	(13.3)	(3.8)	(36.3)
Five affected countries[f]						
Total private capital inflows (net)	24.2	26.8	26.2	31.9	33.2	62.5
Bank loans and other debt (net)[d]	17.9	17.3	15.0	8.7	18.4	36.9
Portfolio investment (net)[e]	0.3	3.4	5.3	16.5	8.3	17.0
Foreign direct investment (net)	6.0	6.1	6.3	6.7	6.5	8.7
Net official flows	n.a.	4.4	2.0	0.6	0.3	0.7
Change in reserve assets	6.9	8.4	15.0	18.3	10.7	14.0
Current account balance	(16.0)	(25.2)	(16.1)	(13.5)	(23.2)	(40.5)
Other Asia						
Total private capital inflows (net)	(4.6)	7.3	(8.3)	25.4	33.2	32.6
Bank loans and other debt (net)[d]	(4.9)	1.1	(11.7)	3.0	(6.7)	(2.5)
Portfolio investment (net)[e]	(3.0)	(2.0)	15.7	(7.1)	1.1	(6.1)
Foreign direct investment (net)	3.3	8.3	26.7	38.6	38.8	41.1
Net official flows	n.a.	6.5	8.3	7.9	10.2	6.0
Change in reserve assets	40.5	37.5	(8.1)	24.7	67.6	33.7
Current account balance	17.7	29.7	19.7	0.2	19.4	4.2
Latin America						
Total private capital inflows (net)	13.7	24.1	55.9	62.6	47.5	38.3
Bank loans and other debt (net)[d]	(10.5)	(2.0)	11.7	(10.6)	(38.2)	10.6
Portfolio investment (net)[e]	17.5	14.7	30.3	61.1	60.8	1.7
Foreign direct investment (net)	6.7	11.3	13.9	12.0	24.9	26.0
Net official flows	1.8	2.7	(1.7)	0.7	(3.4)	21.1
Change in reserve assets	14.7	18.0	23.0	20.2	(4.3)	24.8
Current account balance	(1.0)	(16.9)	(34.5)	(45.7)	(50.9)	(35.9)

1996	1997	1998	1999[a]	2000[a]	Flows, 1990-2000 Total	Flows, 1990-2000 Average	Absolute deviation[b]	Relative deviations (percent)[c] Own	Relative deviations (percent)[c] Total
212.1	149.2	64.3	68.3	118.5	1,431.2	130.1	43.4	33	
16.3	(57.6)	(103.5)	(71.8)	(50.1)	(135.1)	(12.3)	43.8	>100	>100
80.8	66.8	36.7	21.6	40.2	611.9	55.6	28.6	51	66
115.0	140.0	131.0	118.5	128.4	954.2	86.7	15.3	18	35
(0.9)	24.4	41.1	9.4	(2.4)	204.9	18.6	18.1		
101.1	59.2	58.3	51.1	76.1	816.4	74.2	24.1		
(92.5)	(91.8)	(53.6)	(24.7)	(45.2)	(756.6)	(68.8)	25.4		
100.5	3.2	(55.1)	(29.6)	(3.3)	306.1	27.8	32.1	>100	
32.8	(60.3)	(89.7)	(62.8)	(43.5)	(131.0)	(11.9)	22.2	>100	69
12.6	0.9	(15.4)	(8.3)	(2.9)	36.3	3.3	7.9	>100	25
55.1	62.6	50.0	41.6	43.1	449.5	40.9	7.6	19	24
(0.5)	30.0	27.5	(0.4)	2.3	114.2	10.4	8.2		
61.4	23.5	63.3	42.2	47.3	506.9	46.1	26.0		
(37.5)	5.6	101.7	75.5	55.8	157.5	14.3	24.9		
62.4	(19.7)	(46.2)	(18.1)	(8.2)	175.0	15.9	18.6	>100	
32.9	(44.5)	(44.5)	(32.0)	(22.2)	3.9	0.4	14.1	>100	76
20.0	12.6	(6.5)	4.5	5.6	87.0	7.9	7.5	94	40
9.5	12.1	4.9	9.4	8.4	84.6	7.7	1.9	25	10
(4.6)	30.4	20.2	(4.5)	(0.6)	48.9	4.9	9.3		
14.5	(35.9)	47.1	39.9	29.9	168.8	15.3	17.3		
(53.4)	(27.0)	69.7	49.3	29.4	(66.5)	(6.0)	22.4		
38.1	22.9	(8.9)	(11.5)	4.9	131.1	11.9	14.1	>100	
(0.1)	(15.8)	(45.2)	(30.8)	(21.3)	(134.9)	(12.3)	11.9	97	84
(7.4)	(11.7)	(8.9)	(12.8)	(8.5)	(50.7)	(4.6)	7.4	>100	52
45.6	50.5	45.1	32.2	34.7	364.9	33.2	6.8	20	48
4.1	(0.4)	7.3	4.1	2.9	56.9	5.7	3.0		
46.9	59.4	16.2	2.3	17.4	338.1	30.7	25.6		
15.9	32.6	32.0	26.2	26.4	224.0	20.4	11.1		
82.0	87.3	69.0	47.2	62.7	590.3	53.7	17.8	33	
2.7	(3.1)	(18.1)	(7.7)	(4.0)	(69.2)	(6.3)	16.4	>100	92
40.0	39.7	33.0	12.0	23.6	334.4	30.4	18.7	61	>100
39.3	50.6	54.0	42.8	43.1	324.6	29.5	6.3	21	35
(14.1)	(8.4)	4.1	4.8	(0.1)	7.5	0.7	9.5		
26.2	13.5	(9.9)	(6.7)	4.1	123.6	11.2	11.6		
(39.0)	(65.1)	(89.5)	(56.5)	(56.5)	(491.5)	(44.7)	15.2		

(*table continues next page*)

Table 1.2 Net capital flows to emerging markets, by area, 1990-2000
(official estimates, billions of dollars at current prices) (*continued*)

Flows	1990	1991	1992	1993	1994	1995
Africa						
Total private capital inflows (net)	4.4	8.9	6.9	8.7	4.8	6.8
Bank loans and other debt (net)[d]	4.7	8.4	5.8	5.8	0.7	1.2
Portfolio investment (net)[e]	(1.5)	(1.5)	(0.6)	1.0	0.8	1.5
Foreign direct investment (net)	1.2	2.0	1.7	1.9	3.4	4.2
Net official flows	7.1	9.1	12.1	8.3	13.5	11.7
Change in reserve assets	4.6	3.7	(2.8)	1.6	4.6	1.9
Current account balance	(9.0)	(7.4)	(10.4)	(11.0)	(11.8)	(16.4)
Middle East						
Total private capital inflows (net)	10.0	73.0	30.9	27.3	17.9	5.0
Bank loans and other debt (net)[d]	5.8	50.8	19.6	5.9	2.6	(6.1)
Portfolio investment (net)[e]	3.5	21.9	11.3	18.1	12.1	8.3
Foreign direct investment (net)	0.6	0.3	0.1	3.2	3.1	2.8
Net official flows	(1.8)	3.9	(1.2)	2.2	(1.5)	(1.5)
Change in reserve assets	(2.9)	6.0	0.7	4.6	2.5	7.7
Current account balance	3.4	(64.2)	(25.5)	(24.6)	(10.8)	(3.9)
Europe						
Total private capital inflows (net)	0.0	(16.3)	7.6	26.0	16.1	48.1
Bank loans and other debt (net)[d]	(1.1)	(19.9)	0.3	7.0	(12.3)	15.2
Portfolio investment (net)[e]	0.5	0.4	2.3	12.4	22.5	18.9
Foreign direct investment (net)	0.5	3.2	5.1	6.7	6.0	13.9
Net official flows	0.5	9.3	3.6	(0.7)	(10.5)	(9.1)
Change in reserve assets	2.4	1.5	3.7	14.5	9.8	41.0
Current account balance	(22.2)	5.0	(2.9)	(12.7)	7.6	(3.6)

n.a. = not available

a. IMF estimates; IMF, World Economic Outlook, October 1999.
b. Average absolute value of year-to-year change.
c. The ratio of absolute deviation (note b) to the average flows for 1990-2000. The "own" figure relates the absolute deviation to average annual capital flows of the same type. The "total" figure relates the absolute deviation to the absolute deviation of total private capital flows. Negative signs are ignored in calculating relative deviations.
d. "Other" net investment includes trade credits and loans; currency and deposits; and other assets and liabilities.
e. Net portfolio investment includes both equity securities and debt securities (bond and notes; money market instruments; and financial derivatives).
f. Indonesia, Malaysia, the Philippines, South Korea, and Thailand.

1996	1997	1998	1999[a]	2000[a]	Flows, 1990-2000 Total	Flows, 1990-2000 Average	Absolute deviation[b]	Relative deviations (percent)[c] Own	Relative deviations (percent)[c] Total
7.6	16.3	10.3	11.7	18.3	104.7	9.5	3.8	40	
2.3	5.8	0.0	0.9	4.8	40.4	3.7	2.7	74	72
(0.2)	2.9	3.5	2.4	4.7	13.0	1.2	1.2	>100	32
5.5	7.6	6.8	8.4	8.7	51.4	4.7	1.0	21	26
0.2	(4.7)	2.2	4.8	(3.5)	60.8	5.5	5.0		
5.5	3.8	(1.5)	1.4	8.2	31.0	2.8	3.8		
(5.7)	(6.1)	(18.1)	(18.8)	(15.2)	(129.9)	(11.8)	3.8		
(3.1)	7.1	22.6	17.4	11.1	219.2	19.9	17.6	88	
(8.5)	1.8	9.6	7.1	(4.7)	83.9	7.6	13.7	>100	78
3.7	2.8	10.8	6.5	6.2	105.2	9.6	6.4	67	36
1.7	2.5	2.2	3.8	9.5	29.8	2.7	1.4	50	8
(1.1)	(0.8)	(1.1)	(1.7)	(2.0)	(6.6)	(0.6)	2.0		
5.1	11.8	2.4	6.8	5.1	49.8	4.5	5.0		
8.7	6.4	(25.0)	(8.9)	(9.2)	(153.6)	(14.0)	19.1		
25.2	35.3	17.5	21.6	29.7	210.8	19.2	16.4	85	
(13.0)	(1.8)	(5.4)	(9.3)	(2.8)	(43.1)	(3.9)	14.6	>100	89
24.8	20.5	4.8	9.0	8.6	124.7	11.3	5.6	50	34
13.4	16.6	18.2	21.9	23.9	129.4	11.8	2.6	22	16
(2.4)	8.2	10.8	1.9	1.1	12.7	1.2	6.0		
2.9	6.6	4.0	7.4	11.5	105.3	9.6	10.2		
(19.1)	(32.6)	(22.7)	(16.1)	(20.2)	(139.5)	(12.7)	12.6		

Note: According to the IMF's balance of payments reporting standards, interest payments, dividends, and retained FDI earnings are supposed to be recorded as current account debits. Hence, these items, in principle, should not be subtracted in calculating net bank loans, net portfolio investment, or net FDI.

Sources: Table adapted from IMF, *International Capital Market, Developments, Prospects, and Key Policy Issues,* September 1999, 92-93; IMF, *World Economic Outlook*, May 1998; October 1999.

Table 1.3 Net capital flows to emerging markets as a percentage of GDP, by area, 1990-2000 (official estimates)

Flows	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[a]	2000[a]	Average percentages
As share of GDP of the G-10[b]												
Total private capital inflows (net)	0.3	0.8	0.7	1.0	0.8	0.9	1.0	0.7	0.3	0.3	0.6	0.7
Bank loans and other debt (net)	0.1	0.3	0.2	0.1	(0.2)	0.3	0.1	(0.3)	(0.5)	(0.3)	(0.2)	(0.0)
Portfolio investment (net)	0.1	0.2	0.3	0.7	0.6	0.2	0.4	0.3	0.2	0.1	0.2	0.3
Foreign direct investment (net)	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.6	0.6	0.6	0.4
Net official flows	0.2	0.2	0.1	0.1	0.0	0.1	(0.0)	0.1	0.2	0.0	(0.0)	0.1
As share of GDP of all emerging markets[c]												
Total private capital inflows (net)	1.0	2.6	2.5	3.6	2.9	3.6	3.6	2.4	1.0	1.0	1.7	2.4
Bank loans and other debt (net)	0.3	1.2	0.7	0.2	(0.7)	1.0	0.3	(0.9)	(1.6)	(1.1)	(0.7)	(0.1)
Portfolio investment (net)	0.4	0.8	1.1	2.3	2.0	0.8	1.4	1.1	0.6	0.3	0.6	1.0
Foreign direct investment (net)	0.4	0.7	0.7	1.1	1.6	1.8	2.0	2.3	2.1	1.8	1.9	1.5
Net official flows	0.6	0.8	0.5	0.4	0.0	0.5	(0.0)	0.4	0.6	0.1	(0.0)	0.3
Asia Pacific												
Total private capital inflows (net)	1.4	2.4	1.2	3.5	3.7	5.1	4.9	0.2	(2.6)	(1.3)	(0.1)	1.7
Bank loans and other debt (net)	1.0	1.3	0.2	0.7	0.7	1.9	1.6	(3.0)	(4.2)	(2.8)	(1.9)	(0.4)
Portfolio investment (net)	(0.2)	0.1	1.4	0.6	0.5	0.6	0.6	0.0	(0.7)	(0.4)	(0.1)	0.2
Foreign direct investment (net)	0.7	1.0	2.1	2.8	2.5	2.7	2.7	3.1	2.4	1.9	1.8	2.2
Net official flows	0.6	0.8	0.7	0.5	0.6	0.4	(0.0)	1.5	1.3	(0.0)	0.1	0.6
Five affected countries[d]												
Total private capital inflows (net)	4.5	4.4	3.9	4.3	4.0	6.3	5.8	(2.0)	(6.9)	(2.6)	(1.1)	1.9
Bank loans and other debt (net)	3.3	2.8	2.2	1.2	2.2	3.7	3.0	(4.5)	(6.6)	(4.5)	(3.0)	(0.0)
Portfolio investment (net)	0.1	0.6	0.8	2.2	1.0	1.7	1.9	1.3	(1.0)	0.6	0.8	0.9
Foreign direct investment (net)	1.1	1.0	0.9	0.9	0.8	0.9	0.9	1.2	0.7	1.3	1.1	1.0
Net official flows	n.a.	0.7	0.3	0.1	0.0	0.1	(0.4)	3.1	3.0	(0.6)	(0.1)	0.6
Other Asia												
Total private capital inflows (net)	(0.6)	0.9	(0.9)	2.8	3.5	3.8	4.0	2.2	(0.6)	(0.8)	0.3	1.3
Bank loans and other debt (net)	(0.6)	0.1	(1.3)	0.3	(0.7)	(0.3)	(0.0)	(1.5)	(3.1)	(2.0)	(1.3)	(0.9)
Portfolio investment (net)	(0.4)	(0.2)	1.8	(0.8)	0.1	(0.7)	(0.8)	(1.1)	(0.6)	(0.8)	(0.5)	(0.4)
Foreign direct investment (net)	0.4	1.0	3.0	4.3	4.1	4.8	4.8	4.8	3.1	2.1	2.2	3.1
Net official flows	n.a.	0.8	0.9	0.9	1.1	0.7	0.4	(0.0)	0.5	0.3	0.2	0.6

Latin America												
Total private capital inflows (net)	1.2	2.0	4.3	5.4	3.1	2.4	4.4	4.2	3.2	2.2	2.8	3.2
Bank loans and other debt (net)	(0.9)	(0.2)	0.9	(0.9)	(2.5)	0.7	0.1	(0.1)	(0.8)	(0.4)	(0.2)	(0.4)
Portfolio investment (net)	1.5	1.2	2.3	5.3	3.9	0.1	2.1	1.9	1.5	0.6	1.1	2.0
Foreign direct investment (net)	0.6	1.0	1.1	1.0	1.6	1.6	2.1	2.4	2.5	2.0	1.9	1.6
Net official flows	0.2	0.2	(0.1)	0.0	(0.2)	1.3	(0.8)	(0.4)	0.2	0.2	(0.0)	0.1
Africa												
Total private capital inflows (net)	1.1	2.3	1.8	2.3	1.2	1.7	1.9	3.9	2.4	2.6	4.0	2.3
Bank loans and other debt (net)	1.2	2.2	1.5	1.5	0.2	0.3	0.6	1.4	0.0	0.2	1.0	0.9
Portfolio investment (net)	(0.4)	(0.4)	(0.2)	0.3	0.2	0.4	(0.0)	0.7	0.8	0.5	1.0	0.3
Foreign direct investment (net)	0.3	0.5	0.4	0.5	0.9	1.1	1.4	1.8	1.6	1.9	1.9	1.1
Net official flows	1.8	2.4	3.1	2.2	3.5	2.9	0.0	(1.1)	0.5	1.1	(0.8)	1.4
Middle East												
Total private capital inflows (net)	2.7	18.5	7.8	6.5	4.2	1.1	(0.7)	1.5	4.5	3.4	2.1	4.7
Bank loans and other debt (net)	1.5	12.9	4.9	1.4	0.6	(1.4)	(1.9)	0.4	1.9	1.4	(0.9)	1.9
Portfolio investment (net)	0.9	5.6	2.8	4.3	2.9	1.9	0.8	0.6	2.2	1.3	1.2	2.2
Foreign direct investment (net)	0.2	0.1	0.0	0.8	0.7	0.6	0.4	0.5	0.4	0.7	1.8	0.6
Net official flows	(0.5)	1.0	(0.3)	0.5	(0.4)	(0.3)	(0.2)	(0.2)	(0.2)	(0.3)	(0.4)	(0.1)
Europe												
Total private capital inflows (net)	0.0	(1.2)	0.6	2.3	1.4	4.4	2.3	3.1	1.5	1.8	2.4	1.9
Bank loans and other debt (net)	(0.1)	(1.5)	0.0	0.6	(1.1)	1.4	(1.2)	(0.2)	(0.5)	(0.8)	(0.2)	(0.3)
Portfolio investment (net)	0.0	0.0	0.2	1.1	2.0	1.7	2.2	1.8	0.4	0.8	0.7	1.0
Foreign direct investment (net)	0.0	0.2	0.4	0.6	0.5	1.3	1.2	1.5	1.5	1.8	1.9	1.0
Net official flows	0.0	0.7	0.3	(0.1)	(0.9)	(0.8)	(0.2)	0.7	0.9	0.2	0.1	0.1

n.a. = not available

a. IMF estimates.
b. The G-10 countries (actually 11 countries) supply most, but not all, of private and capital flows. The G-10 countries are Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.
c. Emerging markets represent the rest of the world other than industrial countries. Industrial countries here include the G-10, Western Europe, Australia, and New Zealand.
d. Indonesia, Malaysia, South Korea, the Philippines, and Thailand.

Note: GDP is expressed in dollars at market exchange rates (current prices).

Sources: IMF, *International Capital Market, Developments, Prospects, and Key Policy Issues,* September 1999. IMF, *World Economic Outlook,* various issues. World Bank, *World Tables,* various issues.

The low rate for Asia and the Pacific mirrors negative private-capital outflows between 1997 and 2000 in the wake of the Asian crisis. If bank operations and portfolio investment are ignored, it is instructive to examine FDI flows relative to GDP for the decade as a whole. Asia and the Pacific was the clear winner (2.2 percent), followed by Latin America. The Middle East was the least-favored region for direct investment.

