

INTERNATIONAL FINANCIAL INTEGRATION AND DEVELOPING COUNTRIES

Globalization of the world economy has been driven by a variety of forces: rising trade in goods, increasing international capital flows, greater technological spillovers, and growing labor mobility. This chapter examines the increase in capital movement and, in particular, the impact of international financial integration on developing countries. Views on this issue have changed since the early 1990s, when international financial deregulation, and the associated capital flows from industrial to developing countries, appeared to be fueling faster growth and catch-up. A series of financial crises, starting with industrial countries in the European Exchange Rate Mechanism (ERM) in 1992 and 1993 but then moving on in a significantly more virulent form to developing countries with the 1995 Tequila crisis in Mexico, the Asian crisis of 1997–98, and the Russian and Latin American crises in 1998–2000, have made clear that international capital flows have risks as well as benefits.

Opening the financial market to the rest of the world is a complex and often long-drawn out process that involves lifting restrictions on foreign direct investment (FDI) flows and long- and short-term financial instruments. The bulk of this chapter assesses the net benefits to output of international financial market integration, focusing on the channels through which capital flows from industrial to developing countries might affect economic activity in the recipient countries. The remaining part of the chapter describes the lessons learned from sequencing. On the positive side, less restrictive capital controls and higher international capital flows can increase investment possibilities, create technology spillovers, and deepen domestic capital markets. However, they can also create instability by leaving countries open to sudden reversals in capital flows. This risk can increase if domestic macroeconomic and financial policies are weak or in-

consistent, or if financial systems are not sufficiently developed to cope with large capital flows.

The chapter first documents the increase in financial integration over the last three decades, using two complementary measures of capital account liberalization, one of which has not been widely applied in previous analysis. These measures indicate that the industrial countries liberalized their capital accounts early on whereas in the developing countries the shift toward capital account liberalization in general was slow, but quickened in the early 1990s. These indicators are then used to examine whether countries with more open capital accounts have had a better economic performance than countries with more restrictive capital accounts. The analysis reveals a weak relationship between growth and capital account liberalization and, like other studies, has difficulty finding evidence of a significant relationship. That said, work using the new measure of openness suggests that it is possible to identify a significant impact from capital account liberalization on investment and financial development (as well as positive spillover from FDI to growth in countries with adequate human capital). The effect of a “typical” liberalization through these two channels is estimated to increase growth by $\frac{1}{2}$ percent a year or more. But, opening up the capital account can also entail costs if it is not sequenced and implemented appropriately, particularly when the institutional framework is weak. This helps to explain the weaker direct relationship between liberalization and growth.

Prior to analyzing these issues in more detail, some definitions of key concepts are needed. First, in this chapter, international financial liberalization—or opening the capital account—will be simply referred to as liberalization, while the level of such integration will be referred to as openness. Both concepts refer to the degree

to which restrictions on financial transactions based upon citizenship or residency, or related to cross-border transactions, have been eliminated.¹ Second, domestic financial liberalization, which relates to the reduction of distortions in the domestic financial system, will be referred to as domestic liberalization. While both forms of liberalization are important and often go hand in hand, the focus of this chapter is on the effects of international financial liberalization.

Trends in Capital Account Liberalization and Capital Flows

Generally speaking, the increasing financial links across countries, and especially between industrial and developing countries, have been associated with the liberalization of both international and domestic financial markets. This section describes the trends in capital account liberalization and the associated rapid growth of international capital flows.²

Before reviewing the experience over the last 30 years, two lessons from history are worth noting. First, at a general level, openness to trade and, to a somewhat lesser extent, open financial markets have been associated with higher growth and greater convergence across regions. The collapse of international trade and capital flows in the interwar period involved slow growth and little convergence. By contrast, the period since 1950, which has seen rapid opening of trade and financial markets, has had high rates of growth and some convergence, although progress was most rapid in the early part of the period, when trade links were growing fastest.³ Second, the liberalized capital markets that were a feature of

the pre-1914 classical gold standard supported relatively larger capital flows than today, but had international financial crises that were, if anything, somewhat less frequent and less disruptive of output than those since 1973 (Bordo and others, 2001). The relatively greater stability before World War I appears to reflect the large degree of credibility of domestic policies associated with the gold standard, greater ties in terms of heritage between Britain (the major lender) and many of the important borrowers, and the fact that much of the money was used to finance railroads and other infrastructure, which was easily monitored and directly used in producing exports and hence earning foreign currency.

Since 1970, the experience of developing countries with capital account liberalization has differed dramatically from that of the industrial countries. Nevertheless, researchers face a common problem in both industrial and developing countries when attempting to measure financial openness (see Box 4.1). Liberalization involves a complex process of reducing controls across a wide array of assets. There are large differences in the nature, the intensity, and the effectiveness of the various impediments governments have put into place to limit the movement of cross-border capital flows. Consequently, there are often large gaps between the ideal set of indicators and the measures that are available in practice (see Eichengreen, 2001).

This chapter uses two indicators derived from different methodologies to measure capital account liberalization. Most formal empirical work analyzing the impact of capital account liberalization has used a *restriction* measure based on the restrictions on capital flows as reported to

¹It should be noted that the use of the words “capital account” is inconsistent with the terminology in the 1993 System of National Accounts, which switched the name from capital account to financial account. To avoid confusion, this chapter uses the older and more generally understood term.

²Most of the analysis in this chapter is based on a sample of 55 developing countries listed in Table 4.2 (as well as, in some cases, 20 industrial countries). Because of data limitations, the reported regression analysis reports results for 38 developing countries. Given the long period over which the analysis is conducted, several countries currently defined as industrial (Cyprus, Israel, Korea, and Singapore) are included with developing country group. The following countries were excluded: countries with a population below 500,000 people, Heavily Indebted Poor Countries (which mostly receive official flows), and transition economies (partly due to lack of data). For recent studies of the HICPs and of the transition economies, see the *World Economic Outlook* May 2000 and *World Economic Outlook* October 2000, respectively.

³See *World Economic Outlook*, May 2000; and O’Rourke (2001).

Box 4.1. Measuring Capital Account Liberalization

Assessing international capital account liberalization is complex, largely reflecting the difficulty in quantifying the extent and the effectiveness of capital controls. No fully satisfactory measure is available, which puts a premium on examining the results from alternative indicators. This chapter uses two measures derived from different methodologies to measure the effectiveness of capital controls. The first, used in most previous analysis of liberalization, is a *restriction* measure, constructed as an on/off indicator of the existence of rules/restrictions that inhibit cross-border capital flows or discriminate on the basis of citizenship or residence of transacting agents. The second and complementary indicator of capital account integration used in this chapter (and only recently available) is a measure of *openness* that is based on the estimated stocks of gross foreign assets and liabilities as a ratio to GDP.

The measure of restrictions comes from the International Monetary Fund's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER).¹ This publication provides a written description of current controls and, since 1967, on/off indicators of the presence or absence of restrictions on the current and capital account. Most studies focus on the indicator measuring restrictions on payments for capital transactions, the only measure that focuses on the capital account.² In 1996, however, the presentation was changed to a new system, which contains more detail on capital account restrictions, but is not backwardly compatible with the earlier indicator.

The main difficulty with the restriction measure is that it does not take into account the intensity of the controls, or differentiate across types of restrictions. Recent work has addressed this issue by assessing the intensity of enforce-

ment of the controls using the narrative information contained in the IMF's AREAER. However, due to the labor-intensive nature of this work, such measures for developing countries are currently only available for a few years in the 1970s and 1980s.³ Other studies have proposed restrictiveness measures for a limited number of countries that focus on controls of international sales and purchases of equities over recent years.⁴ Yet others have used interest rate differentials and forward premium/discount to assess the degree of capital mobility and capital account liberalization (see Frankel and MacArthur, 1988). The relatively small coverage of countries and time periods limits these extended measures of restrictions for broad cross-sectional studies of the impact of capital controls, such as the background study used for this chapter.

The second indicator of capital account liberalization uses gross holdings of international assets and liabilities to measure openness to capital transactions.⁵ This measure looks directly at one of the consequences of liberalization, namely larger ownership of foreign assets in the country and liabilities elsewhere. It applies the same logic as similar variables used to measure domestic financial depth, such as the stock of credit to the private sector as a ratio of GDP, and trade openness, defined as the sum of exports and imports as a ratio to GDP. Stocks of financial assets are a better measure of capital account

³See Quinn (1997). The data on developing countries are limited to three years: 1973, 1982, and 1988.

⁴Henry (2000) and Bekaert and Harvey (2000) compile from a variety of sources dates that countries liberalized their equity markets, while Edison and Warnock (2001) propose a measure that is based on restrictions of foreign ownership of domestic equities, using the ratio of the market capitalization of the country's Global index to the Investable index that is compiled by the International Finance Corporation (IFC) in their Emerging Market Database that is now maintained by Standard and Poor's.

⁵These *openness* measures have not been widely used in the literature. O'Donnell (2001) and Chanda (2000) employ a similar openness measure to the one described in the background study. Kraay (1998) defines openness using the sum of capital inflows and outflows as a ratio of GDP.

¹The first work to employ this dataset was Grilli and Milesi-Ferretti (1995).

²Some researchers supplement this information with the additional external restriction measures available in the AREAER; such as whether there is a separate exchange rate for current account and capital account transactions, whether there are restrictions on payments for current account transactions, whether there is the requirement of surrender or repatriation of export proceeds.

Box 4.1 (concluded)

openness than underlying flows, as they are less subject to temporary disturbances, although by their nature they tend to be a lagging indicator of policy changes. In addition, various sub-components, related to different types of financial transactions, can be analyzed.

The overall openness measure is computed by using the stock measures of both assets and liabilities of FDI and portfolio transactions (the latter encompassing equities and debt transactions).⁶ When interpreting this measure, it is

⁶The underlying stocks are calculated by accumulating the corresponding flows with appropriate valuation adjustments, and were constructed by Lane and Milesi-Ferretti (forthcoming).

important to recognize that cross-border capital movements are influenced by a wide range of policy outcomes and do not reflect barriers alone. For example, these measures are also affected by a range of policies and circumstances such as the stance of monetary and fiscal policy, the size of the domestic economy, and conditions in the rest of the world.

The background study for this chapter uses both measures. In general, the results using the restriction measure are not particularly encouraging. By contrast, as reported in the text, the openness measure and its subcomponents appear to provide more intuitively plausible results both in the raw data and the econometric analysis.

the IMF by national authorities. This indicator directly measures capital controls, and countries are either classified as open or closed. By its nature, however, this measure does not capture differences in the degree of liberalization: for example, a country might liberalize some, but not all, categories of their capital account, and, in accordance with the restriction measure, it could still be labeled as closed. In addition, it is only available until 1995, when a new and more refined measure—not backward compatible—was introduced.

A second and complementary indicator of capital account integration is an *openness* measure (described in Box 4.1), based on the estimated gross stocks of foreign assets and liabilities as a ratio to GDP.⁴ It is inspired by the use of similar variables to measure domestic financial depth, such as the stock of credit to the private sector as a ratio to GDP. The openness measure is created by calculating the gross level of FDI and portfolio assets and liabilities via the accumulation of the corresponding inflows and outflows.⁵ If this gross stock measure is high, it im-

plies that a country is open, in the sense that it is or has been experiencing significant private sector flows to and from the rest of the world.

For both developing and industrial countries, international gross private capital flows have grown markedly, but with considerable variation over time (Figure 4.1). The openness measure has also increased over time, but in a more gradual and backward-looking fashion, as it measures the stock of assets (Figure 4.2). Clearly, however, the openness measure does not just capture the restrictiveness of capital controls, but also the impact of all other factors influencing the level of capital flows, such as the nature of domestic financial markets. In this respect, the openness measure of liberalization is analogous to measuring the trade regime through calculating the ratio of exports and imports to GDP, while the restriction measure of liberalization is similar to measures of trade restrictions in terms of tariff and nontariff barriers.

What do the restriction measure and the openness measure tell us about liberalization over time? In industrial countries the behavior

⁴These underlying stock data were developed and described by Lane and Milesi-Ferretti (forthcoming). A similar measure using the same underlying stock data has been considered by Chanda (2000) and O'Donnell (2001).

⁵Individual country data on stocks of bank loans are too fragmented to be included in the measure.

of the two measures is similar, and confirms that industrial countries have become considerably more open over time. A particularly rapid decline in controls occurred during the 1980s, when the members of the European Community, now the European Union, liberalized capital controls. Following this, there was a dramatic rise in cross-border capital flows. Based on the openness measure, the top four most open industrial countries have been: Canada, Netherlands, Switzerland, and the United Kingdom.

In developing countries, the story is more complex. In general, both measures suggest a less dramatic shift toward liberalization and openness than in industrial countries. The following points are worth noting:

- For the developing countries as a whole, the restriction measure suggests that, after a period of liberalization in the 1970s, the trend toward openness reversed in the 1980s. Liberalization resumed in the early 1990s, but the pace has been relatively slow; the measure indicates that the current level of the indicator on average is only at the same level as it was in the late 1970s.
- The openness measure shows a modest decline in openness to capital flows during the early 1970s, followed by a moderate increase in the 1980s, which accelerated sharply in the early 1990s. While the most recent acceleration may reflect a more rapid liberalization than the relatively crude restrictiveness measure suggests, it also reflects the increasing openness of industrial countries, as well as the more general trend toward globalization.

Within developing countries, there have been important differences across regions:

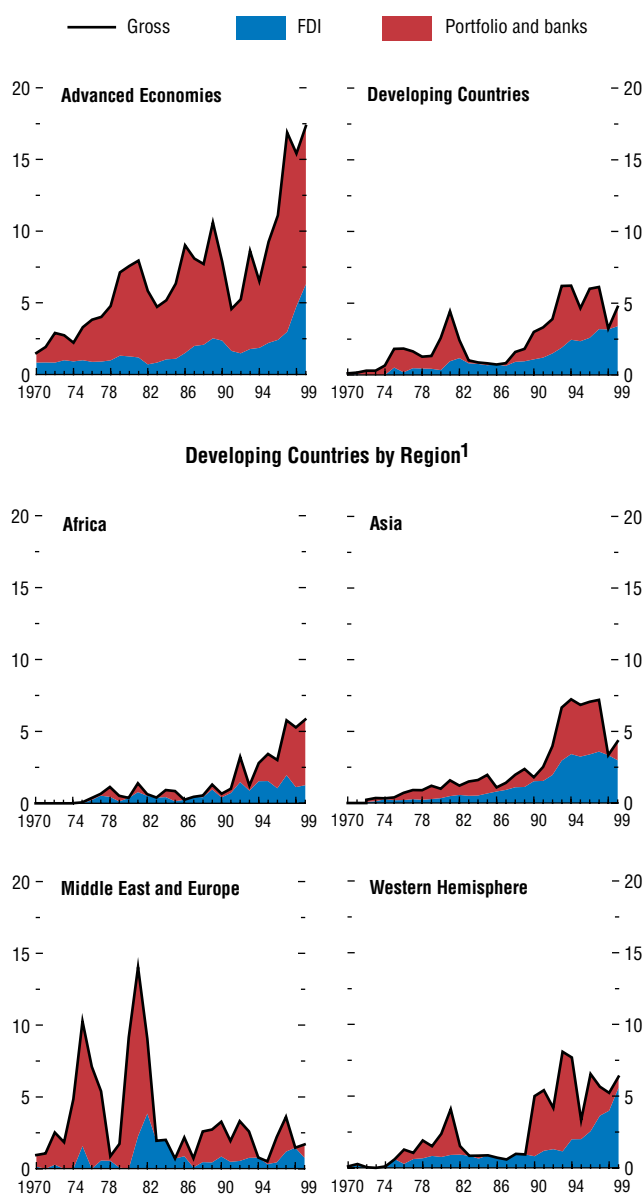
- For *Asia*, there has been an upward trend in the openness measure since the late 1970s, while the restriction measure has changed very little.⁶ While it is probable that the re-

⁶Indonesia and Malaysia are defined as open using the restrictiveness measure from the early 1970s on, while Korea is classified as closed through the end of the sample in 1995.

Figure 4.1. Gross Capital Flows

(Percent of GDP)

Gross capital flows have risen over time, but are also volatile.

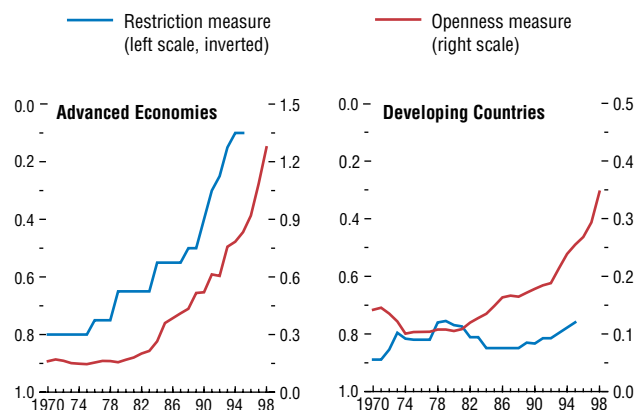


Sources: IMF, *International Financial Statistics*; and IMF staff estimates.

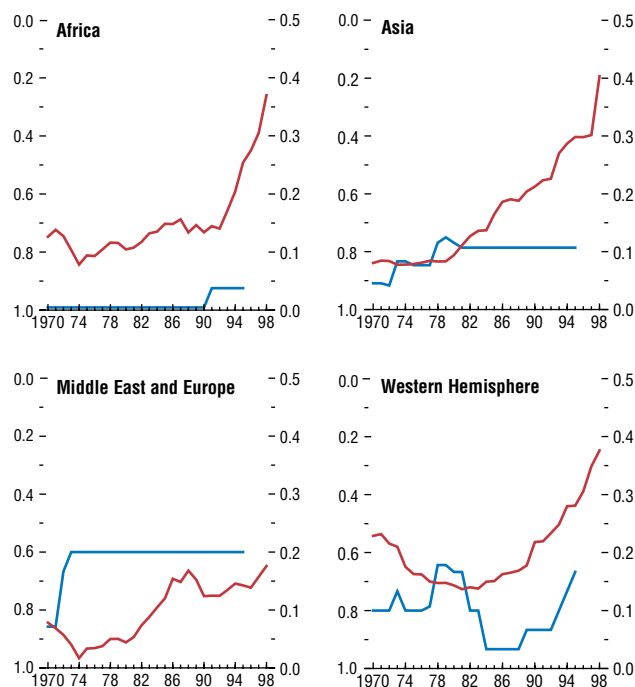
¹For country coverage, see Table 4.2.