Categories of Capital

The dominant modes of finance to emerging markets have changed. Bond finance was very popular in the 1920s (until the Great Depression), whereas syndicated bank loans were popular in the 1970s (until the Mexican debt crisis in 1982). FDI became an important vehicle in the late 1980s and 1990s. During this period, an unprecedented volume of equity capital flowed to emerging markets through the auspices of institutional investors (Eichengreen and Fishlow 1996). The portfolio investment flows recorded in table 1.3 represent a mixture of equity and bonds; in recent history, bonds have been about 60 percent of portfolio investment and equity about 40 percent (see box 1.1 table), but the proportions differ from year to year and region to region.

Bonds and interbank loans have increasingly replaced syndicated bank loans as debt vehicles (table A.8 in appendix A). At the receiving end, private-sector debtors in the emerging markets have outpaced sovereign debtors (Frankel and Roubini 2000).[13] Sovereign debtors borrow both from private-capital sources and from official institutions such as the World Bank and IMF. Flow figures during the 1990s portray the declining role of official finance: Net official flows to emerging markets amounted to only one-seventh of net private flows—$200 billion versus $1,400 billion (table 1.2). But for some regions (especially Africa) and in some crisis years (especially 1997 and 1998 in the crisis countries), official flows were significant.[14]

Econometric evidence, although limited, suggests that the pro-growth benefits of portfolio equity and FDI are substantially higher than the benefits of bank loans and portfolio bonds. (The evidence is discussed later in this chapter.) The question, as Hausmann and Fernandez-Arias put it,[15] is whether a valid distinction can be made between "good cholesterol" and "bad cholesterol," and between "safe" and "unsafe" foreign capital. Having flagged this question for later exploration, we return

13. Private-sector borrowers grew from 19 percent of all emerging-economy borrowing in the decade 1980-89 to 53 percent in 1990-98, whereas public-sector borrowing correspondingly contracted (Mussa and Richards 1999, 8).

14. These same relationships emerge in the IIF data in appendix A.

Box 1.1 G-10 Portfolio Investment Assets in Emerging Markets

Evolving financial innovation and liberalization of financial markets increased portfolio investment flows in the 1980s and 1990s. However, the statistical measurement of certain portfolio flows (e.g., financial derivatives) is still in its infancy. At the end of 1993, global net transactions in portfolio investment showed an imbalance of $220 billion: measured assets were $220 billion smaller than measured liabilities.

To improve the statistical picture, the IMF set up a task force in October 1994. The first results of the IMF *Coordinated Portfolio Investment Survey* (CPIS, 29 countries) (IMF 1999a) came out in 1999. The CPIS encompassed equity and debt securities and disaggregated debt securities by bonds and notes, money market instruments, and financial derivatives.

The total value of portfolio investment assets around the world reached $6,074 billion at the end of 1997: $2,562 billion in the form of equity securities; $3,409 billion long-term debt securities; $98 billion short-term debt securities; and $4 billion financial derivatives. The table below illustrates the portfolio holdings of G-10 countries (excluding Germany and Switzerland).

As of 1997, most portfolio investment from the G-10 countries was placed in other industrial countries, with around 20 percent placed in emerging markets. Equity securities accounted for 43 percent ($370 billion out of $860 billion) of the total portfolio stock in emerging economies, based on available data from the G-10 countries. Long-term debt securities (long-term bonds and notes) was 47 percent of the total, and short-term debt securities (money market instruments) accounted for about 10 percent.

The share of emerging markets in G-10 portfolio investment stocks placed abroad, at end—December 1997 (billions of dollars)

Selected G-10 investors	Bel-gium	Canada	France	Italy	Japan	Nether-lands	Sweden	United Kingdom	United States	Total
Equity securities	65	106	100	75	159	127	52	462	1,197	2,343
Share in emerging markets (percent)	2	14	11	9	9	9	4	12	21	16
Long-term debt securities	87	18	206	172	712	115	17	483	543	2,353
Share in emerging markets (percent)	8	19	12	42	18	4	2	16	50	23
Short-term debt securities	11	5	n.a.	10	31	n.a.	3	27	n.a.	87
Share in emerging markets (percent)	5	14	n.a.	19	27	n.a.	2	25	n.a.	22

n.a. = not available

Sources: IMF (1999a, 1999g).

to the datapresented in our tables, organized according to traditional categories.

Foreign Assets Relative to GDP

Looking at asset stocks, in 1970, combined debt and foreign direct investment placed in emerging economies amounted to about 21 percent of their combined GDP (table 1.4). By 2000, the figure reached 58 percent of combined GDP. In comparison with the combined GDP of the G-10, assets placed in emerging economies amounted to 19 percent of GDP in 2000.

Between 1970 and 2000, the components of the total stock of debt shifted dramatically (table 1.4). In relation to emerging-economy GDP, long- and medium-term debt grew four times, from 7.5 to 32.2 percent. Short-term debt stock, however, has remained at about 5 percent of emerging-economy GDP. Foreign direct investment grew about three times, from 7.0 to 21.1 percent. What these figures say is that short-term debt, the hottest of hot money, has shrunk relative to longer-term debt and FDI. Nevertheless, short-term debt can still create troublesome waves. The conventional story, illustrated by recent events, is told in box 1.2.

Much of so-called medium- and long-term debt has short-term characteristics, in substance if not in form. Loans that were originally medium- or long-term become short-term as they age. Loan conditions may enable a nervous lending bank to accelerate principal payments. These features tend to color medium- and long-term debt with the same volatility characteristics as short-term debt.

Aging Populations in the OECD Countries

An inescapable demographic feature of the United States, Europe, and Japan during the next generation is their aging populations. By 2030, 33 percent of Americans age 15 years and above will qualify as senior citizens—as older than age 65. The figures for other industrial countries are more worrisome: Germany, 40 percent; France, 40 percent; Italy, 48 percent; the United Kingdom, 37 percent; and Japan, 44 percent.[16] The prospective burden of aging populations is so severe that OECD countries

15. Two papers by the same authors examine these questions: Hausmann and Fernandez-Arias (2000) and Fernandez-Arias and Hausmann (2000).

16. Group of Ten (1998). For a short account, see *Washington Post*, 26 April 2000, 1.

Table 1.4 Total foreign capital stock in emerging markets

Capital stock	1970	1980	1990	2000[a]	1970	1980	1990	2000[a]
	(billions of dollars at current prices)				(percent of GDP of emerging markets)			
Foreign capital stock	176	770	2,164	4,937	22.1	26.3	45.6	72.6
Long- and medium-term debt stock	60	457	1,203	2,192	7.5	15.6	25.3	32.2
Official	33	182	630	977	4.1	6.2	13.3	14.4
Private	28	275	573	1,215	3.5	9.4	12.1	17.9
Share of official debt (percent)	54	40	52	45				
Share of private debt (percent)	46	60	48	55				
Short-term debt stock[b]	50[b]	147	241	352	6.3	5.0	5.1	5.2
Portfolio investment stock	10[c]	60[c]	364	959	1.3	2.0	7.7	14.1
FDI inward stock	56[d]	106	356	1,434	7.0	3.6	7.5	21.1
					(percent of GDP of G-10)			
Foreign capital stock					8.8	10.9	14.4	23.2
Long- and medium-term debt stock					3.0	6.4	8.0	10.3
Official					1.6	2.6	4.2	4.6
Private					1.4	3.9	3.8	5.7
Short-term debt stock					2.5	2.1	1.6	1.7
Portfolio investment stock[b]					0.5	0.8	2.4	4.5
FDI inward stock					2.8	1.5	2.4	6.8
Memorandum:[e]								
GDP of emerging markets	797	2,927	4,747	6,798				
GDP of G-10	1,999	7,093	14,997	21,208				

	High scenario[f]			Low scenario[g]		
Capital stock	2010	2020	2030	2010	2020	2030
	(billions of dollars at 2000 prices)					
Foreign capital stock	7,300	12,700	21,800	7,000	10,500	15,400
Bank loans and trade credits	2,500	3,000	3,500	2,200	2,400	2,600
Portfolio and FDI	4,800	9,700	18,300	4,800	8,100	12,800
	(percent of GDP of emerging markets)					
Foreign capital stock	73.0	84.7	99.1	70.0	70.0	70.0
Bank loans and trade credits	25.0	20.0	15.9	22.0	16.0	11.8
Portfolio and FDI	48.0	64.7	83.2	48.0	54.0	58.2
	(percent of GDP of G-10)					
Foreign capital stock	28.1	36.3	49.5	26.9	30.0	35.0
Bank loans and trade credits	9.6	8.6	8.0	8.5	6.9	5.9
Portfolio and FDI	18.5	27.7	41.6	18.5	23.1	29.1
Memorandum:						
GDP of emerging markets[h]	10,000	15,000	22,000	10,000	15,000	22,000
GDP of G-10	26,000	35,000	44,000	26,000	35,000	44,000

(*table continues next page*)

Table 1.4 Total debt stock and FDI stock in emerging markets (*continued*)

Capital stock	1970	1980	1990	2000[a]	1970	1980	1990	2000[a]
	(billions of dollars at current prices)				(percent of GDP)			
Africa								
Long- and medium-term debt stock[c]	6	62	168	191	10.0	24.4	57.9	52.2
Official	4	27	116	146	6.9	10.8	39.9	39.8
Private	2	34	52	46	3.1	13.6	18.0	12.4
Share of official debt (percent)	69	44	69	76				
Share of private debt (percent)	31	56	31	24				
Short-term debt stock	8[d]	23	28	50	12.8	8.9	9.6	13.5
FDI inward stock	1[f]	11	36	92	1.6	4.5	12.2	25.1
Memorandum: GDP[g]	62	253	291	366				
Middle East								
Long- and medium-term debt stock[c]	4	63	138	179	9.3	13.7	29.1	28.4
Official	3	32	82	114	6.9	7.1	17.2	18.1
Private	1	30	57	65	2.4	6.6	11.9	10.3
Share of official debt (percent)	74	52	59	64				
Share of private debt (percent)	26	48	41	36				
Short-term debt stock	7[d]	21	44	37	15.5	4.6	9.2	5.9
FDI inward stock	n.a.[f]	13	48	59	n.a.	2.9	10.1	9.3
Memorandum: GDP[g]	45	456	475	629				
Asia								
Long- and medium-term debt stock[c]	18	86	318	713	6.3	13.2	23.5	30.4
Official	14	55	202	337	5.0	8.6	14.9	14.3
Private	4	30	117	376	1.3	4.7	8.6	16.0
Share of official debt (percent)	79	65	63	47				
Share of private debt (percent)	21	35	37	53				
Short-term debt stock	6[d]	17	51	71	2.2	2.6	3.8	3.0
FDI inward stock	22[f]	32	140	715	7.9	5.0	10.4	30.5
Memorandum: GDP[g]	278	648	1,353	2,348				
Europe								
Long- and medium-term debt stock[c]	4	58	180	416	0.7	7.3	12.1	33.7
Official	3	21	66	171	0.5	2.6	4.5	13.9
Private	1	38	114	245	0.2	4.7	7.7	19.8
Share of official debt (percent)	68	35	37	41				
Share of private debt (percent)	32	65	63	59				
Short-term debt stock	6[d]	17	41	78	1.1	2.1	2.8	6.4
FDI inward stock	0[f]	0	3	142	0.0	0.0	0.2	11.5
Memorandum: GDP[g]	568	804	1,480	1,234				

(*table continues next page*)

Table 1.4 (*continued*)

Capital stock	1970	1980	1990	2000[a]	1970	1980	1990	2000[a]
	(billions of dollars at current prices)				(percent of GDP)			
Latin America								
Long- and medium-term debt stock[c]	28	189	398	694	16.2	25.5	34.6	31.2
Official	8	46	165	209	4.8	6.3	14.3	9.4
Private	20	142	234	485	11.4	19.2	20.3	21.8
Share of official debt (percent)	30	25	41	30				
Share of private debt (percent)	70	75	59	70				
Short-term debt stock	23[d]	69	77	119	13.5	9.3	6.7	5.3
FDI inward stock	18[f]	48	126	486	10.5	6.5	11.0	21.9
Memorandum: GDP[g]	171	740	1,149	2,220				

n.a. = not available

a. For 2000, figures are extrapolated from table 1.2 (flow table). For long-term and medium-term private debt stock, net portfolio investment flows for 2000 are added to the 1999 stock figure to obtain the 2000 stock figure. For short-term debt stock, net bank loans (flow) for 2000 are added to the 1999 stock figure to obtain the 2000 figure.
b. Short-term debt stock for all emerging markets is arbitrarily estimated at $50 billion in 1970, reflecting the surge in short-term petrodollar loans during 1970s, especially to Latin America. The total figure was then apportioned between regions according to its share in 1980.
c. Figures are arbitrarily assumed by authors.
d. FDI stock figures for 1970 are estimated by subtracting average inflows of FDI to each region.
e. GDP figures are evaluated at market exchange rates.
f. In the high scenario, net-net capital flows from industrial countries (mainly G-10 countries) to emerging markets are projected to rise gradually from about 1 percent of G-10 GDP in 2000 to 3 percent in 2030. Underlying the projected rise is our assumption that household savings rates in G-10 countries will rise (mainly through private pension funds), while the demand for physical capital will fall. The capital stock projections in table 1.4 are generated by the capital flow assumptions in table 1.1. In our projections, Bank loans and trade credits are limited to a small portion of total capital flows for two reasons: (1) we assume that regulators adopt a more cautious stance, for the reasons argued in this book; (2) in any event, we think banks will become more risk averse. Portfolio investment (equity and bonds) plus FDI flows are calculated as a residual between total capital flows and bank loans and credit.
g. In the low scenario, net-net capital flows are derived from the assumption that the foreign-owned capital stock in the emerging-markets remains a fixed 70 percent of emerging market GDP (table 1.4). Bank loans and trade credits are limited to a small share of total capital flows for the reasons already given. Portfolio and FDI are calculated as a residual.
h. The GDP of emerging markets is projected to grow at 4 percent per year in real terms.

Notes: The G-10 is made up of 11 industrial countries (Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States). GDP of the G-10 is projected to grow at 2.5 percent per year in real terms.

Sources: UNCTAD, *World Investment Report,* 1995, 1997. World Bank, *Global Development Finance,* 1998, 1999, 2000.

Box 1.2 Short-term Capital Flows

In conventional analysis, short-term capital flows (mainly short-term bank loans) are the most readily reversible capital flows, hence quickest to react to panic in a crisis. Did short-term capital flows play a role in the recent Asian, Russian, and Brazilian crises? A recent study by the World Bank (2000a, chap. 4) reinforces the conventional analysis.

- Short-term lending by international banks increased rapidly in the run-up period, despite a falling share of international bank lending in total private-capital flows to emerging markets.
- G-10 policy measures, such as capital adequacy regulations, favored shorter-term lending by banks, and international rescue efforts gave precedence to short-term bank claims.
- Short-term bank lending to emerging markets is procyclical with respect to economic expansion and contraction, especially with respect to adverse shocks.
- A country whose ratio of short-term debt to central bank reserves significantly exceed unity appeared vulnerable to financial crisis, more so if it ran a significant current account deficit and had an overvalued currency.

When the Bank for International Settlements' definition of short-term debt is applied (the BIS uses remaining maturity, whereas the World Bank uses the original maturity to classify short-term debt), short-term debt grew nearly 160 percent in the 1990s, from $176 billion (1990) to $454 billion (1997). In East Asia, the ratio of short-term debt to reserves increased from 124 percent (1990) to 214 percent (1997). The rising share of short-term flows reflected private borrowing, channeled though interbank lending. This shift toward short-term financing in emerging markets took place against a backdrop of a falling share of bank lending to emerging markets relative to other kinds of capital flows. Foreign direct investment and portfolio investment grew sharply in the 1990s.

are likely to welcome many more immigrants than they do today. Even so, within a generation, the aging OECD countries will either need to boost their savings rates and build funded retirement systems, or compel younger workers to pay remarkably high payroll taxes. Payroll taxes to pay retirement benefits are already 12 percent in the United States, 18 percent in France, 21 percent in Germany, and 28 percent in Italy. If the OECD countries coast on policy autopilot, these tax rates will need to increase by 50 percent during the next 30 years to pay for annual retirement benefits in the year 2030.[17]

Pension Prudence

If the industrial countries are prudent—both in private and public behavior—they will aggressively pre-fund their pension systems to pay the costs of an aging society (Peterson 1999, chap. 4). Econometric analysis

17. These illustrative figures say nothing about the costs of medical care for the elderly. On that sobering subject, see Peterson (1999).

by Higgins (1998) casts a gloomy pall over the prospects for prudent pension behavior. Higgins finds that a high ratio of persons over 60 in a society strongly predicts lower national savings. His coefficients suggest that the average savings rate as a share of GDP in OECD countries will drop by 5.8 percentage points between the 1985-89 level and 2025, simply because of aging populations.

On this important dimension, we are unwilling to buy into a gloomy prognosis. We think private and public attitudes toward pension funding are dramatically changing in all OECD countries.[18] We think there is a reasonable prospect that OECD countries will heed leaders like Peter G. Peterson (1999) and accumulate large financial balances in their private and public pension plans—balances that can be drawn down as retirement costs mount.

Physical Capital Demands

Meanwhile, it seems very likely that aging societies will have a reduced demand for physical capital—less new infrastructure, fewer new homes and office buildings. Higgins (1998) suggests that the average investment rate as a share of GDP in OECD countries will fall by 7.5 percentage points between the 1985-89 level and 2025. If the prospective savings and investment rates projected by Higgins are combined, the collective current account balances of OECD would rise by 1.7 percentage points between the 1985-89 level and 2025. In other words, according to the demographic evidence assembled by Higgins, OECD countries taken together may increase their current account balance with the rest of the world from a negative 0.4 percent of GDP (1985-89 average) to a positive 1.3 percent of GDP.[19]

Current Account Forecast

We think the collective current account surplus of OECD countries with the rest of the world rise will be somewhat larger than 1.3 percent of GDP, perhaps 1 or 2 percentage points higher, because we hold a more

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18. The National Bureau of Economic Research (NBER) has already published, and has in progress, several books drawn from conferences on social security and retirement systems. NBER research illuminates concrete changes that can be made to encourage pension prudence. See, e.g., Gruber and Wise (1999, 2001).

19. The 1985-89 average current account balance for all OECD countries (negative 0.4 percent) is taken from OECD (2000, annex table 52). The current account surplus figure of 1.3 percent in 2025 is calculated by adding Higgins's estimate of a 1.7-percentage-point rise in the current account balance to the 1985-89 current account deficit of 0.4 percent. Note that Higgins projects a collective OECD current account surplus of 2.8 percent in 2010 before the onset of serious aging in the OECD countries (2.8 percent is calculated by adding his estimate of a 3.2 percentage-point rise to the 1985-89 current account deficit).

optimistic view about pension funding. Although we cannot forecast the political dynamics that will shape pension debates in the G-10 countries, a few statistical observations are worthwhile. Among the G-10 nations, the United Kingdom has most aggressively encouraged funded private pensions (and, starting with Prime Minister Margaret Thatcher, has aggressively discouraged sole reliance on the pay-as-you-go state system). In 2004, as a consequence, British pensions will hold approximately $2 trillion in pension assets, approximately 115 percent of projected GDP. In the same year, the United States will hold $10 trillion, about 90 percent of projected GDP, whereas Japan will hold $2 trillion, about 40 percent of projected GDP.[20]

On average, the other G-10 countries have more disappointing pension funds: In 2004, their total will reach $2.4 trillion, about 30 percent of GDP. If all G-10 countries acquired the current pension virtues of the United Kingdom by 2030 (115 percent of GDP), G-10 pensions together would total about $50 trillion (in 2000 prices) by 2030. The bold forecasts in table 1.4 (discussed just below) imply that a substantial fraction of those pension assets (perhaps a fifth, or $10 trillion), would be invested directly and indirectly in emerging markets. This whole arithmetic depends, of course, on a revolutionary change in public attitudes toward pension funding.