Figure 4.2. Summary of Measures of Capital Account Openness¹

The two measures of liberalization show similar overall patterns, but the openness measure points to greater progress in the 1990s.



Developing Countries by Region²



Sources: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions*, various issues; *International Financial Statistics*; and IMF staff calculations.

¹The restriction measure is calculated as the "average" value of the on/off measure for the country group. The openness measure is calculated as the average stock of accumulated capital flows (as percent of GDP) in a country group.

²For country coverage, see Table 4.2.

strictiveness measure underestimates the degree of liberalization, the rapid rise in openness probably also reflects other factors, including the opening up of the Chinese economy, and the rapid development and growth—and associated capital requirements of—the newly industrialized economies and members of the Association of South East Asian Nations (ASEAN). While a substantial proportion of inflows take the form of foreign direct investment, there was a very large increase in portfolio and bank flows in the early 1990s, which ultimately proved unsustainable.

- For *Africa*, both the restriction measure and the openness measure show little change until the early 1990s. The substantial increase in openness in the 1990s is mainly due to events in a limited number of countries. In particular, this has involved large portfolio flows to South Africa, which has the most developed financial markets in the region, as well as large FDI flows to Lesotho and Nigeria, which reflected investments in resource production.
- In the *Middle East and Europe* the restriction index shows some liberalization in the early 1970s, as oil producers such as Oman, Qatar, Saudi Arabia, and the United Arab Emirates lowered restrictions. The openness measure shows a more gradual increase in liberalization. By contrast, gross capital flows spiked with the two oil price hikes, but have stagnated since then.
- For the *Western Hemisphere*, both measures show that, on average, the region was relatively open in the 1970s, with Argentina, Chile, and Mexico having liberalized. The openness of the region led to large bank-based inflows of oil surpluses in the mid- to late 1970s, but many countries then imposed controls in response to outflows during the 1980s debt crisis, sparked by the Mexican crisis in 1982. These capital controls were relatively ineffective, and capital flight continued through most of the "lost decade" until longer-term institutional re-

forms allowed the region to reenter international capital markets at the end of the 1980s. Hence, one of the lessons from the 1980s debt crisis is that imposing capital controls on markets that have been closely linked to the rest of the world may be of limited value in stemming outflows.

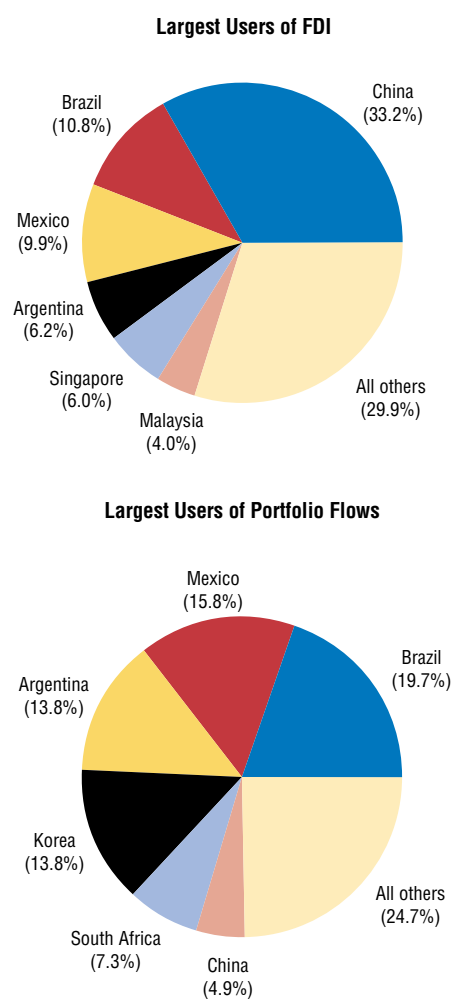
- After the setback of much of the 1980s, Latin American liberalization has continued through the late 1980s and early 1990s. As in Asia, the openness measure shows a much larger increase, fueled by portfolio flows and FDI. The U-shaped pattern observed in the indicators for the Western Hemisphere illustrate the endogeneity inherent in these measures; if the economic performance deteriorates, then a country might impose controls.

Finally, some countries have played a more important role than others in global capital markets over the last three decades. Among the industrial countries, since 1970 the United States and the United Kingdom were both dominant suppliers and users of capital. More generally, the Group of Five (France, Germany, Japan, United Kingdom, and United States) countries were the largest suppliers and users of capital, accounting for about two-thirds of all private capital inflows and outflows. For the developing countries, the bulk of capital flows have been directed toward Asia and Latin America (Figure 4.3). Asia (primarily China) received a higher portion of FDI than other regions, while countries in Latin America received a higher portion of portfolio flows than other regions. These regional differences mirror partly the general history of larger fiscal deficits in Latin America compared with Asia, leading to more floating of government bonds, as well as the earlier development of some capital markets in Latin America. For example, most investments in China are FDI flows, partly because local capital markets are less open and developed. More generally, the figures reflect that countries with relatively liberalized capital accounts receive higher capital flows whereas countries that are more closed receive moderate amounts of capi-

Figure 4.3. Concentration of Capital Flows: Largest Developing Country Users

(Average of 1970–2000)

The largest users of foreign direct investment (FDI) flows are generally in Asia, while portfolio flows are more concentrated in Latin America.



Sources: IMF, *International Financial Statistics*; and IMF staff estimates.

tal flows, mainly in the form of foreign direct investment.⁷

Overall, according to both the restriction and openness measures, most regions of the world today have been opening their capital accounts during the 1980s and 1990s.

The Impact of International Capital Account Liberalization on Growth

The impact of liberalization on growth depends crucially on the initial conditions and policies in the country. From a theoretical perspective, models of perfect markets and full information suggest that liberalization, by allowing a better allocation of resources across countries, benefits both lenders and borrowers and raises growth. In practice, however, this result depends critically on a variety of preconditions, including a supportive and consistent macroeconomic and institutional framework. One example is when liberalization is associated with a government pledge to maintain a pegged exchange rate that is unsustainable in the medium term. As a result of the unsustainable and inconsistent macroeconomic policy, consumers and producers borrow excessively in the short term from the rest of the world to bring forward purchases of (temporarily cheap) foreign goods, creating a domestic boom. When the exchange rate peg eventually collapses, however, domestic demand will collapse and international capital flows will reverse, often accompanied by serious banking system pressures.⁸ A similar story could clearly be told for inadequate financial supervision. This, in a nutshell, is the tension between the benefits and costs of open liberalization. While an open capital account can provide great benefits if the appropriate institutional requirements are in place—notably adequate financial supervision

and consistent macroeconomic policies—it can be destabilizing if they are not.

Financial instability may also affect poverty levels and other social conditions. On the one hand, recent evidence shows that growth is one of the main factors contributing to the reduction of poverty and the improvement of social conditions, so that liberalization can help reduce poverty to the extent it increases the long-run impact on growth. On the other hand, liberalization can be associated with an increase in macroeconomic volatility and the occurrence of crises, which may entail social costs such as worsening income distribution, poverty levels, and health and education conditions. This is because the poor and less educated have very limited access to financial markets to hedge or diversify risk, and are thus hurt disproportionately more by economic contraction and by the frequently associated reduction in public health and education spending.⁹ This points to the value of comprehensive social safety nets to help mitigate the impact of structural changes—including that associated with liberalization—on the population in general and the poor in particular.

Reflecting these considerations, experience with liberalization is quite varied. Hence, identifying “the impact” of capital market opening on growth has been difficult. In many respects, a more fruitful approach is to examine the main channels through which liberalization affects the economy. On the positive side, liberalization will tend to raise investment by supplementing domestic savings, as well as by allowing better risk diversification and greater consumption smoothing. In addition, foreign direct investment flows in particular can provide technology spillovers via the transfer of ideas. The impact on domestic financial intermediation, however, is mixed. Liberalization can improve the domestic finan-

⁷See Johnston and Ryan (1994); and Mody and Murshid (2001). The impact of liberalization on capital flows depends also on timing. When liberalization occurs in tranquil times, capital flows tend to increase, but when liberalization occurs during a crisis, capital flows tend either to not react or to decline—see Edison and Warnock (forthcoming).

⁸On these issues, see Eichengreen and others (1998); and Calvo and Végh (1999).

⁹On these issues, see, for example, Chapter IV in the May 2000 *World Economic Outlook*; Dollar and Kraay (2001); and Asian Development Bank (2001).

cial system over time by strengthening competition, providing access to best practices elsewhere (particularly if foreign financial institutions enter the market), and reducing resources spent on circumventing capital controls. However, excessive inflows facilitated by lax financial supervision, macroeconomic policy inconsistencies, or excessive zeal by foreign investors can overwhelm the ability of the domestic financial system to allocate funds efficiently, leading to future financial and social problems.