The combination of more prudent retirement systems and reduced demand for physical capital in the OECD countries could push down rates of return and energize the search for investment opportunities in emerging markets. As emerging economies embrace market principles, they are becoming more attractive places to invest. Together, the push and pull forces could raise the annual net private capital outflows from OECD countries to the emerging markets. Instead of 1 percent of G-10 GDP, private-capital outflows might reach 3 percent in 2030. This would mean annual inflow rates approaching 6 percent of emerging-market GDP. Foreign-owned debt and FDI could reach 100 percent of emerging-market GDP and 50 percent of G-10 GDP. These are large magnitudes. Only half these amounts would have enormous policy consequences.

Portfolio Diversification

Contrary to our optimism, OECD countries may not practice pension prudence. If attitudes toward savings stay where they now are, OECD countries will not significantly increase their collective *net* capital flows to emerging markets. However, portfolio *diversification* by itself could lead to substantial *gross* investment in emerging markets by OECD asset holders, offset by *gross* investment in the other direction by emerging-market asset holders. Up to now, foreign assets have roughly balanced foreign liabilities for most OECD nations (Kraay et al. 2000). This story could persist: Large

20. The pension figures are from *The Economist*, 20 May 2000, 127. The original source is InterSec Research.

gross investments in both directions between the emerging markets and OECD countries, and much smaller net investments. By itself, gross investment in both directions could bring substantial benefits, particularly to residents of emerging economies, who would have access to a wider range of investment opportunities.

What would be the magnitude of G-10 investments in emerging markets in a portfolio-diversification scenario? The projections in table 1.4 suggest that the combined GDP of all G-10 countries will be about 67 percent of the world total in 2030 (against 76 percent in 2000), whereas the combined GDP of emerging markets will be about 33 percent (against 24 percent). For portfolio-diversification reasons alone, G-10 investors should at least maintain the current ratio of their emerging-economy assets to emerging-economy GDP.[21] Under this conservative assumption, gross assets in emerging economies would then amount to about 36 percent of G-10 GDP, against 23 percent in 2000 (table 1.4). Meanwhile, asset holders in the emerging markets could be acquiring comparable stakes in the G-10. At the level of national arithmetic, *net* holdings could be modest in both directions, but cross-border gross holdings could be enormous. Sudden shifts in gross holdings could drive financial manias and panics just as easily as sudden shifts in net holdings.

Heroic Forecasts

Our speculations are expressed as heroic forecasts in tables 1.1 and 1.4. We give a high and a low scenario for the placement of capital flows and stocks by OECD nations in emerging markets. Before turning to these scenarios, we must emphasize that the vast majority of international capital will continue to represent flows *between* OECD countries. Most international capital, in whatever form, will flow from one rich country to another. In this book, we focus on capital flows to emerging markets, but we do not want to convey the misleading impression that these flows will become the centerpiece of the international capital-markets story.

High and Low Scenarios

The high scenario in tables 1.1 and 1.4 assumes that OECD nations increase their annual net-net capital flows to emerging markets from roughly 1 percent of OECD GDP to 3 percent. (Recall that net-net flows are defined as net of repaid and repatriated capital, and net of interest and

21. Ahearne, Griever, and Warnock (2000) observe that foreign equities accounted for only about 2 percent of equity portfolios held by US residents in the late 1980s, but the share rose to about 10 percent in the late 1990s. On the basis of a cross-country analysis of foreign equities in US portfolios, the authors conclude that information barriers are an important reason for the "home country bias" of investment portfolios. These barriers, which retard investment in emerging markets, should fall sharply in the next 30 years.

dividends.) The capital stock figures are calculated by cumulating the annual capital flows. The low scenario assumes that OECD countries just maintain the present ratio of their capital stock to emerging-economy GDP, for portfolio diversification reasons. Annual capital flow figures are calculated so as to maintain this ratio.

In both the high and low scenarios, emerging-market residents are accumulating assets in the OECD countries (as well as in each other). We do not attempt to forecast the magnitude of these holdings. In the low scenario, however, emerging-market residents would hold assets in OECD countries nearly the size of converse holdings. In the high scenario, emerging-market residents would hold far fewer assets in the OECD countries than holdings the other way.

If our guesses are roughly right, in the high scenario net-net flows would reach $1.3 trillion annually in 30 years (at 2000 prices), and industrial countries would hold an investment stock of more than $20 trillion in emerging economies. In the low scenario, net-net flows would approach $700 billion annually, and the investment stock would be about $15 trillion. In both scenarios, after 2030, the inflows might reverse, and assets held in emerging markets might diminish, as older generations in the OECD nations draw down their savings, and as younger generations in emerging markets acquire financial assets.

Bank Flows

The forecasts in table 1.4 project that, in dollar terms, net bank flows to emerging markets will grow much more slowly than either portfolio investment (equity and bonds) or FDI. The compositional magnitudes embodied in these forecasts are influenced by our normative analysis in chapters 2 and 3. We think there is a strong normative case against net bank flows growing as fast as other capital flows to emerging markets. Hence, we forecast that prudential regulation, both in the G-10 countries and the emerging markets, will slow the tide of bank debt, even if G-10 banks are once again willing to lend on a large scale.[22] In the future, G-10 banks will more and more play the role of efficient allocators of bank deposits and other funds *within* emerging economies, and also of facilitators of portfolio investment and FDI from OECD countries *to* emerging economies.

Institutional Reforms

Dramatic institutional reforms would necessarily precede capital inflows and foreign ownership on the scale and composition we have

22. Cline (2000), among others, observes that the Asian crisis diminished the appetite of G-10 banks for net lending to emerging markets. More lending is being done through syndicated loans and bonds.

envisaged, in both the high and low scenarios. We emphasize four critical changes:

- A world where high-quality financial standards are the norm, not the exception;
- A world where the economic principles now at work in such economies as Taiwan and Hong Kong, and such countries as Mexico, and Chile, become commonplace throughout the emerging markets;
- A world of free trade and investment, where flows of goods and services are far larger (relative to GDP) than the figures observed today;
- Finally, a world where private prudence and public incentives ensure that the bulk of capital flows take the form of portfolio investment and FDI, rather than bank lending.

In this book, our core concern is the design of appropriate measures addressed to the last condition. The goal is to attenuate financial shocks in an environment of much larger capital flows to emerging economies. With that goal in mind, we continue our tour of the benefits associated with international investment.

Spreading Technology

Multinational enterprises (MNEs), through foreign direct investment, move major sums of capital around the world. At the same time, and equally important, they spread technology along with capital. As table 1.4 indicates, FDI stocks in emerging markets amounted to $1.4 trillion in 2000, nearly 30 percent of the total foreign capital stock in these countries. Although $1.4 trillion is considerable, MNE activities raise two puzzles. First, why do MNEs exist on a substantial scale? Why does international capital not predominately move through financial markets, as it did in the 19th century? The answer to the first puzzle raises a second: Why is *so little* of the world's FDI placed in emerging markets?

Two Puzzles

Hymer (1976), of course, answered the first puzzle. Markets are highly imperfect for firm-specific technology. In principle, well-managed local firms, drawing on their home-court advantage, should be able to squeeze higher returns out of good technology than distant firms grounded in unfamiliar cultures. But successful foreign firms are reluctant to license their technology to local firms. Foreign firms have a hard time teaching

local firms the management lore of a successful operation. Licensing arrangements are not only immensely cumbersome, but their value to prospective local buyers is often less than their value to potential foreign sellers: The foreign seller thinks it is surrendering the crown jewels; the local buyer wonders what it is buying. For these reasons, successful firms exploit their proprietary technology on a global basis by launching operations abroad rather than licensing. Hence, large-scale MNE operations are practically synonymous with globalization.[23]

Hymer's answer poses the second puzzle. If FDI offers the magic carpet for conveying technology to developing countries, why do they not have more of it? In 2000, the world stock of FDI amounted to about $5 trillion, but less than 30 percent was placed in the emerging markets, although they account for more than 80 percent of the world's population (tables 1.5 and 1.6; UNCTAD 1999). To be sure, the share of world FDI in emerging markets approximately equals their share in world GDP. But simpleminded arithmetic suggests that MNEs should earn far higher profit rates by operating in emerging markets than in OECD countries. After all, *if* similar technology can be operated anywhere in the world, and countries trade freely with one another, the returns to capital should be far higher in the country with abundant labor and lower wage rates—the developing country, not the OECD country. This reasoning suggests that we should observe a lopsided extent of FDI activity in emerging markets. We do not.

Consider the example of a representative manufacturing enterprise.[24] In the United States, purchased inputs may be 40 percent of the cost structure; wages, salaries, and fringe benefits may be 35 percent; depreciation charges may be 10 percent; and returns to capital (interest plus profits) may be 15 percent. If the capital-output ratio is 1.5, interest plus profits will work out to a 10 percent return on capital. Suppose the wage and salary rate in Mexico is one-third the US level. Also suppose that, thanks to the North American Free Trade Agreement, free trade prevails between the United States and Mexico, and the product in question fetches the same price in both countries (the Law of One Price operates).[25]

If the same enterprise could operate with exactly the same technology in Mexico, and *if* it could purchase the required inputs at the same overall cost—two big ifs—the return to capital from operating in Mexico would be much higher than the 10 percent US figure. Two-thirds of the US

23. For rounded accounts of forces driving multinational firms, see Dunning (1988) and Vernon (1998).

24. See Lucas (1990) for sophisticated calculations, using a neoclassical production function, of the high implied profit rates in emerging markets, consistent with the assumption of equivalent technology between rich and poor countries.

25. Hufbauer, Wada, and Warren (2001) summarize the literature, and present fresh evidence, showing that the Law of One Price is an exception in the world economy today.

Table 1.5 FDI-associated production, 1983-98 (percentages)

Year	Value added of all foreign affiliates as percent of world GDP[a]	Exports of all foreign affiliates as percent of world exports[b]	Export propensity of foreign affiliates as percent of sales[c]	FDI stock in emerging markets as percent of total FDI stock
1983	5.0	27.7	23.7	
1984	5.1	31.5	25.8	
1985	5.2	31.9	27.5	30.3
1986	5.5	28.6	24.4	
1987	4.3	25.6	21.0	
1988	5.7	26.9	21.3	
1989	6.2	26.3	19.8	
1990	6.4	27.5	22.1	21.0
1991	6.2	22.7	19.3	
1992	5.8	26.6	23.3	
1993	5.7	27.7	21.4	
1994	6.1	28.3	22.0	
1995	6.3	32.3	23.5	27.6
1996	6.8	28.2	19.6	
1997	6.9	30.3	20.9	
1998	7.0	35.6	20.5	29.8

FDI = foreign direct investment

a. Worldwide value added is estimated assuming that the value added by non-US foreign affiliates bears the same relation to non-US FDI stock as the relation between value added and US FDI stock.
b. Worldwide exports are based on the worldwide exports of foreign affiliates of Japan and US MNEs and their share of the worldwide inward FDI stock. In calculating the exports of Japanese affiliates, exports by wholesale affiliates are excluded to avoid double counting.
c. Share of exports of foreign affiliates in total sales of foreign affiliates.

Source: Adapted from United Nations, *World Investment Report*, 1998, 6; 1999, 9.

labor cost (assumed to be 35 percent of overall costs) would be shifted into the capital earnings column in the Mexican enterprise. The overall return to capital would rise to 25 percent in Mexico, relative to 10 percent in the United States.[26]

Where Is the "Giant Sucking Sound?"

If this hypothetical US-Mexican example accurately described current world conditions, and if rates of return to capital were truly that high in emerging economies, the world would be deafened by Perot's "giant sucking sound"

26. The hypothetical 25 percent return to capital in Mexico is calculated as follows: The US capital-share figure is 15 percent of enterprise revenues. Hypothetically add two-thirds of the 35 percent of revenues that, in the United States, are paid to wages. The total share of revenues paid to capital in Mexico would then be 38 percent. Divided by a capital-output ratio of 1.5, the hypothetical return to capital in Mexico is 25 percent.

Table 1.6 FDI inward stock per capita, 1997

Region or group	FDI inward stock (billions of dollars)	Population (millions)	FDI stock per capita (dollars)
World	3,437	5,820	591
Industrial countries	2,312	927	2,494
G-10	1,921	723	2,658
European Union	1,230	373	3,296
Austria	18	8	2,230
Belgium and Luxembourg	143	11	13,516
Denmark	25	5	4735
Finland	9	5	1751
France	141	59	2,406
Germany	209	82	2,547
Greece	21	11	1,996
Ireland	17	4	4,645
Italy	81	58	1,408
Netherlands	127	16	8,141
Portugal	18	10	1,837
Spain	101	39	2,569
Sweden	42	9	4,746
United Kingdom	276	58	4,742
North America	819	298	2,747
United States	681	268	2,542
Canada	138	30	4,556
Others	263	256	1,029
Japan	27	126	214
Australia	101	19	5,454
New Zealand	32	4	8,511
Emerging-market economies	1,056	4,893	216
Africa	68	775	88
Middle East	43	117	368
Asia	581	3,032	191
Five affected countries[a]	136	401	338
Others	445	2,631	169
Europe	78	474	165
Latin America	346	494	700

FDI = foreign direct investment
G-10 = Group of Ten countries; see table 1.1 note for definition.

a. Indonesia, Malaysia, South Korea, the Philippines, and Thailand.

Sources: UNCTAD (1999); World Bank, *World Development Indicators*, 1999; IMF, *International Financial Statistics*, *Yearbook,* 1999.

(Perot and Choate 1993, especially chap. 4). Firms everywhere would pull up stakes in high-wage Japan, Europe, and the United States, and flock to Brazil, China, Mexico, Poland, and Turkey. But it is no easy matter for firms to replicate successful operations in emerging markets. There are various reasons why they do not. And these reasons explain why MNE activity is concentrated in the rich OECD countries.

It is not easy for a firm to transfer its in-house technology to an emerging economy with less skilled technical and managerial personnel. Moreover, effective protection of intellectual property is often lacking in emerging economies. And the firm may have a hard time purchasing the vast array of inputs it needs to operate—everything from specialized telecommunications to high-purity chemicals—at the same cost and with the same prompt delivery.

Hence the bulk of FDI represents cross-investment within the OECD family. Lipsey (2000) has calculated the relationship between annual FDI outflows and annual FDI inflows for industrial countries during the period 1970-95. The coefficient of FDI outflows on FDI inflows is 0.868 (meaning $86.8 million of outflows for every $100 million of inflows), with a high level of significance. This is a statistical way of describing a persistent fact: The vast bulk of FDI represents investment by one rich country in another rich country.

Gravity Models of FDI

Measured in terms of FDI stock per capita, densities in OECD countries are multiples of the densities found in emerging markets (table 1.6). Equations that analyze the location of FDI, using pooled data from *both* industrial and emerging countries, show that the size of host-country GDP, and the level of GDP per capita, are the strongest attracting forces (UNCTAD 1998, annex to chap. 4; Hausmann and Fernandez-Arias 2000).[27] The more open the economy (measured by the relation between merchandise trade and GDP), the larger the stock and flows of inward FDI (Lane and Milesi-Ferretti 2000; Lipsey 2000; Hausmann and Fernandez-Arias 2000). Adding these forces together, and making general observations about industrial and emerging economies pooled together, most

27. However, when economies are divided into two groups, industrial and developing, economic size and per capita income are no longer significant. For estimates that *separately* analyze industrial and developing countries, see Lane and Milesi-Ferretti (2000). These authors do not find statistically significant coefficients for GDP size or GDP per capita in explaining inward FDI stocks *within* each group. Lipsey (2000) examines inward FDI stocks and flows for industrial countries *relative* to GDP. Even though FDI stocks and flows increase with national GDP, they do not increase percent for percent. Hence, his observed coefficients for GDP size are negative. Hausmann and Fernandez-Arias (2000) likewise normalize FDI inflows by GDP and find a small negative coefficient for GDP size (pooling both industrial and developing countries).

FDI goes to big, high-income, open countries—another way of saying that most FDI circulates within the OECD family.[28]

FDI and Development

This picture is changing at the margin. The annual FDI flow figures for 1997 and 1998 combined (table 1.7) show that about 32 percent of US FDI, about 37 percent of Japanese FDI, and about 20 percent of European FDI went to emerging markets. New FDI dollars are directed to emerging economies to a greater extent than the average for old FDI dollars. There are two big reasons why an even larger share of FDI will be invested in the emerging markets in the future. First, investment climates are getting better as market principles spread. Second, new technology decidedly favors fragmentation of production, snipping the "value-added chain" into smaller parts, and locating the parts where the combination of cost and productivity is highest. JP Morgan, for example, is spending $300 million to locate all its Asian back-office operations in Bangalore, India.[29] Multiply the example a thousand times, and that is the future of FDI.

No one should claim that FDI offers a magic bullet for development.[30] Indeed, Hausmann and Fernandez-Arias (2000) argue that a high FDI stock relative to total *private*-capital liabilities in an emerging economy indicates an unhappy economic environment. When an emerging economy exhibits macroeconomic stability, open trade policies, and strong property rights, private firms have greater access to foreign bank credit and portfolio capital. Rather than being good cholesterol, FDI simply represents the most readily available form of external finance for private firms in "bad countries."

Challenging this thesis, Smarzynska and Wei (2000) and Wei (2000) find that FDI is negatively affected by the extent of corruption. Wei (2000) contends that a high ratio of bank loans to FDI reflects poor governance, not the reverse. Moreover, Lane and Milesi-Ferretti (2000) point out that

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28. The same general observations can be made about portfolio investment. But in a pooled regression with both industrial and developing countries, portfolio investment and bank loans exhibit much stronger income, size, and openness coefficients than FDI (Hausmann and Fernandez-Arias 2000). Moreover, when countries are divided into two groups (industrial countries and emerging markets), the estimated coefficients are very different for variables that explain inward FDI stocks and inward portfolio investment stocks (Lane and Milesi-Ferretti 2000, tables 5a, 5b, 6a, 6b).

29. Oral interview, Daniel Zelikow, managing director, JP Morgan, 16 May 2000.

30. McKinnon (1973) sounded an early cautionary note on FDI, warning that trade and financial repression in emerging markets could create lucrative opportunities for multinational corporations—in contexts where the private returns to foreign investment substantially exceeded the social returns. Of course, the policy environment in most emerging markets has vastly changed since the 1970s, and price signals are now much better matched with social returns.