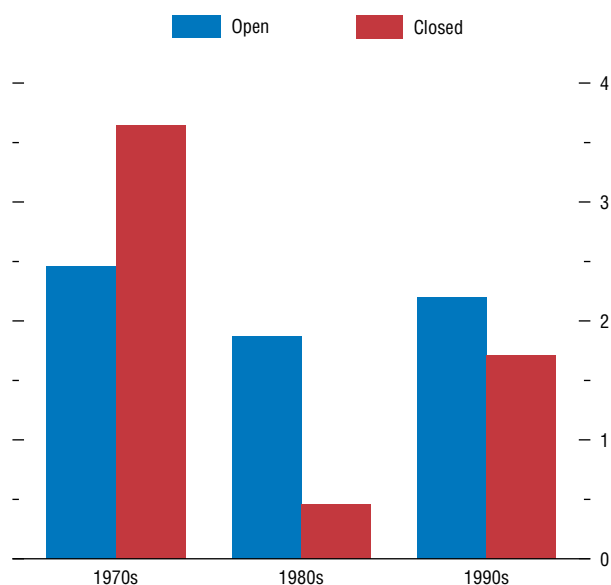
The opening part of this section provides a broad assessment of the relationship between capital market openness and growth, examining the raw data, the existing literature, and the results of a background study carried out by IMF staff and a consultant. The analysis finds a weak positive link between capital account liberalization and economic growth. A similar approach focusing on the channels suggests that capital market openness is linked over time with higher domestic private investment in developing countries, some positive spillovers from FDI, and a boost to domestic financial depth. However, excessive capital inflows can lead to financial instability, so that the net benefits will obviously depend, as already noted, on the strength of the domestic macroeconomic policies and financial structures.

Has Liberalization Led to Higher Growth?

Empirical work finds a weak positive relationship between international capital account liberalization and growth. For example, when countries are classified using the openness measures into open and closed, it appears that countries that are more open to international capital flows tend to grow faster than those countries classified as less open in the 1980s and 1990s (Figure 4.4). In this calculation open developing countries are defined as those whose openness measure exceeds the average value for the entire sample period for both industrial and developing countries, and the remainder are defined as closed. Although such a correlation ignores the numerous other factors that explain growth, and

Figure 4.4. Per Capita Growth by Liberalization in Developing Countries¹
(Percent)

More liberalized countries tended to grow faster in the 1980s and 1990s, according to the openness measure.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.

¹A country is defined as open when its openness measure exceeds the average value for the entire sample period for both industrial and developing countries. The remaining countries are defined as closed. See Table 4.2 for country classification.

Table 4.1. Summary Studies on Capital Account Liberalization and Growth

Study	Number of Countries	Years Covered	Effect on Growth
Alesina, Grilli, and Milesi-Ferretti (1994)	20	1950–89	No effect
Grilli and Milesi-Ferretti (1995)	61	1966–89	No effect
Quinn (1997)	64	1975–89	Positive
Kraay (1998)	117	1985–97	No effect
Rodrik (1998)	95	1975–89	No effect
Klein and Olivei (2000)	92	1986–95	Positive
Chanda (2000)	116	1976–95	Positive
Arteta, Eichengreen, and Wyplosz (2001)	59	1973–92	Mixed
Bekaert, Harvey, and Lundblad (2001)	30	1981–97	Positive
Edwards (2001)	62	1980s	Positive

assumes that liberalized markets affect growth immediately, approaches using more sophisticated statistical models come to similar conclusions.

A growing number of academic studies have examined the relationship between capital account liberalization and growth by adding a measure of such liberalization to the conventional growth model (see Box 4.2). The results from these exercises have been mixed, with about half identifying a significant positive impact and the other half failing to find such a relationship (Table 4.1).¹⁰ Overall, this suggests that liberalization is mildly beneficial for growth.

The wide divergence in results reflects a number of differences across studies. First, the country coverage is different, with some authors analyzing industrial countries, others developing countries, and others a mixture. Second, there are differences in the sample period, which may be particularly important for developing countries given the recent nature of many capital account liberalizations. Third, the applied methodology (cross-sectional, time series, or panel) and the estimation technique (ordinary least squares, instrumental variables, or generalized method of moments) differ across studies. In addition, there are some general drawbacks with the literature that analyzes the relationship between lib-

eralization and growth. The restrictiveness measure of financial controls used in the bulk of these studies is relatively crude. Finally, capital controls are often treated as exogenous to the growth process, but in practice countries with particular macroeconomic and financial characteristics are especially prone to adopt controls, implying the potential for reverse causality.¹¹

To delve into these issues more deeply, IMF staff and a consultant undertook a new study focusing on 38 developing countries over the period 1980 to 1999, using both the restriction measure of liberalization generally included in existing studies and the new openness measure of liberalization discussed earlier (Table 4.2). Particular attention was paid to exploring the results for developing countries using the openness measure, including how openness to portfolio flows and FDI affect the results, and how liberalization interacts with the channels discussed above—domestic investment and spillover, financial depth, and institutional arrangements. Details of the approach are contained in Box 4.2.¹²

On the central issue of the impact of liberalization on growth, the results are supportive of a mildly beneficial impact. The results, reported in Table 4.3, and other regressions using alternative sample periods, can be summarized as follows:

¹⁰For a comprehensive survey see Edison, Klein, Ricci, and Sløk (forthcoming).

¹¹For example, a country with weak economic performance might choose to adopt capital controls and there is a danger in such a case to interpret incorrectly that the country's low growth depends on those controls.

¹²A comprehensive discussion of the results is contained in Edison, Levine, Ricci, and Sløk (forthcoming).

Table 4.2. Openness of the Capital Account
(According to the openness measure)

Algeria	India	Papua New Guinea ^{80,90}
Argentina	Indonesia	Peru
Bangladesh	Israel	Philippines
Botswana ⁸⁰	Jamaica ^{70,80,90}	Saudi Arabia
Brazil	Jordan	Singapore ^{70,80,90}
Chile ⁹⁰	Kenya	South Africa
China	Korea	Sri Lanka
Costa Rica ⁹⁰	Lesotho ⁹⁰	Syrian Arab Republic
Colombia	Malaysia ^{80,90}	Thailand
Dominican Republic	Mauritius	Tunisia ⁹⁰
Ecuador	Mexico ⁹⁰	Trinidad and Tobago ^{70,80,90}
Egypt ⁸⁰	Morocco	Turkey
El Salvador	Namibia ⁹⁰	United Arab Emirates
Gabon ^{70,80}	Nepal	Uruguay
Gambia	Nigeria ^{80,90}	Venezuela ⁹⁰
Guatemala	Oman	Zimbabwe
Haiti	Pakistan	

Note: The table lists the countries identified in the sample and indicates those that are classified as open (according to the openness measure defined in the text) in the 1970s, 1980s, and 1990s. A superscript 70 denotes that the country was open in the 1970s, superscript 80 that it was open in the 1980s, and superscript 90 that it was open in the 1990s. Developing countries in bold (plus Swaziland) were included in the regression sample. Tables and Figures in the text encompass four additional developing countries (Bhutan, Comoros, Cyprus, and Qatar) and 20 industrial countries (Australia, Austria, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States).

- *Increased international financial integration is generally associated with an economically meaningful rise in growth in developing countries, although these effects are generally not statistically significant.* When a developing country liberalizes, moving from a closed to open status, its per capita growth is estimated to rise on average by slightly over ¼ percent per year.¹³ The lack of significance of most of the coefficients presumably reflects the wide diversity of developing country experiences with growth, including the financial instability associated with liberalization in many cases.
- *The growth effects on developing countries come through both FDI and portfolio liberalization.* On further examination, there are some intu-

¹³Liberalization is proxied by a move from one to zero when using the restriction indicator, or by the increase in the average level of the openness measure as a country moves from closed to open. The calculation implies that the overall FDI and portfolio openness measures are assumed to increase by 40, 30, and 10 percent of GDP, respectively, in the move from closed to open. Table 4.2 contains details on the countries defined as open and closed using the openness measure for the 1970s, 1980s, and 1990s.

Table 4.3. Liberalization and Economic Growth for Developing Countries

(Percent change in per capita growth per year)

	Restriction moves from closed to open	Openness moves from closed to open ¹
Overall liberalization	0.3	0.3
FDI liberalization	...	0.2
Portfolio liberalization	...	0.3

Note: Bold indicates significance at the 5 percent confidence level (using a one-tailed test), and italic indicates significance in regressions that account for endogeneity. Control variables are level of income in 1980; level of secondary schooling in 1980; inflation; and government balance. For the details of the analysis see Edison, Levine, Ricci, and Sløk (forthcoming).

¹Overall, FDI, and portfolio openness are assumed to increase by 40, 30, and 10 percent of GDP, respectively. Each change is equivalent to the difference between the average of the corresponding stock for open and closed developing countries (defined as those above and below the average for all countries in the sample).

itive differences in results between the 1980s and 1990s that imply these relationships may have altered over time. While the benefits of FDI liberalization appear to have been higher in the 1990s than in the 1980s, that of portfolio liberalization appears to have been lower, consistent with the financial crises that affected many developing countries with access to portfolio flows during the 1990s.