Table 1.7 Net FDI flows to emerging markets, 1990-98 (billions of dollars)

Flows	1990			1991			1992		
	United States	Japan	European Union-13[a]	United States	Japan	European Union-13[a]	United States	Japan	European Union-13[a]
All countries	31.0	56.9	129.2	32.7	41.6	110.4	42.6	34.1	105.2
All emerging markets	13.5	11.6	21.5	11.4	10.7	21.6	19.3	10.4	22.0
Africa	(0.5)	0.6	0.5	0.1	0.7	1.2	(0.1)	0.2	1.2
Middle East	0.5	0.0	0.6	0.5	0.1	0.9	0.8	0.7	0.3
Asia Pacific	2.9	7.1	1.4	3.3	5.9	2.4	4.9	6.4	2.9
China	0.0	0.3	0.0	0.0	0.6	0.2	0.1	1.1	0.2
India	n.a.	0.0	0.1	0.1	0.0	0.0	0.1	0.1	(0.0)
Asian 5[e]	1.7	3.5	0.4	1.1	3.3	1.1	1.2	3.4	1.4
Europe	n.a.	0.0	0.2	0.2	0.1	0.8	0.2	0.0	1.1
Russia	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0	0.0	0.1
Latin America	10.1	3.6	6.4	7.2	3.3	3.4	12.8	2.7	5.5
Argentina	0.4	0.2	0.2	0.4	0.0	0.3	0.6	0.0	0.4
Brazil	0.9	0.6	0.6	0.9	0.2	0.5	2.1	0.5	0.7
Mexico	1.9	0.2	0.3	2.3	0.2	0.1	1.3	0.1	0.4

Flows	1993			1994			1995		
	United States	Japan	European Union-13[a]	United States	Japan	European Union-13[a]	United States	Japan	European Union-13[a]
All countries	78.2	36.0	91.4	73.3	41.1	114.6	92.1	52.7	156.1
All emerging markets	26.2	10.9	19.4	30.8	15.6	35.6	23.4	17.3	19.5
Africa	0.8	0.5	1.5	0.8	0.3	0.8	0.4	0.4	2.1
Middle East	0.8	0.2	0.3	0.7	0.3	0.4	0.9	0.2	0.8
Asia Pacific	5.7	6.6	4.7	10.3	9.7	5.9	5.7	12.7	6.7
China	0.6	1.7	0.2	1.2	2.6	0.7	0.3	4.6	0.9
India	0.1	0.0	0.3	0.3	0.1	0.3	0.2	0.1	0.4
Asian 5[e]	1.8	2.6	1.6	4.1	4.3	2.5	3.6	4.7	2.2
Europe	0.7	0.2	1.2	1.2	0.1	1.4	0.4	0.0	1.7
Russia	0.2	0.0	0.1	0.1	0.0	0.4	0.5	0.0	0.4
Latin America	16.9	3.4	3.5	17.7	5.8	8.4	16.0	4.0	7.3
Argentina	1.1	0.0	0.4	1.5	0.0	0.9	2.0	0.1	1.4
Brazil	3.3	0.4	0.3	3.3	1.2	1.4	7.0	0.3	1.9
Mexico	2.5	0.1	0.1	4.5	0.6	0.4	3.0	0.2	1.0

(*table continues next page*)

Table 1.7 Net FDI flows to emerging markets, 1990-98 (billions of dollars) (*continued*)

	1996			1997			1998			Average absolute year-to-year deviation		
Flows	**United States**	**Japan**	**European Union-13[a]**	**United States**	**Japan[b]**	**European Union-13[a,c]**	**United States**	**Japan**	**European Union-13[a]**	**United States**	**Japan**	**European Union-13[a]**
All countries	74.8	49.7	148.0	114.5	54.7	175.4	18.3	7.0	19.7	16.9	8.0	41.3
All emerging markets	29.9	17.5	39.5	42.9	21.9	47.4	6.9	1.8	9.0	7.5	2.7	10.2
Africa	0.7	0.2	3.3	3.8	0.3	4.0	0.8	0.2	0.7	0.8	0.2	1.0
Middle East	0.5	0.2	0.3	1.1	0.5	0.6	0.2	0.2	0.3	0.3	0.3	0.5
Asia Pacific	8.9	12.0	9.5	11.8	12.4	9.0	2.6	1.3	1.2	2.8	1.8	1.6
China	0.9	2.6	1.9	1.2	2.0	1.9	0.4	1.0	0.3	0.4	1.0	0.3
India	0.3	0.2	0.5	0.4	0.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1
Asian 5[d]	3.6	5.6	(2.5)	2.1	6.2	3.0	0.8	0.7	1.8	0.7	0.9	2.3
Europe	1.6	0.2	2.3	1.7	0.2	3.7	0.5	0.1	0.5	0.6	0.1	0.1
Russia	n.a.	0.0	0.6	n.a.	0.0	0.7	0.2	0.0	0.1	0.2	0.0	0.3
Latin America	16.1	4.6	13.7	23.8	6.4	20.4	3.3	1.2	3.7	3.6	1.0	4.5
Argentina	0.0	0.0	1.2	1.8	0.1	2.6	0.8	0.1	0.4	0.8	0.1	0.5
Brazil	3.8	0.9	3.9	6.5	1.2	4.9	1.7	0.5	0.7	1.8	0.5	2.1
Mexico	2.7	0.1	0.6	5.9	0.3	1.7	1.4	0.2	0.4	1.6	0.2	0.7

n.a. = not available

a. EU-15 except for Ireland and Greece.
b. For Japan's 1997 FDI flows, data from the Japanese Ministry of Finance is used.
c. For the United Kingdom and the Netherlands, due to lack of data, we assume that 1997 flows are the same as 1996 flows.
d. Indonesia, South Korea, Malaysia, the Philippines, and Thailand.

Sources: OECD, *International Direct Investment Statistics Yearbook*, 1998; Statistics, Ministry of Finance of Japan, http://www.mof.go.jp.

official external liabilities are a very large share of total external liabilities in "bad countries." They argue that the ratio of official external liabilities to total external liabilities provides a more accurate indicator of poor economic health than capital ratios involving FDI.

Whatever the relationship between FDI and national virtue, "bad countries" cannot pray their way to a state of grace. They need specific policies. Pro-investment policies—reduced corruption, better FDI incentives, and fewer FDI restrictions—are all useful tools (Wei 2000). Direct investment brings new technology to domestic production and better access to foreign markets. Borensztein, De Gregorio, and Lee (1998) demonstrate that the combination of more FDI and higher schooling levels makes a statistically significant contribution to per capita GDP growth. This finding is reproduced by UNCTAD (1999, annex to chap. 11). Moreover, when direct investment is combined with the cross-border integration of fragmented value-added chains, the gains can be large. Moran (2001) cites the example of the Mexican automotive industry. Even though its output accounts for only 3 percent of Mexican GDP, the gains from integrated FDI and free trade could reach 0.9 percent of Mexican GDP.

Never mind the debates in the 1960s and 1970s, multinational enterprises became welcome guests in the 1990s. From the vantage of emerging economies, the biggest problem with FDI is that there is not enough of it. The good news is that, in 2030, emerging economies will enjoy much more FDI than they have today. Currently, the FDI stock per capita in the industrial world is about $2,500, whereas the stock per capita in emerging economies is about $220 (table 1.6). By 2030, the FDI stock per capita in emerging countries might reach $1,500 (in 2000 dollars). Already, the FDI stock in emerging countries is about 20 percent of GDP (table 1.4). Under our high scenario (table 1.4), that ratio could approach 40 percent in 30 years (assuming that FDI and portfolio equity stocks are about the same size).

Building Financial Institutions

International capital can help build better financial institutions, and thereby create more efficient capital markets. During the 20th century, numerous countries grew out of poverty through the brute force of capital accumulation. Communist countries were the first to practice this strategy on a grand scale. After the Second World War, Europe was reconstructed with massive investment, Japan pursued the same strategy, and other Asian countries followed in Japan's wake. Before the 1980s, when the socialist model ran into severe problems of weak incentives and excessive corruption, the USSR and Eastern Europe had good growth rates, driven by heavy capital spending. During a longer period, Japan and South Korea proved to be the most successful practitioners of this style.

Inefficient Capital Markets

Solow's (1956, 1957) pioneering work showed the limitations of brute capital accumulation. Technology contributes more to economic growth than sheer investment. Hollis Chenery and his World Bank colleagues (1986) confirmed these limitations in developing countries. Many countries had high investment rates but poor growth rates. This was true in Brazil, Eastern Europe, India, and the USSR. In the 1990s, the malaise of high investment and low growth spread to more countries in Asia, Europe, and Latin America. Although each country had unique characteristics, the common theme was inefficient capital markets.

"Inefficiency" can be grouped into two large categories: too much capital flowing to some sponsors, too little to others. Scarce capital may be wasted on public show projects; overbuilding of offices and hotels; or white-elephant industries (steel, autos, aircraft, petrochemicals, etc.). Wasteful uses are often associated with government-directed investment, credit assessments based on sponsorship and asset values rather than cash flows, and negative real interest rates paid to bank depositors.

At the same time, there may be a shortage of funding for new enterprises and smaller firms. For example, in a bank-dominated system with limited competition, if the local bank says no, the venture is limited to its internal funds. When securities markets are run in a traditional fashion, with listing hurdles and tough restrictions on pension funds, access may not be much better.

Later in this chapter, we survey the overwhelming evidence that financial development augments economic growth. Ross Levine has pioneered the modern analysis.[31] Here a simple illustration will suffice. A country with inefficient capital markets may require 150 units of investment, accompanied by other inputs, to produce 100 units of additional output. By contrast, a country with efficient capital markets may require 100 units of investment or less. The difference in investment efficiency could readily translate into the difference between a 10 percent return on investment and a 15 percent return. During a period of years, that difference in returns could easily diminish economic growth.[32]

Rx for Capital-Market Inefficiency

The remedies for capital-market inefficiency entail privatization of public enterprises; modern banking, insurance, and pension systems; flourishing

31. See the numerous works under Levine in the references, and the discussion later in this chapter.

32. Illustrating this possibility, Pomerleano and Zhang (1999) find evidence that the return on invested capital seldom exceeded its opportunity cost throughout much of Asia in the early 1990s.

stock and bond markets; and markets for corporate control. These remedies are easy to enumerate and hard to accomplish.[33] They require a massive shift of power toward professional regulators, trained managers, and the rule of law—and away from politicians, well-connected families, and the exercise of discretion.[34] They also require enormous technical expertise. International capital can nudge a country toward a managerial or legal style, but more concretely, it can provide the technical expertise that underpins efficient capital markets. Commercial banks, investment banks, insurance firms, accounting firms, and others bring an array of experience when they establish a presence in a new environment.

Mexico's banking system illustrates the transition. For decades, Mexican banks have been synonymous with connected-lending, nonperforming loans, and public bailouts. The system is now consolidating toward five large banks, most of them foreign owned.[35]

Evidence from various sources suggests that the transition to a "good" financial system, exemplified by Mexico, is worthwhile. (Foreign domination is not essential to create a good system.) In the period 1980-95, for example, Levine (2000) estimates that the difference between the "good" Chilean financial system, on the one hand, and the "bad" systems operating in Peru and Argentina, on the other, penalized the bad countries with about 1 percent of GDP growth annually.[36] Dobson and Jacquet (1998, table 1.1) estimate that the benefits of phased liberalization to users of financial services residing in low- and middle-income countries would amount to about 1 percent of GDP in 2010.

The proposition that financial development and openness contribute to growth (examined in more detail below) argues for capital account liberalization. But just as trade liberalization is phased to smooth adjustment, so should capital account liberalization be sequenced to ensure

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33. By today's standards, even US capital markets were relatively inefficient 20 years ago. See *Wall Street Journal* (Money-Go-Round, 1 February 2000, A1) for an account of the dramatic change in the structure of US capital markets in the 1990s.

34. The market for corporate control is particularly sensitive. Various techniques, tolerated or even encouraged by public policy, are commonly used to discourage hostile takeovers. Among them are cross-shareholdings between affiliated corporations, extra voting rights for shares held by the control group, various kinds of poison pills, bankruptcy systems that barely work, and government veto on mergers and acquisitions. Many of these are reminiscent of feudal laws that worked to thwart transactions in real property.

35. The Economist (1 April 2000, 70). In the most recent takeover, Banco Bilbao Vizcaya Argentaria (Spain) announced it would acquire control of Bancomer, Mexico's second largest bank.

36. Barth, Caprio, and Levine (2000) do not find a significant relationship between the costs of a banking crisis (expressed as a percentage of GDP) and the ratio of bank assets to equity market capitalization. This result reinforces Levine's (2000) prescription that what matters most for financial development is a strong legal system, not the distinction between bank-based finance and capital-market finance.

adequate managerial and regulatory skills (Johnston and Sundararajan 1999). And just as trade flows are sometimes interrupted to cope with industrial stress, so must capital flows be occasionally interrupted to cope with economic crisis.[37]

Manias and Panics

Critics of international capital during the era of European expansion were not foremost concerned with manias and panics. They were outraged by predatory practices. In the colonial era, when European capital traveled overseas, it was too often associated with plunder, slavery, and opium. As Hernán Cortés was reported to have told the envoys of Montezuma, "I and my colleagues suffer from a disease of the heart that be cured only with gold."[38] Between the mid-15th and mid-19th centuries, 12 million Africans were shipped to the New World.[39] The opium war of 1840-42, and the ensuing Treaty of Nanjing, enabled British merchants to sell Indian opium and other wares through the five "treaty ports" of China. It also confirmed the United Kingdom's perpetual claim on Hong Kong.

By the end of the 19th century, these atrocities were fading, but a new source of criticism emerged. Building on Marx and Engels (1959; originally published 1867-94), as well as Hobson (1902), Lenin (1939; originally published 1917) characterized international capital as the propagator of imperialism. The colonial rush to Africa in the second half of the 19th century informed Lenin's analysis. The flavor of Lenin's appraisal, if not the specifics, influenced commentators for 50 years. The imperialist critique, however, shifted from a diplomatic story to a commercial story. In the 1950s and 1960s, multinational firms were often equated with enclaves isolated from the rest of the economy and monopolies that appropriated economic rents.[40]

Apart from these citations, we pass over the predatory capital debate. It is now ancient history. By the mid-1970s, most Europeans and even the French were inviting US multinationals. By the mid-1980s, developing countries were putting out a warm welcome, and with the fall of the Berlin Wall, Eastern Europe and the former Soviet Union joined the courting game.

In the 1980s and 1990s, concern shifted to a different aspect of international capital: bank lending and portfolio investment (see table 1.8).

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37. For a comparison of shock responses in the trading and financial systems, see Hufbauer and Wada (1999a).

38. Quoted in *The Economist*, 31 December 1999, 55.

39. *The Economist*, 31 December 1999, 69.

40. Baran and Sweezy (1966) authored the leading critique. Lall and Streeten (1977) wrote a less strident analysis.

Table 1.8 Net bank lending to emerging markets, 1994-98 (official estimates, billions of dollars at current prices)

	1994				1995				1996			
Lending	**United States**	**Canada**	**Japan**	**EU 13[a]**	**United States**	**Canada**	**Japan**	**EU 13[a]**	**United States**	**Canada**	**Japan**	**EU 13[a]**
All countries	6.1	n.a.	8.5	59.6	9.1	2.3	16.2	20.4	26.1	3.1	4.1	65.6
All emerging markets	8.3	n.a.	12.1	60.0	7.8	2.2	18.0	16.9	23.4	2.3	5.7	54.2
Africa	0.7	n.a.	0.4	10.8	0.7	0.2	0.4	(1.7)	0.5	(0.0)	0.5	(2.3)
Middle East	(0.8)	n.a.	(1.2)	6.8	(0.7)	0.1	(1.6)	(4.9)	0.2	0.0	(0.8)	(1.2)
Asia and Pacific	2.7	n.a.	20.6	28.2	6.0	1.5	19.6	19.4	8.4	1.8	5.7	34.8
China	0.2	n.a.	1.2	5.8	0.7	0.1	3.5	2.7	1.0	0.3	0.2	5.6
India	0.5	n.a.	(0.4)	3.4	0.4	0.1	(0.4)	(1.6)	(0.1)	0.1	(0.1)	1.4
Asian 5[c]	1.9	n.a.	18.4	13.8	4.4	0.9	18.6	14.3	7.0	1.2	6.1	26.3
Europe	0.9	n.a.	(2.6)	0.3	1.3	0.0	(1.0)	4.8	5.6	(0.0)	(0.8)	6.0
Russia	0.3	n.a.	(0.9)	2.4	0.1	0.0	(1.0)	2.8	4.9	0.0	(0.6)	(0.3)
Latin America	4.8	n.a.	(5.1)	13.9	0.4	0.4	0.7	(0.7)	8.6	0.5	1.1	17.0
Argentina	0.2	n.a.	(0.5)	4.9	1.3	0.3	0.0	(0.6)	2.0	0.4	0.1	4.5
Brazil	2.0	n.a.	(4.7)	(0.3)	3.1	0.1	0.4	2.3	4.0	(0.3)	0.4	4.3
Mexico	2.9	n.a.	0.4	4.4	(4.3)	(0.2)	0.4	(4.4)	(0.4)	0.3	0.9	1.5

(*table continues next page*)

Table 1.8 Net bank lending to emerging markets, 1994-98 (official estimates, billions of dollars at current prices) (*continued*)

	1997				1998				Average absolute year-to-year deviation			
Lending	**United States**	**Canada**	**Japan**	**EU-13[a]**	**United States**	**Canada**	**Japan**	**EU-13[a]**	**United States**	**Canada**	**Japan**	**EU-13[a]**
All countries	(3.2)	9.0	(6.3)	108.6	(13.1)	(2.1)	(35.9)	42.7	14.8	5.9	14.9	48.3
All emerging markets	(4.5)	4.3	(4.4)	76.4	(15.7)	(0.8)	(29.6)	5.4	13.8	2.4	13.4	43.4
Africa	0.9	0.4	(0.7)	6.7	(1.7)	0.6	(0.9)	0.9	0.8	0.3	0.4	7.0
Middle East	1.3	0.1	0.6	(0.0)	0.6	0.2	0.5	7.6	0.7	0.1	0.6	6.0
Asia and Pacific	(4.8)	1.4	(3.8)	21.2	(9.2)	(1.7)	(28.8)	(25.8)	5.9	1.3	12.4	21.2
China	(0.2)	0.3	1.8	6.4	(0.6)	(0.5)	(4.5)	(3.2)	0.6	0.3	3.4	4.1
India	0.2	0.2	0.4	1.6	(0.1)	0.0	(0.5)	(0.9)	0.3	0.1	0.5	2.5
Asian 5[b]	(3.9)	0.5	(7.0)	9.1	(7.3)	(0.7)	(21.9)	(19.0)	4.8	0.7	10.2	14.4
Europe	1.2	0.1	0.2	9.0	(4.1)	(0.0)	(0.2)	10.9	3.6	0.1	0.8	2.7
Russia	2.2	0.1	0.1	5.0	(5.3)	(0.0)	0.2	0.1	3.8	0.0	0.3	3.4
Latin America	(3.1)	2.3	(0.7)	39.5	(1.3)	0.2	(0.2)	11.8	6.5	1.4	2.1	20.6
Argentina	(2.7)	0.5	(0.2)	16.8	0.7	1.1	0.4	(0.2)	2.5	0.3	0.4	9.9
Brazil	(2.6)	0.1	(0.2)	8.4	(3.1)	(0.8)	(0.8)	4.9	2.3	0.5	1.6	3.0
Mexico	(0.8)	0.4	(0.7)	3.8	1.5	(0.0)	(0.0)	2.2	3.5	0.3	0.7	4.6

n.a. = not available
EU = European Union.

a. EU-15 except for Portugal and Greece.
b. Indonesia, Malaysia, the Philippines, South Korea, and Thailand.

Source: Bank for International Settlements, *Semi-Annual International Banking Statistics.*

Nonfinancial corporations have a long history of shifting short-term funds from country to country and currency to currency, in search of lower taxes, better yields, and appreciating exchange rates.[41] But in the 1980s and 1990s, bank lending and portfolio flows came to dwarf the short-term funds moved from place to place by nonfinancial MNEs. Moreover, the explosion of derivative markets brought high-powered leverage to financial flows.