Channels Linking Capital Account Liberalization with Growth

The debate over the impact of capital account liberalization on growth often reflects differences in the assumed potency of the various channels through which capital account liberalization may occur, including the impact on investment, the existence of technological spillovers, and the ability of the financial system to cope with large inflows. Higher investment, technological spillovers, and deeper financial markets are all associated with higher growth

Box 4.2. The Impact of Capital Account Liberalization on Economic Performance

The background study whose results are reported in this chapter, as with earlier studies, uses a standard growth model (Eichengreen, 2001). This model, which has been widely used to test numerous hypotheses about which factors affect economic growth, relates real per capita GDP growth to initial per capita GDP (to capture the convergence effect), and various other conditioning variables.¹ In the background study, a relatively standard set of such variables were included: the initial level of education attainment (proxying the level of human capital), a measure of the government surplus as a share of GDP, and a measure of average inflation (both controlling for macroeconomic stability).² Some studies also include real investment as an explanatory variable of growth, but since investment is a key channel through which capital account liberalization might affect growth, it was not included.

In the background study by IMF staff and a consultant, the basic growth model was estimated using cross-sectional data, averaged over the period 1980–99 (as well as the 1980s and 1990s separately) for a data set consisting of 57 industrial and developing countries.³ All models were estimated with ordinary least squares (OLS) and, to examine causality, instrumental variables (IV).⁴

¹As an illustration of its wide use, Sala-i-Martin (1997) in the paper entitled “I just ran two million regressions” attempts to map which of the numerous variables used in studies variables are most important in determining growth. Other survey studies include Levine and Renelt (1992) and Barro and Sala-i-Martin (1995).

²In some cases the model is augmented for additional factors such as political stability, government corruption, black market exchange rate premium, and trade with the rest of the world.

³The country coverage is given in Table 4.2. Note that, because of the long period covered by the study, three countries currently included in the advanced country group—Israel, Korea, and Singapore—were included in the developing country group.

⁴The instruments are those commonly adopted in the literature: the composition of religious beliefs (share of population embracing catholic, muslim, or other religion), the origin of the legal system (French, German, or English), the latitude, and an index of ethnic diversity developed by Easterly and Levine (1997).

Basic Growth Regression

	Ordinary Level Squares	Instrumental Variables
Level of GDP in 1980	−0.0102 (0.0045)	−0.0058 (0.0037)
Level of schooling in 1980	0.0155 (0.0067)	0.0099 (0.0064)
Government balance (percent of GDP)	0.1220 (0.0660)	0.0829 (0.1220)
Inflation	−0.0154 (0.0094)	−0.0309 (0.0145)
R^2	0.2861	0.1617

Note: The coefficient is reported, with standard errors in parenthesis.

The Table shows that in the basic growth model the control variables are generally statistically significant.

Building upon this model, five aspects of the relationship between capital account liberalization and economic performance were examined using a variety of dependent and independent variables. The results presented in the text tables are derived as follows:⁵

- *The overall impact of capital account liberalization on growth.* The basic growth model was extended by including either the IMF restriction measure or the openness measure (see Box 4.1). The end of the period was used for openness, given that the stock of foreign assets as a ratio to GDP is a somewhat backward-looking measure of liberalization (average values give very similar results). The two components of the last measure—FDI openness and portfolio openness—were also tested separately. For all countries and for all measures the results were positive, but generally not significant.
- *The impact of capital account liberalization on private investment.* In these regressions, private investment as a ratio to GDP was introduced as the dependent variable instead of real per capita growth. The control variables were kept

⁵For the details of the statistical analysis, see Edison, Levine, Ricci, and Sløk (forthcoming).

the same, as the key source of growth in the Solow growth model that underlies the empirical specification is investment. Overall, the results show that there are relatively strong positive links between liberalization and private investment.

- *The impact of capital account liberalization on technology transfers to developing countries.* To test the impact of FDI spillovers, three additional variables were added to the basic growth model—private investment (to eliminate the benefits of FDI through this channel), FDI openness (measured both as stocks and as flows), and the interaction of FDI with human capital. The interaction term can be used to measure the impact of human capital on FDI spillovers that are not connected with private investment. The results suggest that higher levels of human capital raise the benefits from opening up to FDI.
- *The impact of capital account liberalization on financial development.* In these regressions, measures of financial development were substi-

tuted for growth in the specification. In one regression, private sector credit and a ratio to GDP was used and, in another, stock market turnover as a ratio to GDP. The regressions generally support a significant link from liberalization to financial development.

- *The role of institutions when opening the capital account.* This was examined by successively adding into the basic growth regression various variables capturing the quality of the institutional and policy environment, as well as interaction terms between such variables and capital flows into the basic growth model. The institutional and policy variables are: a measure of law and order, the two measures of financial development discussed earlier, and fiscal balance as a ratio to GDP. The impact of the institutional environment on the benefits of liberalization can then be measured through the interaction terms. As in the case of the overall impact of liberalization on growth, the coefficients are generally correctly signed but not statistically significant.

(King and Levine, 1993). Financial crises are associated with generally temporary, but often large, losses in output (Barro, 2001).

Does Capital Account Liberalization Promote Domestic Investment?

Greater access to foreign saving associated with opening the capital account generally leads to greater capital inflows and—if these flows are managed appropriately—more investment and higher growth. This is particularly true for poorer countries and for “greenfield” FDI, in which a company is starting a new enterprise from scratch. By contrast, the impact on investment in industrial countries is likely to be much more muted, as they have continuous access to capital markets and most FDI flows involve the purchase of an existing enterprise.

Simple comparisons of investment rates across developing countries indicate that openness is indeed generally associated with higher domestic

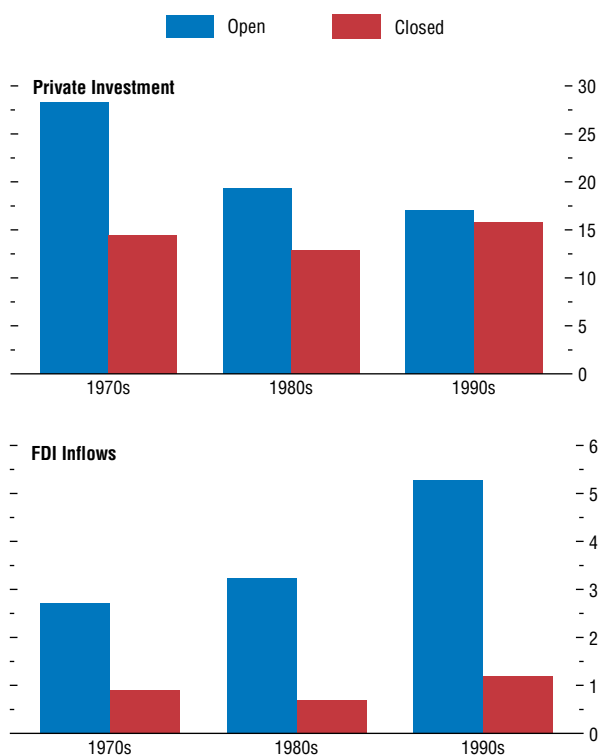
investment and hence somewhat higher growth. More liberalized economies have investment ratios that are higher than closed economies (Figure 4.5) and this behavior is associated with higher FDI inflows (including many relatively poor economies with open capital accounts, which typically rely primarily on FDI inflows—Box 4.3). Of course, some of this correlation may reflect other characteristics—open countries also tend to be richer and often have more stable macroeconomic environments.

Recent academic studies that control for such factors confirm a positive association between *capital inflows* and investment, although some authors have found that this effect has declined during the 1990s. Some of these studies focus specifically on FDI inflows, while others examine the strength of this relationship for various categories of inflows (see Bosworth and Collins, 1999). The evidence across a wide range of developing country groups indicates that all forms

Figure 4.5. Private Investment and Foreign Direct Investment (FDI) Inflows by Liberalization in Developing Countries¹

(Percent of GDP)

Open economies tended to invest more, and attracted more FDI flows, according to the openness measure.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.

¹A country is defined as open when its openness measure exceeds the average value for the entire sample period for both industrial and developing countries. The remaining countries are defined as closed. See Table 4.2 for country classification.

Table 4.4. Liberalization and Private Investment for Developing Countries

(Investment as a ratio to GDP)

	Restriction moves from closed to open	Openness moves from closed to open ¹
Overall liberalization	1.2	1.9
FDI liberalization	...	1.9
Portfolio liberalization	...	1.0

Note: Bold indicates significance at the 5 percent confidence level (using a one-tailed test), and italic indicates significance in regressions that account for endogeneity. Control variables are level of income in 1980; level of secondary schooling in 1980; inflation; and government balance. For the details of the analysis, see Edison, Levine, Ricci, and Sløk (forthcoming).

¹Overall, FDI, and portfolio openness are assumed to increase by 40, 30, and 10 percent of GDP, respectively. Each change is equivalent to the difference between the average of the corresponding stock for open and closed developing countries (defined as those above and below the average for all countries in the sample).

of capital inflows can increase investment, but that this is particularly true of FDI flows (for a recent survey of this literature, see the World Bank, 2001).