Crisis History

These developments set the stage for a new look at an old concern: manias and panics, driven or augmented by international capital. Using Kindleberger's count (including four recent episodes not covered in his 1996 edition), 46 world-class manias and panics have occurred since 1618.[42] Manias and panics can erupt in any asset market—tulips, shares, bonds, property, and money itself.[43] By contrast with many of the early episodes, recent world-class manias and panics have involved an admixture of securities, property, and currency markets.[44]

Many financial crises never rise to the level of world-class panics. The majority of crises are either small, or they ensnare small countries. Between 1970 and 1998, 64 banking crises and 79 currency crises afflicted various countries (some countries were hit more than once, and some were simultaneously hit by banking and currency crises).[45] Only a handful of these episodes were part of world-class panics.

How deeply implicated are international capital flows—either in world-class manias and panics, or in smaller scale crises? Taking the long view, and focusing only on world-class events, the international dimension of manias and panics, if not international capital flows per se, has gained prominence. During the three centuries from 1600 to 1900, only 7 of the 31 episodes identified by Kindleberger had significant international dimensions. In the 20th century, international dimensions characterized 9

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41. See, e.g., Bergsten, Horst, and Moran (1978) and Caves (1996).

42. If purely national episodes were recorded, the total count would be much larger. For example, the IMF has identified 143 banking and currency crises between 1970 and 1998 (IMF 1999e).

43. One of the earliest asset booms involving money itself revolved around the German thaler in the 17th century (Kindleberger 1996). Large exchange rate misalignments are today's expression.

44. In Kindleberger's list (augmented by our additions), 6 of the 45 world class episodes involved security, property, and currency admixtures: 3 in the 19th century and 3 in the 20th. The 3 admixture episodes in the 20th century were the Latin American debt crisis of the 1980s, the Mexican crisis of 1994-95, and the Asia-Russia-Brazil crisis of 1997-99.

45. See Hufbauer and Wada (1999b, table 3).

of 15 episodes. A global economy means that booms and busts are more likely to spill across national borders. Apart from the world-class manias and panics that drew Kindleberger's attention, many of the smaller financial crises, involving one or two countries, may have an international banking or portfolio dimension. Indeed, because international capital flows have blossomed since 1970, their contribution to local crises has probably expanded, often intertwined with local mismanagement.

The Cost of GDP Volatility

Whether small-scale or world-class, financial volatility enlarges GDP volatility. If that were the end of the story, financial shocks would be a matter of regret, but they might be accepted as a necessary growing pain in a capitalist system. However, evidence assembled by Ramey and Ramey (1995), and confirmed by Gavin (1997), persuasively demonstrates that higher GDP volatility is associated with substantially lower growth rates in GDP per capita.

Ramey and Ramey (1995) examined the growth experience between 1960 and 1985 of 92 countries. After controlling for the usual variables, they estimated a negative coefficient of 0.21 (with a standard error of 0.08) on the standard deviation of the annual growth rate. The mean standard deviation of annual growth rates in these 92 countries was 3.58 percent, and that degree of volatility was associated with a reduction of 0.8 percent in average annual growth for the period. The experiences of Mexico and other Latin American countries in the early 1990s, and Asia in the late 1990s, reinforce the proposition that volatility exacts a toll on growth.[46]

Balance Sheets and Momentum Investment

Manias and panics feed on the interaction of two forces: balance sheet values and momentum investment. Both forces can have an international component. Bank loans and bond issues are often extended on the basis of balance-sheet values—assets minus liabilities, both roughly assessed at current market prices. As share and property prices rise, they create stronger balance sheets—on a rough "mark-to-market" basis.[47] The result is more collateral that can support additional bank loans or bond

46. Gavin (1997) asserts that if Latin American volatility in the early 1990s had been no higher than industrial-country volatility, Latin American growth would have been 1 percentage point a year higher.

47. In mark-to-market accounting, a firm values both its assets and its liabilities at their current market values, not at their historic costs. The resulting difference between assets and liabilities provides a rough estimate of the firm's current equity value. When asset prices are rising fast, and the value of liabilities is stable, the estimated equity value will

issues. Firms with improved balance sheets draw on their new strength, take on more debt, and buy additional assets (Minsky 1982). International banks may loan directly to these firms. Most important, they may expand their credit lines wholesale to local financial houses, and bypass the time-consuming process of evaluating primary borrowers.

Portfolio holdings of bonds and equity can follow a similar trajectory. The initial rise in security prices might reflect improved fundamentals that raise prospective cash flows—the traditional manner of valuing investments. Rising share and bond prices enable wealthy individuals and institutions to leverage their holdings. The next rise of asset prices could be inspired by sheer momentum: These firms and individuals, aided by fresh liquidity, buy tomorrow because prices rose yesterday. Foreign portfolio investors may follow suit, some because they are conscious momentum investors, others because they index their holdings to market capitalization and thereby become inadvertent momentum investors. According to Harvey and Roper (1999), the total dollar capitalization of Asian markets tripled between 1990 and 1996, from $300 billion to $1.1 trillion. Part of the rise can plausibly be attributed to international momentum investors.[48]

Banks in a Crisis

When events sour, the stories are told in reverse—often at a faster pace. Balance sheets reach a threshold characterized as "weak," and financial institutions turn cold. Whatever the loan documents may say, a collapsing balance sheet transforms short-term bank loans—unwittingly and unwillingly—into long-term bonds and equity investments.[49] By definition, banks are leveraged custodians of liquidity. They perform an immensely valuable role by issuing liquid demand deposits and other short-term liabilities and acquiring longer-term, less liquid assets. But banks cannot hold large amounts of clearly illiquid investments and retain public confidence that depositors will be paid on demand. To avoid a liquidity crunch—or worse, insolvency—banks will abruptly cut credit lines and call loans when their borrowers get in trouble.

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soar. Conversely, when asset prices are falling fast, or when liabilities are denominated in foreign currency and the exchange rate depreciates sharply, the estimated equity value will plunge. When bank lending is influenced by mark-to-market equity valuations, the availability of credit will fluctuate sharply with changes in asset and liability values.

48. See, e.g., the work of Kaminsky, Lyons, and Schmukler (2000). Reisen and von Maltzan (1999) find that when the rating agencies (Moody's, Standard & Poor's, and Fitch IBCA) change their assessment of emerging-economy bonds, that affects the price and yield. However, in the period 1989-97, they find that rating changes were not made sufficiently far in advance to moderate booms in emerging-economy bonds.

49. The formal transformation of short-term bank loans into long-term bonds or equity required years of negotiation in the debt crisis of the 1980s. See Cline (1995).

If corporate balance sheets were highly leveraged before the panic, only a small cushion separates the majority of firms from the perilous threshold defined by the line between a "strong" and a "weak" balance sheet. Even a large cushion will quickly disappear when local firms have borrowed heavily in dollars, euros, or yen and the local currency is then sharply devalued.

Beyond cutting credit decisions to firms in a troubled emerging-market country, bankers may withdraw funds from other countries in the same region, or other countries that share similar profile, but do not necessarily have adverse fundamentals. Below, we discuss the evidence for bank contagion.

Portfolio Investors in a Crisis

Is portfolio investment subject to similar swings and contagious influences? Institutional portfolio investors are generally not highly leveraged. Unlike banks, they face losses, but not insolvency, when the market turns. Hence they are not forced to sell shares and bonds in the same fashion that banks are forced to withdraw credit to troubled borrowers. Box 1.1 wrestles with the statistical problems encountered in measuring portfolio flows. The bottom line, summarized in the table at the foot of box 1.1, is that portfolio investors hold somewhat larger amounts of long-term debt securities than equity securities in emerging markets. Their holdings of short-term debt in emerging markets are very small. This profile reinforces the overall proposition that institutional investors, in contrast with banks, may be less likely to liquidate their position when crises strike emerging-market economies.

Not all portfolio institutions ride out financial storms. To the extent that institutional investors are momentum players, they will sell when a downtrend emerges, even though the urgency to sell is less. It is commonplace to assert that contagion and herding haunt stock exchanges—particularly among less knowledgeable investors during bear markets. In a careful study of stock trades by foreign portfolio investors in South Korea during the 1997-98 crisis, Kim and Wei (2000), for example, found that foreign institutions without branches in Korea were more likely to engage in herding than those with local branches.

Below, we examine the econometric evidence for contagion among portfolio investors. Here it is worth repeated the estimates gathered by Cline (2000) for the Asian and Russian crises. According to his figures, banks lost $60 billion, bondholders lost another $50 billion, and portfolio equity investors lost $240 billion—on a mark-to-market basis. Whereas banks called their loans, realizing moderate losses in the process, many portfolio investors held their investments, absorbing big paper losses in 1997 and 1998 on the way down, but substantially recouping in the 1999 recovery.[50]

50. Barth and Zhang (1999) confirm this account.

Hedge Funds: A Special Case

Hedge funds attracted enormous attention in the wake of the Asian crisis, because of high-profile accusations by Malaysian Prime Minister Mohamad bin Mahathir Mohammed and the near-collapse of the giant hedge fund Long Term Capital Management (LTCM).[51] Edwards (1999) and Eichengreen (1999a) tell the hedge fund saga. Hedge funds are high-risk, leveraged portfolio investment vehicles, catering to institutions and wealthy individuals.[52] Although their size and daily operations are closely guarded secrets, Edwards (1999) suggests that hedge funds in 1998 may have managed $200 billion in client-owned capital. With an average 2-to-1 leverage ratio, the total borrowed and client-owned capital under hedge fund control may have been about $600 billion.[53] This figure is modest in comparison with the $6.4 trillion controlled by the mutual fund industry in 1998 (table 2.4).

Hedge funds may have exacerbated the Asian crisis, although some incurred heavy losses (Blustein 2001 has good anecdotes). Eichengreen (1999a) is skeptical that hedge funds systematically made money on the Asian debacle. All in all, in terms of their influence of capital markets, hedge funds were probably second-string players. To quote Martin Baily and his colleagues (2000, 99): "The hot money in the recent crises came mostly from bank lending, not from hedge funds or other nonbank investments such as pension and mutual funds."

"Good Cholesterol" versus "Bad Cholesterol"

To summarize the story so far, international capital flows may contribute to national and regional manias and panics. Bank lending may be more prone to run than portfolio capital, because banks themselves are highly leveraged, and they are relying on the borrower's balance sheet to ensure repayment. These features lead to the cyclical extension and withdrawal of bank credit, as the probability of repayment rises and falls.

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51. LTCM had an extraordinary 20-to-1 leverage ratio. When LTCM collapsed, the New York Federal Reserve strong-armed 16 of LTCM's creditor banks to put an additional capital of $3.6 billion in exchange for 90 percent of LTCM's equity.

52. In 1998, the number of hedge funds may have exceeded 3,000, in comparison with fewer than 1,000 at year-end 1992. However, the attrition rate for hedge funds between 1989 and 1996 was nearly 40 percent, and the average annual return of "surviving" funds was about 18 percent versus about 11 percent for "nonsurviving" funds (Edwards 1999).

53. Estimated on the basis of rough leverage ratios suggested by Edwards (1999) and Eichengreen (1999a): 12 percent of hedge funds may have leverage of more than 8 to 1, 55 percent may have leverage of 1 to 1, and 33 percent may have no leverage.

When portfolio managers act as momentum investors, they can have the same procyclical effect. But a portfolio manager who places funds in a country during a boom pays a premium for shares. Likewise, a portfolio manager who pulls funds during a bust absorbs a steep discount.

Multinational corporations (aside from banks) have received practically no blame for booms and busts. Perhaps they get off too easily. But multinationals that build new plants or acquire nonfinancial assets abroad typically invest for the long haul. Project decisions are supposedly made on the basis of anticipated sales, dividends, and royalties over a period of years. Cyclical events should accordingly have little weight.[54]

Does the available evidence support these generalizations? Does it support the notion that bank lending tends to "fly away" in a crisis, whereas FDI is "bolted down?" Does it support the idea that portfolio investment is perched between the fly-away and bolted-down modes?

Econometric Evidence

Our review of the econometric literature starts with two skeptics, Sarno and Taylor (1999). Using sophisticated econometric techniques, they distinguished between permanent and temporary components in four types of private capital flows to nine Latin American and nine Asian developing countries during the period 1988-97. Their analysis confirmed that FDI is indeed bolted down—the permanent component absolutely dominates FDI flows. But surprisingly, they found that commercial bank credit displayed a permanent component that exceeded the temporary component. By contrast, portfolio bonds and equity flows seemed largely temporary and reversible. Sarno and Taylor explained the apparent permanence of bank credit as the outcome of bank efforts to learn the characteristics of debtor countries.[55]

Events subsequent to 1997 showed that the previous "permanence" of bank lending was illusory. A glance at tables A.1 and A.2 in appendix A reveals that bank credit collapsed after 1996, especially to Asia. Additional data in appendix A indicate that bank lending to emerging markets was anything but permanent in the second half of the 1990s.

Economists are quick to disdain anecdotal evidence, unless it sustains their prior beliefs. In this spirit, we commend the newly published volume

54. Econometric analysis (reported by UNCTAD 1998) shows only a weak connection between annual FDI flows and past GDP growth. Some multinationals may be caught up in boom fever, and they may put investment plans on hold when a crisis strikes, but they do not appear to be prime generators of manias and panics.

55. Sarno and Taylor (1999) include syndicated bank loans in bank credit, and syndicated loans are the most stable component, whereas interbank lending is the least stable. They also report that official flows have a large temporary component. This can be explained by the role of official flows in offsetting volatility in private flows. Also see table 1.2 above and the tables in appendix A.

by our colleague Paul Blustein (2001). He interviewed key actors in the Asian drama, both in government circles and financial markets. His anecdotes illustrate the exuberance of bankers in the early 1990s, and their flight when trouble brewed.

Warning Indicators

But we need not rely on anecdotes. Econometric research points to the volatile character of bank lending. Eichengreen and Rose (1997) were in the forefront of scholars stressing that short-term external debt increases the vulnerability of a nation's banking sector. Rodrik and Velasco (1999) later reported that when short-term foreign bank loans exceed reserves, the chances of a massive reversal of capital increase by a factor of 3.[56]

Comparing the Latin American debt crisis in the wake of Mexico's default in 1982 with the Latin American financial crisis of 1994-95, Gilibert and Steinherr in Goldstein et al. (1996) found more pluses than minuses in the shift from bank credit to capital markets.[57] In 1994-95, there was little danger of a bank "meltdown," and the rapid drop in Latin American share and bond prices accelerated adjustment.[58]

In their systematic study of early-warning indicators, Goldstein, Kaminsky, and Reinhart (2000) listed rising short-term capital inflows (i.e., predominantly interbank loans) as a harbinger of future disaster. The authors examined 87 currency crises and 29 banking crises in 25 emerging economies and small industrial nations during the period 1970-95. They analyzed 25 monthly and 9 annual indicators to discover country-specific thresholds where the signals flashed "crisis ahead!"[59]

Although the majority of signals have domestic origins, a few emanate from international capital flows—particularly bank operations. The three best monthly indicators of a currency crisis were an appreciating real exchange rate, a prior banking crisis, and a fall in stock prices. In turn, the best monthly indicators of a banking crisis were an appreciating real exchange rate, a fall in stock prices, and a rising M2 money multiplier (i.e., more bank credit). Appreciating real exchange rates are

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56. Radelet and Sachs (1998) and Ito (1999) emphasize the same themes.

57. At year-end 1982, Latin America's external debt was $330 billion, of which $225 billion (68 percent) was bank credit (4 percent of the assets of G-7 banks), and only $66 billion (20 percent) was owed to nonbank creditors. In 1994, Latin America's external debt was $524 billion, of which $197 billion (40 percent) was owed to nonbank creditors (Gilibert and Steinherr 1996).

58. In 1994-95, portfolio losses on Latin American securities were widespread and had no adverse impact on US stock and bond markets—an outcome that was repeated in the Asia crisis of 1997-98 (Gilibert and Steinherr 1996).

59. The technique used by Goldstein, Kaminsky, and Reinhart to distinguish a good indicator of future crises from a bad indicator is the "noise-to-signal" ratio. This is basically the ratio of bad calls to total calls (Goldstein, Kaminsky, and Reinhart 2000, 32).

often associated with an inflow of foreign loans and portfolio investment.

Turning to annual indicators, Goldstein and his colleagues found that the best-performing signals for both currency and banking crises (but with differing noise-to-signal ratios) are rising short-term capital inflows (relative to GDP), a rising current account deficit (relative to investment and GDP), and a rising budget deficit (relative to GDP). Interestingly, a high ratio of FDI inflows to GDP has no value as a crisis predictor.

Goldstein and his colleagues did not include portfolio investment as a possible crisis indicator. However, studies by Taylor and Sarno (1997) and Chuhan, Claessens, and Mamingi (1998), using the same dataset, reached some interesting conclusions. These two sets of authors examined monthly US portfolio flows (bonds and equity) to nine Latin American and nine Asian countries between January 1988 and September 1992. They found significant coefficients on both "push" and "pull" factors.

The main push factor is the level of US interest rates—when rates are high, less capital goes to emerging-economy bond and equity markets. The main pull factors are the country's credit rating, the black-market premium on its exchange rate, the price-earnings ratio on shares, and the total return on equities relative to the US stock market. These push and pull factors can obviously reverse their sign within 6 months, imparting a fair degree of volatility to portfolio investment.

Contagious Banks and Investors

Another way of looking at the fly-away versus bolted-down characterization of different capital categories is to examine their proclivity to contagion. Briefly, there is substantial evidence that bank lending decisions within a region are contagious during a crisis; there is moderate evidence that portfolio investment decisions are contagious; and there is no evidence that FDI decisions are contagious.

After the Asian crisis, several analytic papers documented the "common banker" as a transmission mechanism for spreading financial contagion.[60] In a sophisticated analysis, Fratzscher (2000) analyzed quarterly data from 1989 to 1998 for 24 emerging markets. If two countries shared common bankers, financial pressure was significantly transmitted between them—regardless of their distinct fundamentals. Moreover, the estimated transmission coefficient rose sharply in periods when financial pressure turned into financial crisis.

Turning to portfolio investors, the evidence is mixed. Using monthly data for the period 1958-96, Longin and Solnik (2000) uncovered a tendency for the five largest equity markets (the United States, the United

60. Leading papers are by Van Rijckeghem and Weder (1999), Kaminsky and Reinhart (2000), and Caramazza, Ricci, and Salgado (2000). Typically, the common banker is a group of international banks based in the same city, e.g., Tokyo or New York.

Kingdom, France, Germany, and Japan) to exhibit extreme correlation during sharp bear markets, but not during sharp bull markets. Kaminsky, Lyons, and Schmukler (1999) likewise found that 13 US mutual funds dedicated to Latin American equities exhibited a stronger tendency toward contemporaneous momentum strategies (buying current winners and selling current losers) during crisis periods than during noncrisis periods.[61] Kim and Wei (2000) find that foreign portfolio investors with branches in Korea are less likely to engage in positive feedback trading than similar investors who do not have a Korean presence.

Forbes and Rigobon (1999) question some of the published studies that truly identify contagion among portfolio investors. They argue that the conventional measure of contagion—higher price correlation between stock prices—is biased. When volatility rises, the price correlation between two stock indexes will increase, even if there is no change in the underlying structural connection between the two markets.