The impact of capital account liberalization on domestic investment has received less attention in the academic literature (see Henry, 2000). The results from the background study indicate that liberalization is associated with higher domestic investment in developing countries, particularly when the openness measure for FDI is used (Table 4.4).¹⁴ Increasing the openness measure by the average gap between countries defined as closed and open is associated with a rise in the private investment ratio of about 2 percentage points of GDP, somewhat larger than the effect implied by the restrictions measure.¹⁵ These openness coefficients are in general significant and, with the exception of the FDI measure, the estimates using instrumental variables indicate that the relationship appears to be causal, implying that liberalization increases investment ratios. Using a standard coefficient be-

¹⁴The background study examined this issue using a similar approach to that taken to examine the impact on growth, but with the ratio of private investment to GDP replacing economic growth as the dependent variable.

¹⁵Results using total investment indicate a somewhat larger impact, with similar results in terms of significance and causality.

Box 4.3. Foreign Direct Investment and the Poorer Countries

Foreign direct investment (FDI) flows provide one mechanism for helping to integrate poorer countries into the global economy. Such flows have become increasingly important over the past decade and offer considerable promise for boosting economic performance.

As shown in the Table, FDI flows to all developing countries increased by more than six-fold between 1986–90 and 1996–99. FDI flows to the 49 countries classified by the United Nations as least developed countries, rose by a similar factor—from an annual average of just \$0.6 billion to \$3.6 billion over the same period. In contrast, official development assistance, traditionally the major source of capital financing for the least developed countries, has declined over the past decade. While FDI continues to flow mainly between advanced economies, the share to poorer countries rose modestly in the 1990s.¹ More important, FDI inflows are often large relative to the size of economies of the least developed countries. During 1997–99, these inflows averaged 8 percent of gross fixed capital formation for all least developed countries, and for six of these countries, exceeded 30 percent of fixed capital formation.

Though still concentrated, FDI flows to poorer countries, have become increasingly dispersed. During 1996–99, 10 countries received 74 percent of the total flows to the 49 least developed countries, compared with 84 percent during 1991–95 and 92 percent during 1986–1990.² Countries such as Cambodia, Mozambique, and Uganda were able to join the group of top recipients, following substantial changes in their economic and/or political environments. Moreover, while a significant share of FDI remains in natural resources, investments in other sectors have also become more important.

¹This share rose from just 0.4 percent in the late 1980s to 0.8 percent in the early 1990s. It declined somewhat to 0.6 percent during 1996–99 as flows to advanced economies surged.

²The least developed countries with the largest FDI inflows during 1996–99 were Angola, Cambodia, Ethiopia, Lesotho, Mozambique, Myanmar, Sudan, Tanzania, Uganda, and Zambia.

FDI and ODA Flows

(Billions of U.S. dollars, annual averages)

	1986–90	1991–95	1996–99
Foreign direct investment			
World	160.9	229.1	641.8
Developed	133.0	149.8	459.7
All developing	27.9	79.3	182.2
Least developed	0.6	1.8	3.6
Official development assistance			
Least developed	13.9	16.6	12.7

Source: UNCTAD, *FDI in Least Developed Countries at a Glance* (April 2001), Figure 2, pp. 2 and Table 3, pp. 8.

For example, most of the inward FDI stock in Cambodia and Uganda is in manufacturing, while most of the stock in Cape Verde and Nepal is in services.

Growing FDI inflows promise a variety of potential benefits to poor country recipients. FDI flows could provide a relatively stable and growing source of finance for poorer countries, and they have tended to be considerably less volatile than other types of capital inflows for middle- and high-income countries. Notably, FDI flows stagnated, but did not collapse during the recent financial crises.³

How do FDI flows affect recipient countries?

- FDI inflows tend to raise domestic investment, including in low-income and sub-Saharan African countries. While the link between capital inflows and investment may have weakened during the 1990s, this is probably due to shifts within FDI, toward mergers and acquisitions instead of “greenfield” investments (i.e., a firm started from scratch), and thus is less relevant for poorer countries where mergers and acquisitions account for less than 10 percent of direct investments.⁴
- Multinational corporations tend to pay higher wages than domestic enterprises and can offer valuable training opportunities to workers.

³See for example, Mody and Murshid (2001); and Wei (2001).

⁴See for example, Bosworth and Collins (1999); Mody and Murshid (2001); and United Nations Conference on Trade and Development, or UNCTAD (2000).

Box 4.3 (concluded)

- Multinational corporations can also promote the transfer of technology, with possible spillovers to domestic firms. However, empirical evidence on such transfers or spillovers is mixed (for a recent review, see Hanson, 2001).
 - Evidence on economic growth is also mixed. Some studies find a positive relationship only for countries above a minimum “threshold” of absorptive capacity—measured by education of the workforce, capital infrastructure or other development indicators.⁵ By promoting investment in poorer countries, FDI can help move them closer to this threshold. Recent analyses find that those developing countries with stronger policy environments attract a larger share of the total FDI flow to developing countries, while higher levels of corruption act as a deterrent. These factors are likely to be particularly important for countries hoping to attract flows outside of the natural resource sector, given the greater range of alternative locations. Many countries compete to attract FDI flows using a range of financial incentives. However, such incentives can significantly reduce the benefits from FDI flows accruing to the domestic economy—for example, through foregone tax revenues and increased distortions. Their role in attracting multinational corporations is unclear.⁶ Some examples of poorer countries that have recently attracted increased FDI inflows, based on improved structural and macroeconomic performance are:
 - *Uganda*, where FDI inflows began to grow in 1993, averaging \$182 million per year during 1997–99, or nearly 20 percent of gross fixed capital formation. The sectoral distribution of FDI has been quite diverse, with 52 percent of the 1998 stock allocated to manufacturing, 35 percent to services (including transport and telecommunications) and 13 percent to the primary sector. Uganda was one of the first countries to benefit from the Initiative for the Heavily Indebted Poor Countries (or HIPC Initiative) reflecting its commitment to sound macroeconomic policy since 1987, including private-sector led development and poverty reduction.
 - *Bolivia*, which was also an early HIPC participant, saw its FDI flows rise after a successful program to eliminate a hyperinflation in 1985, followed by ongoing structural reform. From minimal levels in the late 1980s, FDI flows grew to an average of \$818 million a year during 1996–99. At the same time domestic gross fixed capital formation increased considerably. FDI inflows remained high in 1999 despite short-term macroeconomic difficulties.
 - *Bangladesh*, where FDI inflows surged from minimal levels before 1995 to an annual average of \$170 million during 1996–99 (about 4 percent of domestic investment). This growth followed a program of macroeconomic policy reforms undertaken since the early 1990s, and moves more recently to encourage (domestic and foreign) private investment. The FDI flows have been allocated to the energy sector (especially gas and power), to manufacturing (textiles, garments and electronics), and to transportation and telecommunications services.
- ⁵For example, see Borensztein, De Gregorio, and Lee (1998); and Eichengreen (2001).
⁶See Hanson (2001); Wei (2001); and UNCTAD (1996).

tween investment and growth would indicate that this increase in the investment ratio would raise growth by 0.3 percent a year.

Does Capital Account Liberalization Promote Technology Spillovers?

A second channel through which capital account liberalization can have a positive impact is

through technology spillovers. These spillovers are most clear in the case of foreign direct investment, especially through foreign firms incorporating new technologies in their subsidiaries. As new technologies are generally developed and adapted by firms in industrial countries, foreign direct investment may be the most efficient way for developing economies to

gain access to them. In addition, this knowledge may become more widely available in the country over time, as employees with experience in the techniques used in foreign companies switch to other firms. Finally, foreign investment could increase competition in the host-country industry, and hence force local firms to become more productive by adopting more efficient methods or by investing in human and/or physical capital.

Recent analyses using macroeconomic data suggest that FDI can have a positive impact on growth, particularly when the receiving country has a highly educated workforce, allowing it to exploit FDI spillovers (Borensztein, De Gregorio, and Lee, 1998). In a similar vein, other studies have found that FDI spillovers are greatest in richer countries, while in poor countries the technologies being used are often less attuned to the needs of the economy, limiting the benefits from technological spillovers (the mining industry is often a good example of this type of effect; see Blomström, Lipsey, and Zejan, 1994). The evidence on spillovers between foreign-owned and domestic-owned firms is less clear-cut. While studies find that sectors with a higher degree of foreign ownership exhibit faster productivity growth, firm-level data provide little evidence of spillovers (Aitken and Harrison, 1999; and Blomström, 1986).

The background study confirmed existing results that FDI spillovers appear to depend on human capital. The results in Table 4.5 indicate that higher levels of human capital raise the benefits from FDI liberalization and flows. For a country with a high level of human capital, such as Korea, increasing the openness measure by the average gap between closed and open economies can raise growth by as much as a quarter of a percent a year. Further, in both cases this relationship appears to be causal, which is important given the highly endogenous nature of FDI openness and human capital. Slightly more than two-thirds of the countries in the sample have sufficient human capital to gain (to varying degrees) from such spillovers.

Table 4.5. Liberalization and FDI Spillovers for Developing Countries

(Percent change in per capita growth per year)

	FDI openness rises by 30 percent of GDP	Gross FDI flows rise by 3 percent of GDP
FDI term	<i>-1.87</i>	<i>-1.88</i>
Interaction between FDI and human capital	<i>0.50</i>	<i>0.48</i>
Percentage of countries benefiting from FDI spillover	71	68

Note: Bold indicates significance at the 5 percent confidence level (using a one-tailed test), and italic indicates significance in regressions that account for endogeneity. Control variables are level of income in 1980; level of secondary schooling in 1980; inflation; and government balance. Three additional variables were added to the basic growth specification—the private investment ratio, FDI openness (or actual FDI flows), and the interaction of FDI with human capital. Adding private investment (which is highly significant) eliminates the direct impact of FDI through capital formation, so that the coefficients of FDI and its interaction with human capital measure the spillover effects of FDI on growth. For details of the analysis see Edison, Levine, Ricci, and Sløk (forthcoming).

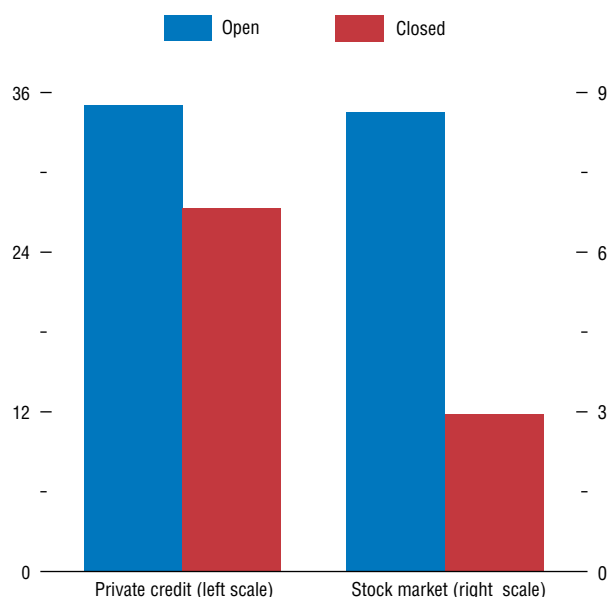
Capital Account Liberalization and Domestic Financial Development

The interaction between capital account liberalization and financial development is a double-edged sword, holding out the promise of medium-term benefits to growth through deeper domestic capital markets, but also carrying the risk of severe financial difficulties if the appropriate institutional framework is not in place. On the positive side, liberalization associated with steady inflows of capital can gradually deepen domestic financial systems, particularly when control on foreign ownership of banks is relaxed (see Chapter 5 in IMF, 2000). For example, in Latin America, foreign involvement in banking systems increased dramatically in the 1990s, particularly in Argentina and Mexico, which resulted in higher levels of financial development. In addition, greater foreign ownership of the banking sector may actually help reduce a country's vulnerability to financial contagion. International banks with their large capital base and geographically diversified operations may be less susceptible to a domestic bank run or financial panic and may serve as a safe haven for local depositors. There is also ample evidence at the firm, sector, and

Figure 4.6. Financial Development by Liberalization in Developing Countries¹

(Percent of GDP)

Open economies generally have greater domestic financial development, according to the openness measure.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.

¹A country is defined as open when its openness measure exceeds the average value for the entire sample period for both industrial and developing countries. The remaining countries are defined as closed. See Table 4.2 for country classification.

macroeconomic level that a deeper and more efficient financial system can, in turn, raise growth through more efficiently allocating resources among competing projects.¹⁶

Does Liberalization Benefit Domestic Financial Depth in the Medium Term?

There does appear to be a positive long-term correlation between financial depth and capital account openness, presumably reflecting, at least in part, the fact that domestic and international financial market deregulation are often carried out in tandem (Williamson and Mahar, 1998). Figure 4.6 illustrates the relationship between openness and two measures of financial development that have been linked to higher growth in past analysis—the value of credit to the private sector as a ratio of GDP and stock market turnover (as the ratio of total stock market turnover to GDP). For both measures there is a strong positive correlation, partly reflecting joint characteristics, such as richer countries tend to have more open international financial markets and deeper domestic financial markets.

The existing academic literature, which takes account of other factors, such as income per capita, confirms that capital account liberalization is associated with financial development in the longer term. For example, one recent study found that countries with open capital accounts enjoy a significantly greater increase in financial depth than countries that maintain capital account restrictions, although this link appears to be closest for industrial countries (see Klein and Olivei, 2000; and Bailliu, 2000). Other work, focusing on large emerging market economies, finds that stock markets become larger and more liquid after the capital account is opened (see Levine and Zervos, 1998; and Henry, 2000).

Further evidence of a positive link was found in the background study. The results suggest

¹⁶For firm level evidence, see Demirgüç-Kunt and Maksimovic (1998); for industry-level evidence, Rajan and Zingales (1998); for cross-country evidence, Beck, Levine, and Loayza (2000).

Table 4.6. Liberalization and Domestic Financial Development for Developing Countries*(Percentage increase)*

	Restriction moves from closed to open	Openness moves from closed to open ¹
Private credit ²		
Overall liberalization	35.8	19
FDI liberalization	...	15
Portfolio liberalization	...	12
Stock market turnover ²		
Overall liberalization	54.7	90
FDI liberalization	...	86
Portfolio liberalization	...	40

Note: Bold indicates significance at the 5 percent confidence level (using a one-tailed test), and italic indicates significance in regressions that account for endogeneity. Control variables are level of income in 1980; level of secondary schooling in 1980; inflation; and government balance. For the details of the analysis see Edison, Levine, Ricci, and Sløk (forthcoming).

¹Overall, FDI, and portfolio openness are assumed to increase by 40, 30, and 10 percent of GDP, respectively. Each change is equivalent to the difference between the average of the corresponding stock for open and closed developing countries (defined as those above and below the average for all countries in the sample).

²As a ratio to GDP.

that liberalization has large and (in the case of the openness measure) significant effects on both measures of domestic financial depth. For example, increasing the openness measure by the average gap between a closed and open economy raises private credit as a ratio to GDP by 20 percent and almost doubles stock market turnover (Table 4.6). Based on standard estimates of the link between financial deepening and growth, this could raise growth by a quarter of a percent. Turning to the results for portfolio and FDI openness, as expected, the impact on financial deepening of liberalization of portfolio flows appears to be both significant, and, in the case of stock market turnover, causal. Liberalization of foreign direct investment also appears to have a positive impact, although it is not significant. In short, there is suggestive evidence that over longer periods successful liberalization, particularly on the portfolio side, is linked to deeper domestic financial markets.

Financial Instability: The Cost of Liberalization

These potential long-term benefits, however, need to be set against the danger that open international financial markets can also create financial problems, including financial crises, with large output costs. The problems are generally associated both with excessive inflows and outflows and, more generally, the volatility of net capital flows. Figure 4.7 shows that volatility of net capital inflows has increased substantially over time, particularly for countries that experienced more extensive capital account liberalization. The increase in volatility has been more pronounced for portfolio flows than FDI flows, reflecting the more long-term relationship implicit in FDI. Volatility has been particularly high in the 1990s, when many developing countries had recently liberalized. In this decade, higher volatility of capital flows has also been associated with somewhat lower growth (Figure 4.8).

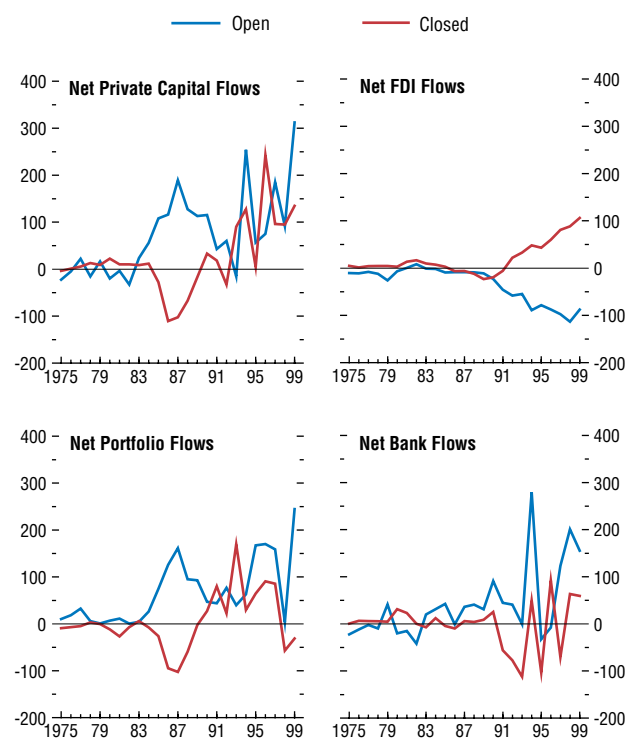
As noted above, the 1990s have been characterized by numerous exchange rate and financial crises, often associated with a drastic contraction of economic activity.¹⁷ In most cases, the crises are associated with large inflows of capital—especially portfolio inflows—which are not efficiently channeled to the most productive investment opportunities, leading to a progressive deterioration in the balance sheets of the domestic financial sector.¹⁸ This reflects the limited depth of financial markets in many developing countries, as well as the reduced incentive of lending agencies to screen for good projects when more credit is easily available, and the maturity mismatch in trying to finance long-term projects with short-term money. Asymmetric information between foreign investors and domestic borrowers may allow inflows to continue even as balance sheets deteriorate (see Eichengreen and others, 1998). When international investors decide that repayment difficulties and default risks may arise, however, large net inflows are quickly replaced by outflows, which can degenerate into exchange rate and financial crises. These effects

¹⁷For a discussion of financial crises, see *World Economic Outlook*, May 1998 and May 1999.