By making an appropriate adjustment in the standard price correlation measure, Forbes and Rigobon found higher "comovement," but no contagion between stock prices in the 1997 East Asian crisis, the 1994 Mexican peso crisis, or the 1987 US stock market crash. Stulz (1999) is another skeptic. He claims that unadjusted share price correlation coefficients rose in the OECD bear market of 1973-74, when no one thought contagion was at work.[62]

The case is stronger for portfolio contagion at a regional than at a global level.[63] Froot, O'Connell, and Seasholes (1998) report statistical evidence of strong contagion *within* regions, using high-frequency data. Fratzscher (2000) finds evidence of contagion during crisis episodes between countries that exhibit more highly correlated share price movements in tranquil

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61. Other studies on institutional investors with the same flavor include Brown, Goetzmann, and Park (1998), Eichengreen and Mathieson (1998), Kim and Wei (1999), and Frankel and Schmukler (1998). On a different but related aspect, Coppejans and Domowitz (2000) found that foreign equity ownership in emerging markets, *accompanied* by cross-listing (e.g., on the New York Stock Exchange), increases the variance of returns.

62. Evidence on the behavior of some investors also runs contrary to the contagion thesis. For example, Choe, Kho, and Stulz (1999) found that foreign portfolio investors were momentum *buyer*s when the South Korean market was rising, but they were *not* momentum sellers during the crisis (the last 3 months of 1997). At the level of mutual fund investors, one study found that individuals decreased their net inflows to Mexican and Asian funds during the crises, but did not increase their net outflows (Froot, O'Connell, and Seasholes 1998). An earlier study by Sachs, Tornell, and Velasco (1996) argued that the 1994-95 "tequila crisis" had no lasting effect on Latin American countries with strong fundamentals.

63. Moreover, it should not be assumed that high *price* correlation between securities in different regions implies high correlation in capital flows. For example, it would be wrong to infer from the high price correlation, in late 1998, between plunging Russian debt values and soaring Brazilian Brady bond spreads that capital *flows* were highly correlated between Eastern Europe and Latin America.

times. In tranquil times, share price movements are more highly correlated within regions than between regions (Fratzscher 2000, table 3).

FDI: "Bolted Down"

Before Goldstein and his colleagues published their work on crisis warning indicators, Frankel and Rose (1996) had established that a *high* ratio of FDI inflows to external debt stock consistently decreased the likelihood of a currency crash. Their work was based on panel data for 100 developing countries between 1971 and 1992.

Fernandez-Arias and Hausmann (2000) extended the Frankel and Rose (1996) dataset to 1997, included several industrial countries, and used FDI stocks rather than FDI inflows as a crisis predictor. In their provocatively titled paper ("Is FDI a Safer Form of Financing?") Fernandez-Arias and Hausmann reach a conventional result, but offer an unconventional rationale. They contend that, although FDI stocks have a record of being bolted down by comparison with bank loans and portfolio investments, multinational companies can just as readily move liquid funds abroad in anticipation of a crisis. MNEs are not inherently virtuous.

Fernandez-Arias and Hausmann do not give much credence to the argument that MNE operations have long horizons. Nor do they emphasize the structural variables confirmed again and again by econometric analyses of FDI.[64] Instead, they argue that MNE operations are typically hedged in terms of currency and maturity risk, whereas bank loans are likely to be characterized by currency and maturity mismatch. Portfolio investment may embody some degree of mismatch. As a result of these characteristics, bank loans and portfolio investments exhibit a greater tendency to fly away when crisis brews.

Year-to-Year Deviations

The data on private-capital flows assembled in table 1.2 (IMF sources) and appendix A (IIF sources) can also be used to evaluate the fly-away and bolted-down characterizations. This evaluation is a good deal simpler than the econometric evidence reported above. It has the virtue of being easily understood, and the vice of less sophistication. Our analysis has no control variables to exclude extraneous influences on particular capital flow categories.

We use the annual data to calculate simple year-to-year deviations in capital flowing to emerging markets; from these deviations, we draw inferences about the stability of different types of flows. At the outset, it is important to emphasize that we are examining flows, not stocks. To

64. See, e.g., UNCTAD (1998), Lane and Milesi-Ferretti (2000), Lipsey (2000), and Hausmann and Fernandez-Arias (2000).

be precise, we are examining the volatility of flows, which is somewhat different than the question of whether capital stocks are permanent.

On the basis of official IMF estimates (table 1.2), the average *absolute* year-to-year deviation of "bank loans and other debt (net)" to all emerging markets was $44 billion between 1990 and 2000. This figure includes bank loans, trade credits, and resident deposits. By contrast, on the basis of IIF estimates (table A.1), the average absolute year-to-year deviation of only bank loans and trade credits (excluding resident deposits) to all emerging markets was $35 billion. By inference, year-to-year swings in the bank deposits held by residents of emerging markets added about $10 billion annually to the overall volatility of bank operations.

The average absolute deviation of portfolio flows (bonds and equity) to all emerging markets was between $29 billion (IMF data, table 1.2) and $34 billion (IIF data, table A.1). The average absolute deviation of FDI was about $15 billion (both sources).

Relative Deviations

To put these absolute deviations in perspective, we calculate two relative magnitudes. The first relative deviation, labeled "own" in table 1.2 and the tables in appendix A, is the ratio between the average absolute deviation and the average annual flow of the particular category of capital (e.g., bank loans and other debt). The second relative deviation, labeled "total" in table 1.2 and the tables in appendix A, is the ratio between the average absolute deviation of the particular category of capital and the average absolute deviation of *total* private capital. Because the year-to-year changes in flows of particular categories offset each other, the sum of total relative deviations for all categories exceeds 100 percent.[65]

The own and total relative deviation of all bank operations (bank loans, trade credits, and resident deposits) in emerging markets exceeded 100 percent in the period 1990-2000 (table 1.2). Excluding resident deposits, the own relative deviation still exceeded 100 percent, but the total relative deviation dropped to 63 percent (table A.1). By contrast, the own relative deviation for portfolio investment was about 50 percent, whereas the total relative deviation was somewhat more than 60 percent (tables 1.2 and A.1). For FDI, the own relative deviation was about 18 percent,

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65. A simple measure of offsetting changes in capital flows is the difference between the sum of total relative deviations and 100 percent. If the sum equals 100 percent, there are no offsetting tendencies. If the sum exceeds 100 percent by large margin, offsetting tendencies are stronger. For the three kinds of capital flows identified in table 1.2, the sum of total relative deviations is about 200 percent. In rough terms, this means about half the annual changes in one category of flows are offset by opposite annual changes in another category (or categories) of flows. But for individual regions, offsetting tendencies may be much weaker. For example, in the five affected Asian countries, the sum of total relative deviations was only 126 percent.

and the total relative deviation figure was about 30 percent (again, tables 1.2 and A.1).

From this overview of year-to-year changes in capital flows to all emerging markets, we deduce there is solid evidence that FDI flows are easily the most stable component. Bank operations are the least stable, but in terms of the absolute size of annual deviations, portfolio flows are a close second. An important reason why annual absolute deviations in portfolio flows loom large is that average annual portfolio flows are nearly three times the size of net new bank loans (table A.1).

Individual regions and components of bank operations (appendix A), and the experience in the second half of the 1990s, follow the same overall pattern (table 1.2 and appendix A). Own relative deviations for bank flows almost always exceed portfolio flows, sometimes by a large margin. Total relative deviations are similar (although bank flows generally exceed portfolio flows). FDI flows to all regions are very stable.

Contrary Results

In an earlier study that was based on quarterly capital flow data from the mid-1970s to 1992 for five industrial countries and five emerging markets, Claessens, Dooley, and Warner (1995) argued that there was no important difference in the time-series properties of FDI, portfolio equity, long-term debt, and short-term debt. All were equally volatile. Claessens and his colleagues concluded that the labels "short-term" and "long-term" convey no useful information. Their findings were challenged by Chuhan, Perez-Quiros, and Popper (1996), who examined quarterly capital flow data between 1985 and 1994.[66] In any event, both studies focused on events before the Asian crisis. We think the IMF data analyzed in table 1.2, buttressed by the IIF data analyzed in appendix A, reveal important differences in the volatility of different kinds of capital flows to emerging markets—especially when the turmoil of the late 1990s is factored into the evaluation.

How Bad Is International Volatility?

Earlier in this chapter, we remarked that financial volatility contributes to GDP volatility. We also presented evidence that larger fluctuations in GDP translate into slower GDP growth over an extended period. Obviously, to the extent year-to-year deviations in international capital flows contribute to financial volatility, those deviations are not helpful. No one

66. Chuhan, Perez-Quiros, and Popper (1996) tried out a model specification in which capital flows of one category (e.g., portfolio investment) were allowed to influence capital flows of another category (e.g., bank loans). They found that short-term flows were sensitive to other categories, but that FDI was not.

Table 1.9 Correlation between activity indicators and capital flows (first difference in capital flows versus annual percentage change in activity indicators, 1990-2000)

Type of capital flow (annual change)	Activity indicator (annual change)		
	Exchange rate[a]	Stock market indexes	Real GDP
Total private capital	(0.12)	0.24	0.01
Bank loans	(0.06)	0.15	(0.06)
Portfolio investment	(0.07)	0.16	0.03
Foreign direct investment	(0.14)	(0.04)	0.16
Official capital	0.02	(0.18)	0.03
Reserves	0.40*	0.13	(0.16)
Current account balance	0.42	(0.12)	(0.25)

* Indicates the coefficient is significant at the 95 percent or better level of confidence.

a. The exchange rate observations for Brazil (1990-94), Argentina (1990-91), and Mexico (1995) are excluded, because of hyperinflation conditions (see table A.6).

Note: This table is based on data in table 1.2 and table A.6.

asserts that rapidly shifting capital flows are good for emerging markets. The subtle question is how bad they might be.

Small Standard Deviations

Fernandez-Arias and Hausmann report (2000, table 1) that the standard deviation of total capital flows to emerging economies in the 1990s was only 1 percent of GDP.[67] It is not obvious that a swing of plus or minus 1 percent of GDP (the implied range for two-thirds of the country-years) would induce national mania or panic. The far less frequent, but far more ominous, 2-standard-deviation and 3-standard-deviation swings are the ones likely to bring turmoil.

Table 1.9 illuminates the influence of international financial flows on activity variables—exchange rates (local currency per US dollar), stock market indexes (expressed in dollar terms), and GDP growth rates. The interesting point is how small the correlation coefficients are, none of them significant. Judging from the signs of the coefficients, on average, private flows decrease during years of exchange rate depreciation and increase during years of appreciation—an expected association. Annual data are not sufficiently detailed to determine causation, but capital flows are probably driving exchange rates, rather than vice versa. Official flows rise with exchange rate depreciation and fall with appreciation, again as might be expected. Private-capital flows are positively associated with

67. For FDI, the standard deviation was 0.6 percent of GDP in the 1990s; for portfolio investment, 0.6 percent; and for bank loans, trade credits, and official finance together, 1.2 percent (Fernandez-Arias and Hausmann 2000).

real GDP changes. International capital flows of all kinds show little association with stock market indexes (expressed in dollars). There is only small surprise in the indicated association between the activity variables and the capital flow variables. The bigger surprise is that none of the coefficients is significant.

Whether national activity drives international capital, or vice versa, the correlation coefficients in table 1.9 are all fairly weak. These weak coefficients, in combination with the modest standard deviation of capital inflows, suggest that international capital volatility has been a secondary contributor to national financial volatility—at least so far.

Past Not Necessarily Prologue

But the past may not be prologue. Fernandez-Arias and Hausmann (2000) calculate that the coefficient of variation (the standard deviation divided by the mean) of total capital flows to developing countries was about 0.3 in the 1990s. If this relationship holds in the future, and if capital flows rise in line with our high scenario (table 1.1), the standard deviation of capital flows would increase from 1 percent of GDP in emerging markets to 2 percent. Moreover, if residents of emerging markets act like G-10 financial institutions, increasing their *outflows* from developing nations just when G-10 institutions are decreasing their *inflows* to developing nations, the fluctuations would be magnified. Even in our low scenario (table 1.1), these fluctuations could become a frequent source of crisis in the world economy.

Sizing Up Costs and Benefits

On the basis of this array of data, we reach three main conclusions about capital flows and emerging markets in the 1990s:

- Fluctuations in bank operations (loans and deposits) have a troublesome record, because they usually dominate year-to-year changes in private-capital flows, because they can drive exchange rate in a procyclical way, because extreme inflows often presage a crisis, and because extreme outflows often worsen a financial collapse.
- Fluctuations in portfolio investment have been a lesser problem for emerging markets. A key feature of these flows was their growing size. Because the stock of portfolio capital in emerging markets is large and growing, the potential for future troublesome fluctuations cannot be dismissed.
- FDI fluctuations have not been a source of financial volatility in emerging markets. Strong reasons can be given for why FDI flows are fairly

stable: Currency and maturity mismatch is low; projects typically have a long life. The historical record confirms the bolted down hypothesis.

This review leads us to conclude that the boom-and-bust aspect of capital flows is an *episodic* problem concentrated in bank operations, but a problem that could become more prominent in portfolio investment. However, we must emphasize that boom and bust is not a *persistent disease* associated with all international capital. The distinction is important. Observers who detect a persistent disease are quick to condemn financial institutions in general and advocate broad capital controls.

Leading Critics, and a Counter-Critic

Four examples of open capital markets may be cited: Bhagwati (1998), Krugman (1998), Eatwell and Taylor (2000), and Rodrik (1998). Among the four, Bhagwati (1998) is the most restrained. The title of his essay tells the message: "Yes to Free Trade, Maybe to Capital Controls." He argues that the evidence for free trade is overwhelming, and the evidence for free capital is weak. Hence, capital controls might not be such a bad way of addressing crises in particular, and antiglobalization sentiments in general.

Coming out of the Asian crisis, Krugman (1997) detected seven perverse "habits" in financial markets: Think short term. Be greedy. Believe in the greater fool. Run with the herd. Overgeneralize. Be trendy. Play with other people's money. This characterization leads him to conclude that financiers during the crisis formed "an extremely dangerous flock of financial sheep" (Krugman 1997).

In less colorful language, Eatwell and Taylor (2000) generalize Krugman's criticism to cover the whole field of international capital in the post-Smithsonian era. They ascribe multiple sins to the free flow of capital: high and variable real interest rates, volatile asset prices, contagiously spreading market instabilities, waves of currency crises, and declining rates of growth and investment.

This brand of criticism leads Rodrik, among others, to conclude (1998, 60):

> Think of capital flows as a medicine with occasionally horrific side effects. The evidence suggests we have no good way of controlling the side effects. Can it be good regulatory policy to remove controls on the sale and use of such a medicine?

From a completely different ideological standpoint, Dooley (2000) argues that the "horrific side effects" (to use Rodrik's colorful phrase) are a *necessary complement* for substantial international private bank loans and bond placements. Private lenders have no credible means of seizing

assets from sovereign borrowers. As recent experience in Indonesia has shown, they in fact may have no means of collecting debts from private foreign borrowers. In the event of default, the only effective response by private lenders is to withhold fresh credit and force an economic crisis. In Dooley's view, misguided "reforms" that blunt this threat will, in the long run, encourage mischievous political leaders and finance ministers to pursue bad policies. Then they, or their successors, will engage in "strategic defaults" on foreign obligations. This behavior, in turn, will significantly diminish the flow of private capital to emerging markets.

We reject the broad condemnation of open capital markets voiced by the four distinguished authors first cited. In our view, the benefits of international capital for emerging markets already outweigh the costs—and we think the balance will become more favorable in the decades ahead. In contrast to Rodrik, we believe that there are good ways of controlling the side effects. In contrast to Bhagwati, we think the case for international capital flows is inherently as strong, if not yet as well documented, as the case for international trade.[68]

With Dooley, we believe that emerging-market crises need not be an inevitable complement to international capital flows. Correctly structured reforms that curtail moral hazard (both in financial institutions and emerging markets) will limit the frequency of crises and avert "strategic defaults."[69]

To support our position on the balance between costs and benefits, we first summarize some empirical findings on the costs and benefits of financial development in general and international capital flows in particular. We then offer rough calculations that juxtapose the gains from foreign trade, the gains from foreign capital, and the costs of banking and currency crises.

Finance and Growth

Starting at the most general level, a rich literature supports the strong connection between financial development (including the rule of law in financial affairs) and income growth. The basic idea can be traced to

68. Stanley Fischer, the IMF's deputy managing director, made a telling remark at a luncheon sponsored by American University on 13 April 2000. The econometric case for capital flows today is approximately where the econometric case for international trade was in the 1980s, when Bela Balassa and Anne Krueger were carrying out pioneering studies at the World Bank. The evidence on capital is beginning to come in, and some of it is cited in this chapter, but much more work needs to be done.

69. Australia, Canada, and the United States, among other countries, have at points in their history been large net borrowers, but their regulatory institutions kept pace with their financial development. The same can happen during the next few decades in emerging markets. On the *demand side* of the capital flow account, the IMF is working to improve policy in general and financial surveillance in particular.

Alexander Hamilton (1781), Walter Bagehot (1862; originally published 1873), and Joseph Schumpeter (1934; originally published 1912).[70] After a long dormancy during the Keynesian heyday, the financial connection was rediscovered by Goldsmith (1969) and McKinnon (1973). Reviewing the experience of 35 countries between 1860 and 1963, Goldsmith was persuaded that finance and development go together. But he was agnostic on the direction of causality: "Whether financial factors were responsible for the acceleration of economic development or whether financial development reflected economic growth whose mainsprings must be sought elsewhere" (Goldsmith 1969, 48).[71]

In an important study published a few years later, McKinnon (1973) argued that financial development often leads economic growth. He contended that, when strong financial institutions pay positive real returns, households and firms will entrust those institutions with their savings—thereby improving the allocation of capital. Examining the postwar experience of Japan and Germany, McKinnon observed that ratios of broad monetary aggregates to GDP rose sharply, whereas the same ratios were low and stagnant in a number of poorly performing semi-industrial countries.

What Causes What?

Using a then-novel approach to establish the direction of causality and sidestep the post hoc ergo propter hoc fallacy, King and Levine (1993) showed that previous financial development predicted income growth during the next 10 to 30 years. Subsequently, Levine (1997, 1998, 2000), Levine and Zervos (1998), and Rajan and Zingales (1998), among others, published persuasive papers establishing the causal importance of finance, using time-series and cross-country data. Levine and Zervos (1998), for example, found that a 1-standard-deviation increase in the extent of bank credit to the private sector at the beginning of the period 1976-93 was associated with an increase in annual per capita GDP growth of 0.7 percent during the period. A 1-standard-deviation increase in the extent of stock market liquidity was associated with an increase in annual per capita GDP growth of 0.8 percent during the period. Similarly, Khan

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70. The early literature is cited in Levine, Loayza, and Beck (2000). As they point out, Alexander Hamilton claimed that "banks were the happiest engines that were ever invented" for creating wealth (Hamilton 1781).

71. De Soto (2000) places responsibility for the failure of capitalism in many developing countries on very weak legal systems that fail to protect real property rights: "The total value of the real estate held but not legally owned by the poor of the Third World and former communist nations is at least $9.3 trillion. . . . [But the developing countries lack] formal property systems with a variety of mechanisms [that enable these assets to be sold or pledged] in such a way that [they] can be converted into [financial] capital" (De Soto 2000, 46).

(2000) found that a 1-percentage-point increase in the national level of financial development (measured as the ratio of stock market capitalization plus domestic bank credit to GDP) was associated with a 1.86 percent increase in annual growth during the period 1976-91.

Levine, Loayza, and Beck (2000) and Beck, Loayza, and Levine (2000) applied sophisticated econometric techniques, including instrumental variables, to panel data for 71 countries for the period 1960-95. The first paper (Levine, Loayza, and Beck 2000) demonstrated that the development of financial intermediaries causes economic growth. Their estimated coefficients suggest, for example, that if Argentina had enjoyed the same level of financial intermediaries as the average developing country between 1960 and 1995, its per capita GDP would have grown 1 percent a year faster. The second paper (Beck, Loayza, and Levine 2000) showed that banks in particular exert a large causal impact on total factor productivity growth, which feeds into overall GDP growth.

Levine, Loayza, and Beck (2000) also show that legal and accounting systems help determine differences in financial development. Shareholder rights, creditor rights, common law (as opposed to civil law) traditions, low corruption, and strong accounting standards all condition the extent of financial development.[72] These are all matters that governments can alter by policy initiatives. In well-run financial systems—whether dominated by securities markets or banks—capital markets become more efficient (Demirguç-Kunt and Levine 1999, table 4). Bank loans fund the best projects, rather than the best-connected firms. New capital sources spring up: private placements, venture capital, and public offerings. An array of new vehicles—such as securitized loans, swaps, and futures contracts—enable risk to be divided and spread.

Financial development not only promotes faster income growth, it also helps to reduce the volatility of per capita GDP. Denizer, Iyigun, and Owen (2000), for example, estimate that a 1-standard-deviation increase in the ratio of claims on the nonfinancial private sector to total domestic credit reduces the standard deviation of real per capita GDP growth by about 14 percent.

Sequencing Financial Development

The fact that financial development promotes growth does not, of course, imply that every conceivable measure in the direction of financial

72. Supplementary evidence is the study by Morck, Yeung, and Yu (2000), suggesting that highly synchronized individual share-price changes within stock markets in developing countries can be partly explained by a measure of "poor governance." The implication is that, when good or bad information is revealed about one company, investors assume (because of poor disclosure, bad accounting practices, etc.) that similar good or bad information characterizes other companies. Individual share-price changes are synchronized to a much lower extent in industrial countries with "good governance."

liberalization is a "good thing." Demirguç-Kunt and Detragiache (1998), for example, examined interest-rate deregulation between 1985 and 1995. The probability of a banking crisis was high during the next 3 or 4 years, especially where the domestic regulatory environment was weak. Such findings underpin a cottage literature on "financial sequencing" (e.g., Johnston and Sundararajan 1999). As with almost anything else in economic life, financial development can be pursued in a way that creates harm. That said, overwhelming evidence demonstrates that financial development by and large promotes economic growth.

International Capital and Growth

In comparison with the mature body of work on the connection between financial development and economic growth, empirical research on *international* capital flows, growth, and volatility is at an infant stage. In an early theoretical paper, Obstfeld (1994) calculated the potential wealth gains for several regions of the world assuming complete financial integration of the world economy. The potential wealth gains in emerging-market economies seem unbelievably large—ranging from a gain of 22 percent in East Asia to one of 238 percent in South America.[73] Subsequent empirical studies shed further light.

Quinn (1997) examined the connection between average real long-run per capita income growth (1960-89) in 64 countries and changes in their international financial regulation between 1958 and 1988. He constructed two measures: one for capital account liberalization (*capital*) and one for overall financial liberalization (*openness*). He created the measures by numerically coding laws and regulations affecting capital transactions, current transactions, and exchange regimes. He used the change in the numerical scales between 1958 and 1988 as independent variables. Both measures are statistically significant in explaining long-run economic growth, and capital proved more robust than openness. Similarly, Françoise and Schuknecht (1999) found that moving from a closed to a relatively open financial service regime is associated with an annual rise in GDP growth of more than 1 percent.

Less sweeping studies focused on components of the capital account. Henry (2000) studied the experience of six Asian and six Latin American countries in the late 1980s and early 1990s. He estimated that the prospect of opening a closed stock market to foreign investors boosts equity prices on average by 25 percent (after eliminating the general influence of world equity price changes). This, of course, lowers the cost of equity capital. In the 2 years following the stock market opening, domestic

73. In a subsequent essay, published after the Mexican and Asian crises, Obstfeld (1998) surveyed the literature on the balance and benefits of international capital. At that time, the literature was still heavier on argument than evidence.

investment rose about 20 percent on average. In a similar analysis, Bekaert, Harvey, and Lundblad (2000) estimated that opening equity markets to foreign investors is associated with an increase in annual real growth of between 0.7 and 1.4 percentage points, after accounting for other influences. They do not claim a cause and effect relationship, but they suggest that a lower cost of capital and more venturesome investment decisions might be at play.

Portes and Rey (1999) applied a gravity model to analyze a large dataset (of 1,500 observations) on bilateral cross-border equity flows. They find that market size, distance, transaction efficiency, and the quantity and quality of information explain 70 percent of the variance.[74] Interestingly, language, currency, and trading bloc membership do not seem to matter. A country cannot do much about its market size or distance from financial centers. However, even small and medium-sized countries can favorably shape some of the factors assessed by Portes and Rey—for example, transaction efficiency and quality of information.[75]

Goldberg, Dages, and Kinney (2000) found that foreign banks operating in Mexico and Argentina between 1994 and 1999 compared favorably with their domestic counterparts. They had higher loan growth rates and lower loan volatility. Most important, during crisis periods, foreign banks showed notable credit growth relative to their domestic counterparts. The authors conclude that these differences reflect bank health rather than ownership per se. A major detriment to bank health is loan concentration, and it is hard for banks that do all of their business in an economy that is smaller and more concentrated than California (the case for Argentina, Mexico, and many other emerging markets) to field a diversified loan portfolio. Add to concentration the problems of policy-based loans, connected lending, and less-than-frontier technology, and it is easy to see why foreign banks have better performance records.

The Benefits—Rough Calculations

Although scholars and public officials agree that foreign capital augments the GDP of emerging-market countries, the possibility of financial crises—in which foreign capital plays a role—must be placed on the other side of the ledger. To form a judgment about the broad direction of policy, it is useful to size up, in a rough way, the benefits and costs. We start with the benefits. Table 1.10 offers our rough calculations of the GDP

74. They measure information quantity by telephone call traffic and multinational bank branches; they measure information quality by the extent of insider trading.

75. The authors did not draw on Quinn's (1997) empirical work to include, as explanatory variables, measures of capital account regulation or financial openness. Future work may show that Quinn's measures—which reflect policy determinations by each country—influence the magnitude of portfolio investment.

Table 1.10 Contributions of foreign trade and capital to emerging-market GDP (billions of dollars or percent)[a]

Contribution	1970	1980	1990	2000	2010
GDP of emerging markets	797	2,927	4,747	6,798	10,000
Foreign trade					
Trade value (merchandise exports plus imports)[b]	157	1,262	1,796	3,972	8,182
Trade as percentage of GDP	20	43	38	59	82
Trade expansion as percentage of GDP[c]	n.a.	23	(5)	21	23
GDP gains from trade expansion[d] (billions of dollars)	n.a.	n.a.	282	358	1,452
Foreign capital					
Foreign capital stock (billions of dollars)	176	770	2,164	4,937	7,300
Bank loans and trade credits	110	604	1,444	2,544	2,500
Portfolio investment (bonds and equity)	10	60	364	959	2,000
Foreign direct investment	56	106	356	1,434	2,800
Foreign capital stock as percentage of GDP	22	26	46	73	73
Bank loans and trade credits	14	21	30	37	25
Portfolio investment (bonds and equity)	1	2	8	14	20
Foreign direct investment	7	4	7	21	28
Foreign capital stock expansion as percentage of GDP	n.a.	4	19	27	0
Bank loans and trade credits	n.a.	7	10	7	(12)
Portfolio investment (bonds and equity)	n.a.	1	6	6	6
Foreign direct investment	n.a.	(3)	4	14	7
GDP gains from foreign capital expansion (billions of dollars)	n.a.	(35)	127	457	394
Bank loans and trade credits[e]	n.a.	0	0	0	0
Portfolio investment (bonds and equity)[f]	n.a.	5	53	88	118
Foreign direct investment[g]	n.a.	(40)	73	370	276

n.a. = not available

a. Values are in nominal dollars (at current year prices), except for 2010 figures, which are expressed in 2000 prices.
b. The 2000 trade value is calculated by assuming 5 percent annual growth on the 1998 figure. The 2010 trade value is extrapolated by assuming the same real decade growth rate (106 percent) as in the 1990s.
c. Calculated as the decade-to-decade difference in the ratio of merchandise trade (exports plus imports) to GDP.
d. Calculated as a steady-state gain of 3.3 percent in GDP for each 10-percentage-point increase over the previous two decades in the trade to GDP ratio. The 3.3 coefficient is based on the relationship between trade expansion and GDP gains estimated by Frankel and Rose (2000). Also see Frankel and Romer (1999) for a smaller coefficient (0.8 percent) based on cross-country experience over a shorter time frame within East Asia.
e. Soto (2000) finds a negative short-term relationship between debt flows (bank loans and trade credits) and GDP. We assume the relationship is zero.
f. Calculated as a GDP gain of 0.2 percent for each 1-percentage-point increase over the previous decade in the ratio of the stock of portfolio investment to GDP. The 0.2 coefficient is based on the relationship between portfolio inflows and GDP estimated by Soto (2000).
g. Calculated as a GDP gain of 0.4 percent for a 1-percentage-point increase over the previous decade in the ratio of the stock of FDI to GDP. The 0.4 coefficient is based on the relationship between FDI inflows and GDP estimated by Borensztein, De Gregorio, and Lee (1998) and Soto (2000).

Note: This table is based on data in table 1.4 and the assumptions noted below.

Sources: IMF, *International Financial Statistics, Yearbook,* 1999; IMF, *Results of the 1997 Coordinated Portfolio Investment Survey,* 1999; World Bank, *World Tables,* various issues; Frankel and Romer (1999); Frankel and Rose (2000); Soto (2000); Borensztein, De Gregorio, and Lee (1998).

gains for emerging markets from participation in the international economy, contrasting benefits both from the expansion of merchandise trade and foreign capital. The coefficients built into our calculations for the gains from trade expansion are drawn from the work of Frankel and Romer (1999). The coefficients for the gains from foreign capital are based on the work of Borenszstein, De Gregorio, and Lee (1998) and Soto (2000).

Trade and Growth

Trade expansion is defined as a rising ratio between merchandise trade (exports plus imports) and GDP. As long as the ratio does not change, the external economy is more or less preserving the status quo. A rising ratio means that underlying economic forces, perhaps augmented by a liberal commercial policy, are encouraging greater integration with the global economy.[76] According to the conservative estimates made by Frankel and Romer (1999) for East Asia, steady-state GDP rises by about 0.78 percentage points for each 10 percent rise in the ratio of merchandise trade to GDP. A more recent gravity model estimate by Frankel and Rose (2000) suggests that each 10 percent rise in the merchandise trade ratio increases GDP by 3.3 percentage points after 20 years. The 3.3 percent coefficient finds ample support in computable general equilibrium (CGE) and computable partial equilibrium (CPE) estimates of the benefits of trade liberalization.[77] This is the coefficient we use in the calculations presented in table 1.10. Applying this coefficient to merchandise trade growth between 1980 and 2000 suggests that trade expansion may have contributed $358 billion, or 5.3 percent, to emerging-market GDP, in 2000. On the basis of current trends—if trade continues to boom—the GDP contribution could exceed $1 trillion, more than 10 percent of emerging-market GDP, in 2010.

To size up the contribution of foreign capital, we separately consider foreign debt capital (bank loans and trade credits) and foreign equity capital (FDI and portfolio equity). These categories follow the available econometric evidence.

Bank Loans and Growth

Examining annual data for a panel of 44 developing countries for the period 1986-97, Soto (2000) estimated the impact of different kinds of

76. See Edwards (1997) for a range of estimates demonstrating that trade openness, variously measured, significantly contributes to total factor productivity growth.

77. A recent CGE analysis of world trade by Brown, Deardorff, and Stern (2001) concluded that the welfare benefits of Uruguay Round trade liberalization were 49 percent ($75 billion) of the induced increase in world merchandise imports plus exports ($157 billion). They go on to calculate the potential welfare benefits of a "Millenium Round" as 92 percent ($612 billion) of the potential increase in world merchandise imports plus exports ($668 billion). See Hufbauer and Wada (1999c) for a summary of other calculations.

foreign capital on GDP growth in emerging markets. According to his estimated coefficients, foreign bank loans and trade credits are associated with GDP *losses* in emerging markets. Like Soto, we think these debt coefficients are misleading. They capture the greater willingness of G-10 banks and exporters to lend when times are good and growth is not capital-constrained, and their lesser willingness to lend when times are bad. For the purpose of table 1.10, we assume bank loans and trade credits make a *zero* contribution to GDP levels in emerging markets. This assumption totally discounts the benefits we foresee from the improved long-term efficiency in the internal allocation of capital with the rise of G-10 financial institutions in emerging markets (see Dobson and Jacquet 1998).

FDI and Growth

Turning to FDI, two studies lend themselves to rough calculations of the benefits for emerging markets. The first is the study by Borensztein, De Greogrio, and Lee (1998). They examined the impact of average FDI inflows (as a percentage of GDP) on average real per capita GDP growth in 69 developing countries during the period 1970-89. They entered a large number of control variables in the more elaborate model specifications.[78] In a simple specification, they found that a 1-percentage-point increase in the average FDI inflow ratio was associated with an increase in the average per capita annual GDP growth rate of 0.66 percent (with a standard error of 0.46 percent). Assuming that the same relationship holds for FDI stocks, a 1-percentage-point rise in the ratio between the FDI stock and GDP would imply a 0.66 percent increase in the GDP level. Because it is estimated on the basis of average relationships during nearly two decades, this coefficient can be interpreted as the long-run GDP benefit of FDI, taking into account various externalities.

The second study that lends itself to a quantitative estimate of the GDP contribution from FDI is Soto's (2000) work. On the basis of annual panel data, he estimated that a 1-percentage-point rise in the ratio of FDI inflows to GDP increases the short-term level of GDP by 0.16 percent (with a standard error of 0.02 percent). Assuming that this coefficient applies to FDI stocks, a 1-percentage-point increase in the ratio of FDI stock to GDP will increase the short-term level of GDP by 0.16 percent. Using a Solow growth model, Soto then calculates that the long-term, steady-state gain in the GDP level is 0.60 percent for each

78. The most interesting control variable is the country's average level of schooling. It turns out that an interactive term between FDI and schooling is highly significant: FDI raises per capita income to a much greater extent in countries where secondary schooling is more prevalent. The analysis by UNCTAD (1999, annex to chap. 11) reaches the same conclusion.

1-percentage-point rise in the ratio of FDI stock to GDP. This is practically the same as the long-run coefficient of 0.66 directly estimated by Borensztein, De Gregorio, and Lee (1998).

As a conservative assessment of FDI benefits, we average Soto's short-run coefficient of 0.16 with the Soto and Borenszstein, De Gregorio, and Lee long-run coefficient (taken to be 0.66). The simple average is a 0.4 percent rise in the GDP level for each 1-percentage-point rise in the ratio of FDI stock to GDP. We assume that this coefficient applies to changes during a decade in the ratio of FDI stock to GDP. For example, if the ratio rises from 10 to 15 percent, the indicated rise in the decade-end GDP level would be 2.0 percent (0.4 times 5 percent equals 2.0 percent).

Portfolio Investment and Growth

We turn now to portfolio investment, where econometric estimates are sparse. The only ones we have found are Soto's. He calculates that a rise of 1 percentage point in the ratio of portfolio equity stock to GDP will increase the level of GDP by 0.68 percent (with a standard error of 0.05 percent). This coefficient seems unbelievably high.[79]

Conversely, Soto calculates that a rise of 1 percentage point in the ratio of portfolio bond stock to GDP will *decrease* the level of GDP by 0.06 percent (with a standard error of 0.06). Assuming a 60 percent weighting for portfolio bonds and a 40 percent weighting for portfolio equity, we blend Soto's two portfolio coefficients to arrive at a weighted average: Each percentage point increase in the ratio of portfolio investment stock to FDI increases the GDP level by 0.2 percent. Again, we assume this coefficient applies to changes during a decade. For example, if the portfolio investment ratio rises from 8 to 12 percent, the indicated GDP gain would be 0.8 percent (0.2 times 4 percent equals 0.8 percent).

Sizing Up Trade, Capital, and Growth

What are the results of this sizing-up exercise, using coefficients to assess the contribution of trade and capital to emerging-economy GDP? The calculations shown in table 1.10 indicate that the induced GDP growth gains from foreign capital in 2000 may have been in the same ballpark as the gains from expanded trade. In rough terms, the gains from expanded trade may be GDP levels that are 5 percent higher than otherwise, and the gains from expanded foreign capital could be similar.

Now the caveats. There is a lot at "play" in these calculations. Coefficients linking trade and investment expansion to GDP growth are far from settled in the econometric literature. Moreover, trade and capital

79. Soto's calculation implies a 68 percent return on portfolio equity. Even taking into account external efficiencies from privatization and the like, this seems much too high (as John Williamson has pointed out; personal communication).

are close complements: Policies that encourage commerce encourage investment. It is possible that separate estimates of trade and investment growth coefficients double count the other factor. GDP growth gains from trade expansion during the next 10 years, as suggested in table 1.10, could be substantially larger than gains from additional foreign investment. We conclude with a cautious assertion: On the basis of the available evidence, foreign capital confers gains on emerging economies in the same range as the gains conferred by foreign trade.

Skeptics and a Counter-Skeptic

Not every economist will agree with our cautious assertion. A contemporary skeptic, Dani Rodrik, dismisses evidence that FDI has been associated with faster growth. He writes (1999, 37):

> Today's policy literature is filled with extravagant claims about positive spillovers from FDI. These spillovers include technology transfer, marketing channels, superior management, and labor training. Once again, the hard evidence is sobering. Systematic plant-level studies from countries such as Morocco and Venezuela find little in the way of positive spillovers.

Rodrik's "hard evidence" is based on plant-level studies involving Côte d'Ivoire, Morocco, and Venezuela in papers that have, as a common author or coauthor, Ann Harrison.[80] Ted Moran (2001) has closely examined these studies. He concludes that the countries chosen for study by Harrison and her coauthors were ones with places and contexts where only small positive spillovers could be expected from FDI to begin with. Côte d'Ivoire, Morocco, and Venezuela are not countries with good policy regimes or strong connections to world markets. Indeed, as Moran (2001) points out, a companion study by Aitken, Hanson, and Harrison (1997) of Mexican manufacturing plants finds positive spillovers from FDI in Mexico.

Obviously, the benefits of FDI in emerging markets remain a matter of contention among economists. The benefits (if any) from portfolio investment have barely been investigated. Provisionally, we stick with our cautious assertion: Foreign capital confers benefits in the same range as the benefits of foreign trade.

The Costs—Rough Calculations

Turning to the other side of the ledger, how do the costs of crises compare with the calculated benefits from foreign capital? Table 1.11 gives

80. The earliest paper, on Morocco, is Haddad and Harrison (1993). The next paper, by Harrison (1996), surveys Côte d'Ivoire, Morocco, and Venezuela. The most recent paper, by Aitken and Harrison (1999), focuses on Venezuela.

Table 1.11 GDP losses from banking and currency crises

	1980s	1990s	2000s
		(billions of dollars)	
GDP of emerging markets[a]	3,837	5,773	8,445
Asia	1,000	1,850	
Latin America	945	1,684	
Africa	272	328	
Europe	1,142	1,357	
Middle East	466	552	
		(billions of dollars)	
Decade's GDP loss from financial crises in emerging markets[b]	249	419	250[c]
Asia	13	260	
Latin America	207	123	
Africa	15	18	
Europe	n.a.	11	
Middle East	14	7	
		(percent of GDP)	
Average annual GDP loss in emerging markets	0.6	0.7	0.3
Asia	0.1	1.4	
Latin America	2.2	0.7	
Africa	0.5	0.6	
Europe	n.a.	0.1	
Middle East	0.3	0.1	

n.a. = not available

a. Average of values for beginning and end years. For example, the 1980s figure for emerging markets as a whole is the average of $2,927 billion (1980) and $4,747 billion (1990). See table 1.4.

b. Unless a specific loss figure was estimated by Caprio and Klingebiel (1996) or Goldstein, Kaminsky, and Reinhart (2000) (for Asian crisis figures), we assume that a banking crisis results in a GDP loss of 2 percent per year thoughout its duration. Caprio and Klingebiel estimated loss figures for 24 major banking or currency crises in the 1980s and 1990s. We use these estimates where available. When not available, the assumed impact figures are based on: (1) In the case of a banking crisis, the loss figure of 2 percent per year is based on the average loss of 2.4 percent a year for 22 major crises identified by Caprio and Klingebiel (all 24 crises except for the shattering events in Argentina (1980-82) and Chile (1981-83). (2) In the case of a currency crisis, we assume that such a crisis results in a GDP loss of 5.6 percent per year for high-inflation countries (with more than 100 percent inflation for the crisis years—10 cases), and 2.6 percent GDP loss per year for low-inflation countries (with less than 100 percent inflation—16 cases), again unless a specific loss figure was estimated by Caprio and Klingebiel. Differing GDP loss experience depending on the previous rate of inflation is based on Goldstein, Kaminsky, and Reinhart (2000). Thus, we make a distinction between high (more than 100 percent inflation during the crisis years) and moderate (below 100 percent inflation during the crisis years).

c. Forecast by authors, assuming policy changes outlined in this book.

Note: Goldstein (1997) defines a banking crisis as (1) a bank run that leads to the closure, merger, or public takeover of one or more financial institutions; and (2) an event that requires large scale government assistance to one or more important financial institutions. The identification of banking crises is usually consistent across different studies. Kaminsky and Reinhart (1999) define a currency crisis by an index that combines significant exchange rate depreciation and decline of foreign reserves.

Sources: Caprio and Klingebiel (1996); Goldstein (1997); Goldstein, Kaminsky, and Reinhart (2000); IMF, *International Financial Statistics*, *Yearbook,* 1999.

estimates of GDP losses from all banking and currency crises recorded in the 1980s and 1990s. The calculations reflect 24 banking crises and 36 currency crises (many of them overlapping). The impacts of crises were of course uneven: A few countries were hit very hard; many escaped altogether. Added up, the crises cost all emerging markets about 0.6 percent of GDP per year in the 1980s, and 0.7 percent per year in the 1990s.[81]

These losses—bad and concentrated as they may be—were substantially less than conservatively estimated gains from international capital. Latin American suffered in the 1980s, Asia in the 1990s, and Africa throughout. But by no stretch of rhetoric can all financial crises be laid at the doorstep of international capital. Even if international capital is responsible for half the damage (an exaggeration, in our opinion), the benefits overall easily outweigh the costs.

Costs are nevertheless important, especially because they hit a few countries hard. It would be fatuous to suppose that crises can be eliminated, but we think they can be reduced in frequency and severity. Crisis amelioration is the theme of chapters 2 and 3.

Complements or Substitutes?

In this chapter, we have examined the costs and benefits of various forms of international capital. In chapters 2 and 3, we will examine why banks supply volatile short-term debt and how this problem might be addressed. Of course, one of the key questions that follows is whether different capital flows to emerging markets are complements or substitutes.

If, in fact, there is little substitution between different kinds of capital (bank loans, portfolio bonds, portfolio equity, and FDI), policy measures that discourage bank loans may diminish, one for one, the overall flow of resources to emerging markets. Even worse, if different kinds of capital strongly complement one another, policy measures that discourage bank loans may reduce not only those loans but also portfolio investment and FDI. Finally, there is a practical problem: Capital flows with a particular character may fly under different flags. General Electric (GE), for example, runs a virtual bank (GE Capital), and is one of the top FDI firms in the world. GE thus has multiple avenues to move capital in and out of emerging markets. If G-10 policy works to restrain interbank loans, firms like GE may instead supply equally unstable short-term funds to local borrowers.

The broad flavor of our recommendations is to shift the composition of capital inflows toward more permanent forms—exemplified, in the case

81. If the magnitude of crises in the 2000s can be held to the same dollar level as those in the 1980s and 1990s, the costs would fall to 0.3 percent of emerging-market GDP (table 1.11).

of debt finance, by a longer maturity on loans, but also exemplified by more portfolio investment and FDI in the investment mix. These recommendations are akin to knocking on an open door. Finance ministers in emerging markets are now fully familiar with the hazards of excessive reliance on short-term foreign debt. As Rodrik and Velasco (1999, abstract) observe, "The empirical analysis shows that the short-term debt to reserves ratio is a robust predictor of financial crises, and that greater short-term exposure is associated with more severe crises when capital flows reverse." Yet short-term capital may be the only kind of capital some countries can attract (Jeanne 2000).[82]

Banks and Capital Markets

Levine and Zervos (1998) examined evidence from 47 countries, averaged over the period 1976-93. In terms of the share of GDP, they found a strong positive correlation of 0.647 between *domestic* bank credit and *domestic* stock market capitalization.[83] They found a lesser positive correlation of 0.324 between *domestic* bank credit and *domestic* capital stock growth. This evidence suggests that bank credit and stock markets are relatively strong complements, even though real investment and the financial markets are less tightly linked.[84] This observation about complementary *domestic* financial markets does not, however, demonstrate that *foreign* bank lending, portfolio investment, and FDI are strong complements.

Domestic and Foreign Capital

Table 1.12 illustrates the wide range of experience in the respective roles of foreign banks and FDI, using financial market data assembled by Beck, Demirguç-Kunt, and Levine (1999), and FDI data reported by UNCTAD (1999). The ratios of financial magnitudes to GDP in table 1.12 are compiled for long periods of time, as explained in the table notes. Even so, there is considerable variation between countries. Within the banking sector, foreign banks sometimes play a large role, and sometimes a very small role. In Latin America, for example, the share of foreign bank assets in total bank assets has historically ranged from nearly zero to 30 or 40

82. Debt maturities are often kept short *because* bank lenders fear the worst—a crisis.

83. Nevertheless, as table 1.12 shows, there is considerable variation between countries. For example, within the five Asian crisis countries, the ratio of total bank assets to share market capitalization ranges from 0.40 in Malaysia to 2.72 in Indonesia. In Latin America, the same ratio ranges between 0.54 in Chile to 1.94 in Brazil.

84. Analysis by Levine (2000) also suggests that the world has different "styles" of finance—some dominated by bank finance and others where capital markets play a large role. But by and large the two kinds of financial markets are complements.

Table 1.12 Financial structures in emerging markets

Country	GDP per capita, 1990-95	Bank assets[a]	Market cap[b]	FDI stock[c]	Bank/ market[d]	Bank/ FDI[e]	Foreign bank/ total bank[f]
Five affected Asian countries							
Indonesia	610	0.49	0.18	0.27	2.72	1.83	0.23
South Korea	3,909	0.55	0.37	0.02	1.49	22.36	n.a.
Malaysia	2,629	0.82	2.01	0.28	0.41	2.95	0.06
Philippines	734	0.37	0.52	0.08	0.71	4.86	0.30
Thailand	1,503	0.82	0.57	0.07	1.44	11.17	0.05
Other Asia							
Bangladesh	194	0.31	0.04	0.01	7.75	44.29	0.20
Hong Kong	10,538	1.49	1.96	0.95	0.76	1.56	n.a.
India	385	0.34	0.28	0.01	1.21	26.15	0.06
Nepal	200	0.22	0.05	0.01	4.40	26.40	0.96
Pakistan	436	0.36	0.16	0.07	2.25	5.45	0.20
Sinapore	11,152	0.95	1.37	0.72	0.69	1.33	0.33
Sri Lanka	538	0.27	0.16	0.09	1.69	3.03	n.a.
Latin America							
Argentina	4,039	0.21	0.11	0.08	1.91	2.51	0.16
Barbados	4,777	0.52	0.21	0.11	2.48	4.58	n.a.
Bolivia	755	0.37	n.a.	0.19	n.a.	1.91	0.29
Brazil	2,346	0.32	0.19	0.11	0.38	2.81	0.05
Chile	2,725	0.46	0.84	0.21	0.55	2.15	0.04
Colombia	1,432	0.18	0.13	0.08	1.38	2.22	0.15
Costa Rica	1,867	0.17	0.07	0.27	2.43	0.64	0.05
Ecuador	1,322	0.17	0.10	0.14	1.70	1.18	0.06
Honduras	751	0.25	0.05	0.11	5.00	2.22	0.19
Jamaica	1711	0.28	0.42	0.24	0.67	1.16	n.a.
Mexico	2,952	0.24	0.32	0.10	0.75	2.38	0.01
Panama	1,950	0.58	0.09	0.19	6.44	3.09	0.42
Peru	1,292	0.12	0.11	0.07	1.09	1.68	0.42
Trinidad and Tobago	3,685	0.37	0.12	0.47	3.08	0.79	n.a.
Uruguay	2,514	0.28	n.a.	0.10	n.a.	2.84	0.17
Venezuela	3,167	0.15	0.12	0.08	1.25	1.94	0.24
Middle East							
Cyprus	6,588	0.81	0.22	0.24	3.68	3.45	0.48
Egypt	1,042	0.63	0.10	0.21	6.30	3.06	n.a.
Iran	2,397	0.22	0.04	0.01	5.50	29.33	n.a.
Jordan	1,289	0.71	0.65	0.11	1.09	6.64	n.a.
Tunisia	1,534	0.55	0.10	0.19	5.50	2.86	0.24
Turkey	2,259	0.19	0.14	0.02	1.36	11.73	0.01
Africa							
Ghana	553	0.06	n.a.	0.09	n.a.	0.69	n.a.
Kenya	441	0.29	0.16	0.07	1.81	4.24	0.03
Mauritius	2,125	0.54	0.27	0.05	2.00	10.34	0.03
Nigeria	551	0.11	0.06	0.16	1.83	0.69	0.08
South Africa	2,379	0.66	1.66	0.14	0.40	4.63	0.01
Zimbabwe	804	0.21	0.23	0.04	0.91	5.83	0.62

FDI = foreign direct investment; n.a. = not available

a. Bank assets divided by GDP. The time span for the data ranges from 1960 to 1997.
b. Market capitalization divided by GDP. The time span for the data ranges from 1976 to 1997.
c. Inward FDI stock divided by GDP. The time span for the data rages from 1980 to 1997.
d. Ratio of (Bank assets/GDP) to (Market capitalization/GDP).
e. Ratio of (Bank assets/GDP) to (FDI stock/GDP).
f. Foreign bank assets divided by total bank assets. The time span for the data ranges from 1990 to 1997.

Sources: Demirguç-Kunt and Levine (1999); Beck, Demirguç-Kunt, and Levine (1999); UNCTAD; *World Investment Report,* 1999.

percent (the foreign share in 2000 would be higher than these historical averages). Likewise, extreme ratios are observed between foreign bank assets and FDI stocks. Within the Asian crisis group, for example, the ratio ranges from 1.83 for Indonesia to 22.36 for South Korea.

A cross-section analysis of 59 countries (including industrial countries not shown in table 1.12), shows a regression coefficient of 0.83 between stock market capitalization and bank assets (controlling for GDP per capita), which is consistent with the coefficient reported by Levine and Zervos (1998).[85] However, on the basis of the experience of the 40 emerging economies shown in table 1.12, the regression coefficient between FDI stocks and bank assets (controlling for GDP per capita) is only 0.21, with a standard error of 0.09. This is a much looser relationship.

Foreign Capital Sources as Complements

The data assembled in table 1.4 can be used to portray the correspondence between FDI stock and foreign debt stock in five emerging-economy regions. The results for 1980, 1990, and 1998 are featured in figure 1.1. Although there are only five observations for each year, it is evident that no strong positive or negative correspondence exists between the two forms of foreign asset ownership.

The annual capital flow experience of the five regions during the 1990s, depicted in table 1.3, shows a very mild positive correspondence between portfolio investment and bank activity.[86] Controlling for regional effects, portfolio flows increase $16 for every $100 increase in bank activity. However, FDI flows *decrease* $3 for every $100 increase in bank activity (the coefficient is not significant). Taken together, these coefficients suggest that different types of capital inflow do not strongly complement one another. Similarly, Lane and Milesi-Ferretti (2000) find that the correlation between the portfolio equity stock and the FDI stock in developing countries in 1997 was only 0.07.

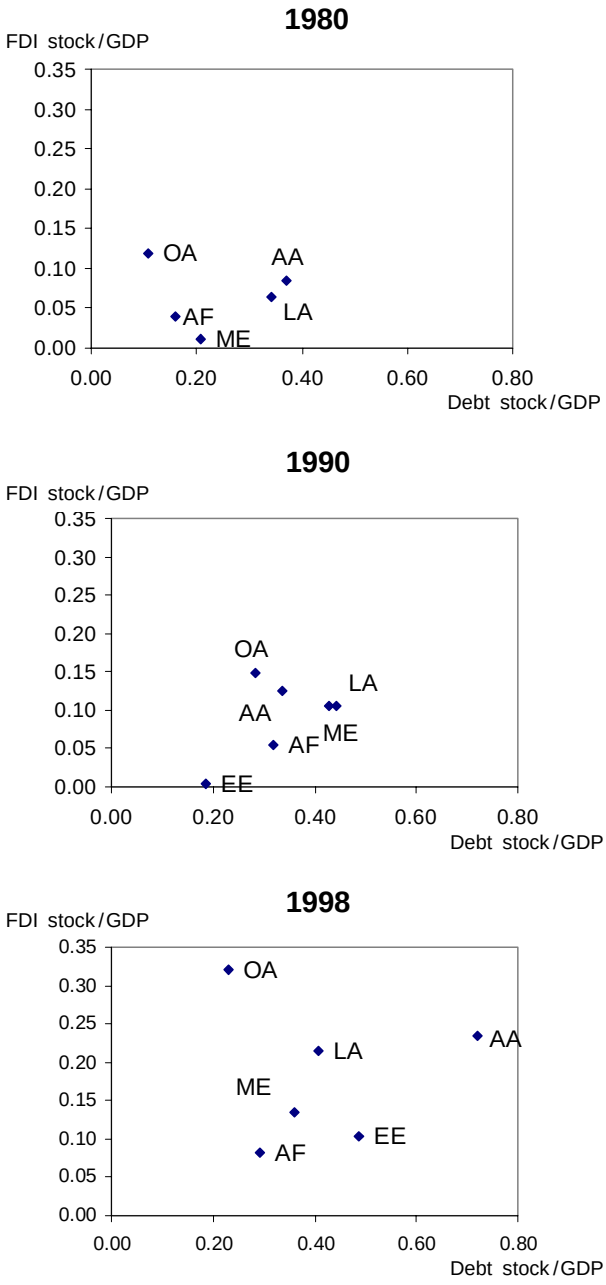
Foreign Capital Sources as Substitutes

If the categories of capital identified in common statistical categories are not complements, are they substitutes? Empirical analysis by Hausmann and Fernandez-Arias (2000) and Lane and Milesi-Ferretti (2000) point to country characteristics that determine both the overall volume of external

85. Although the regression coefficient is significant (with a *t*-value of 3.78), its standard error is 0.22, indicating the distinction between "bank countries" and "capital-market countries."

86. Recall that bank loans and deposits in table 1.3 measure both loans *from* foreign banks and deposits *by* residents of emerging markets in foreign banks.

Figure 1.1 Relation between FDI stock and debt stock by region, 1980, 1990, 1998



AA = Five affected Asian countries; **OA** = Other Asia; **EE** = Emerging European economies; **LA** = Latin America; **ME** = Middle East; **AF** = Africa.

capital and the composition between bank loans, portfolio investment, and FDI. The nature of the characteristics suggests only a limited scope for substitution. Lane and Milesi-Ferreti find that trade openness stimulates all forms of external capital, but favors equity over debt. Trade openness particularly favors FDI. Trade openness, of course, depends on a country's long-term policy choices and its geographical position in the world economy. Hausmann and Fernandez-Arias emphasize, however, that FDI accounts for a particularly large share of external *private* liabilities in poor countries: The unconditional correlation between GDP per capita and the FDI share is –0.41.[87]

The available evidence does not persuasively demonstrate that FDI flows or portfolio investments are ready substitutes for bank finance. Policy measures that discourage bank loans might reduce the overall flow of capital to emerging markets. This could be particularly true in poorly governed, corrupt countries, where portfolio and foreign direct investors fear they will be taken to the cleaners (Smarzynska and Wei 2000; Wei 2000). But the available evidence also appears to suggest that, with appropriate incentives, financial institutions might shape capital flows in ways better suited to the long-term needs of emerging markets.

Two pieces of evidence can be cited for this suggestion. First, in their analysis of capital flows between the mid-1970s and 1992 to five industrial countries and five emerging markets, Claessens, Dooley, and Warner (1995) examined time series of different types of capital flows (bank loans, FDI, portfolio equity, long-term debt, and short-term debt). They concluded that the *share* of inflows corresponding to each type made no difference to the overall *level* of capital inflows reaching the destination country.

Second, there is the famous Chilean "policy experiment" with capital controls during the 1990s. Starting in 1990, Chile imposed an unremunerated reserve requirement (URR) on short-term capital inflows in hopes of dampening the total volume of foreign capital reaching the country. Chile's URR policy was not hugely successful in meeting its primary objective. However, De Gregorio, Edwards, and Valdes (2000), and Edwards (2000a) conclude that the URR shifted the structure of incoming capital toward longer-term lending—without affecting much the overall volume of foreign lending.

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87. The share of FDI in *total* external liabilities (public and private) does not vary with the level of per capita GDP. Hausmann and Fernandez-Arias's (2000) analysis applies only to the share of FDI in *private* external liabilities. In their view, FDI should not be attributed with better characteristics than other kinds of capital inflows. It is just that poor countries must rely to a greater extent on FDI. Albuquerque (2000) makes the related argument that FDI will be a larger share of external private capital for countries with poor credit risk. Note that Lane and Milesi-Ferretti (2000) find that FDI is a smaller share of external *private* liabilities for larger countries. This suggests that larger countries (regardless of per capita GDP level) have an easier time attracting bank loans and portfolio investment.

Of course, loans with different maturity terms (short-term vs. long-term) are closer substitutes than, for example, bank loans and portfolio investment, or bank loans and FDI. The extent of substitution under *existing* institutional arrangements requires more investigation.[88] Additional research is needed to determine the extent of capital-market substitution that might emerge with *different* institutional features. Pending this research, we are "substitution optimists." We believe appropriate configurations of incentives in G-10 financial markets and emerging-market nations can shift the supply toward longer-term, less volatile flows.

Supply-side incentives within the G-10 countries can alter the terms of available capital flows from world financial centers. Such incentives, if put in place for a period of time can, we think, also alter institutional features in emerging markets. For example, proper incentives on the supply side can encourage destination countries to foster local stock exchanges and welcome foreign direct investment. Conversely, improper incentives on the supply side can make bank loans the cheapest, most accessible source of foreign capital—-and thereby lay the foundation for future financial turmoil.

88. As Michael Dooley points out (personal communication), if moral hazard provides a common impetus for two different categories of capital flow (e.g., interbank loans and syndicated loans), policy measures to curtail moral hazard will diminish flows in both categories.