¹⁸See Calvo and Reinhart (2000) and the discussion in Chapter IV of the May 2001 *World Economic Outlook*.

Figure 4.7. Volatility of Net Capital Flows and Liberalization¹
(Billions of U.S. dollars)

According to the openness measure, portfolio and bank flows have been very volatile, particularly in the 1990s. Foreign direct investment (FDI) flows have instead been steadier.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.

¹A country is defined as open when its openness measure exceeds the average value for the entire sample period for both industrial and developing countries. The remaining countries are defined as closed. See Table 4.2 for country classification.

can rapidly spread through global financial markets, particularly at the regional level, affecting financing in other countries with open capital markets.

In addition to sudden reversals of capital flows, there are other possible costs. As with any policy change that provides access to greater resources, liberalization can exacerbate existing distortions within an economy. For example, if high levels of protection are supporting an inefficient industry, providing access to foreign saving may allow more capital to flow to this sector, thereby accentuating the underlying problem. This reflects the general issue of the law of the second best, namely that in the presence of other distortions, removing one particular distortion does not necessarily improve the overall outcome. That said, the major costs of liberalization appear to have been focused on excessive capital inflows followed by sudden reversals.

Policy responses to a reversal of inflows can attempt to deal with the short-term problem of outflows directly through reimposing capital controls and/or deal with the longer term issue of improving financial supervision and strengthening macroeconomic policies. In response to crises in the 1990s, most countries have focused on supervision and policy, tightening monetary policies during the crisis to regain investor confidence, moving away from exchange rate pegs, and instituting financial and (where necessary) corporate structural reforms. The most notable countries to have reimposed capital controls after a crisis are Malaysia and Russia. In both cases, controls appear to have provided some breathing space in which to implement more fundamental policy reforms, but at the cost of weakening the confidence of international investors, thereby increasing the cost of funding from abroad, weakening FDI flows somewhat, and producing large administrative costs. In Malaysia, the effectiveness of capital controls was enhanced by macroeconomic and structural adjustments. The authorities' strong enforcement capacity and favorable exchange rate developments also played an important

role.¹⁹ In Russia, in the absence of rapid structural reforms, controls have done little to stem underlying capital flight—a similar experience to that of the 1980s debt crisis. There is also Chile, which imposed capital controls on inflows in the face of an increase in such capital. The aim was to discourage short-term inflows but not long-term ones and to increase the potency of monetary policy. In Chile's case, the breathing space provided was used to implement significant structural reforms.

Empirical evidence on the connection between institutional arrangements and performance is difficult to come by, largely reflecting the difficulties of measuring institutional quality. Earlier work has found that, while higher levels of gross capital flows increased growth over the 1990s, the volatility of capital flows lowered growth, which is suggestive of a significant role for institutional factors (Mody and Murshid, 2001). The background study also finds some evidence that stronger institutions increase the benefits from capital inflows. Data limitations for developing countries restricted the proxy variables to measures of financial depth and fiscal policies, as appropriate data on such important issues as financial supervision or corporate governance were not available. The results suggest that three indicators of domestic financial market efficiency (private credit as a ratio to GDP, stock market turnover as a ratio to GDP, and a measure of the underlying degree of law and order) tend to boost the growth benefits of capital flows, although the coefficients are generally small and statistically insignificant (Table 4.7).²⁰ On the macroeconomic side, a stronger fiscal position also appears to enhance the growth benefits from international capital flows.

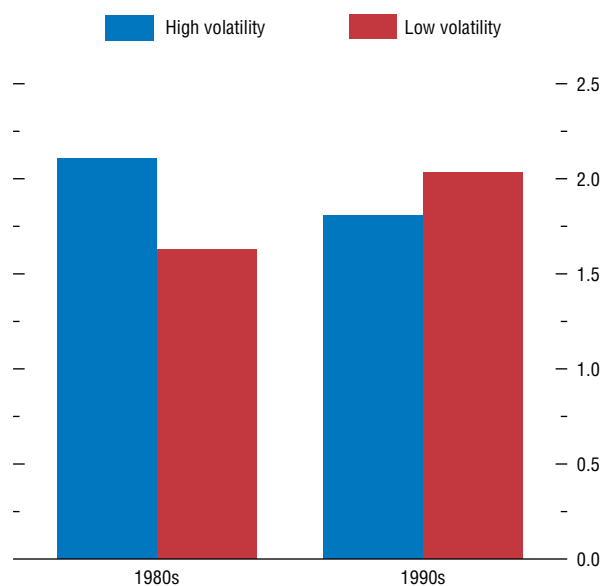
These results suggest that domestic institutional failures, such as weak financial supervision and regulation, can lead to crises and output

¹⁹Malaysia has subsequently reversed all controls on portfolio capital flows that were imposed in September 1998.

²⁰Arteta, Eichengreen, and Wyplosz (2001) also investigate the relationship with law and order.

Figure 4.8. Growth by Volatility of Gross Portfolio Flows in Countries with Open Capital Markets¹
(Percent)

In the 1990s, higher volatility has been associated with somewhat lower growth.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.

¹Volatility is measured by the standard deviation of gross portfolio flows over 1970–99. Countries are classified as high volatility if their standard deviation is above the average.

Table 4.7. The Benefits of Capital Flows from Stronger Institutions in the 1990s*(Increase in per capita growth per year)*

Private credit doubles	0.15
Stock market turnover doubles	0.07
Law and order improves from worst to best	0.43
Fiscal balance rises by 10 percent of GDP	0.13

Note: Bold indicates significance at the 5 percent confidence level (using a one-tailed test), and italic indicates significance in regressions that account for endogeneity. The estimates are derived from the coefficient of the interaction (product) term of gross capital flows and the respective measure of institution; they are evaluated at the average level of gross capital flows over the sample. Control variables are level of income in 1990; level of secondary schooling in 1990; inflation; government balance; gross capital flows; and the respective measure of institution. For the details of the analysis see Edison, Levine, Ricci, and Sløk (forthcoming).

losses. Therefore, adequate financial supervision and regulation is also essential to ensure that the domestic lending agencies do not undertake excessive risk due to the presence of limited liability (see Bhattacharya and Thakor, 1993). This is particularly true in the presence of explicit or implicit government guarantees of loans, which reduce the incentives of both domestic financial intermediaries and international lenders to control risk. More generally, weak corporate governance, poor accounting practices, and the absence of timely diffusion of accurate information on the macroeconomic situation and the financial sector raise the general level of uncertainty among international investors, worsening the aforementioned problems of asymmetric information between domestic and international investors.

Strong domestic fundamentals or institutions, however, do not rule out the possibility of crises, as shifts in portfolio preferences by external investors can also be a source of sudden changes in net capital flows. When the Hong Kong dollar came under pressure in October 1997, despite its solid fundamentals, investor sentiment toward Asia shifted sharply, and countries that had been awash with foreign money suddenly found it difficult or impossible to obtain new financing, or even experienced large net capital outflows.

These shifts in sentiment may reflect opportunities in other markets, as saving and investment opportunities fluctuate in the industrial countries—partly due to changes in interest rates (this is discussed further in Chapter II). However, the rapidity of the apparent shift in investor sentiment has also led to discussion of financial contagion and models of “self-fulfilling crisis,” in which the vagaries of international investors determine whether a crisis occurs or not.²¹ There is a growing empirical literature on contagion, focusing largely on the crises that occurred in the second half of the 1990s, that suggests that problems in one country did cause lenders to reduce their exposures to other countries in the region.

The international financial community can help countries that undertake capital account liberalization to reduce the associated costs. Promoting standards for improved transparency and wider dissemination of information—including the IMF’s initiatives on data dissemination and financial and fiscal transparency—can reduce the asymmetry of information between domestic borrowers and international investors. Initiatives aimed at increasing private sector involvement in resolving financial crises are also aimed at inducing international investors to take full account of available information on borrowers’ default risks. Nonetheless, the major effort to reduce the costs of capital account liberalization need to be undertaken by the countries themselves, by implementing appropriate policies and creating favorable domestic conditions. Sound macroeconomic policies, efficient supervision and regulation of the financial system, reduced government guarantees (e.g., though limited deposit insurance schemes), effective accounting and legal systems, and enhanced transparency improve the effectiveness of the financial system in channeling foreign resources to domestic productive activities, limit the systemic risks of this intermediation process, and help reduce the moral hazard of both domestic and international agents.

²¹For surveys on self-fulfilling crises, see Obstfeld (1998) and Jeanne (2000). For evidence on financial contagion, see Caramazza, Ricci, Salgado (2000) and Van Rijckeghem and Weder (2000).

It is often not possible—and not always desirable—to implement such a wide range of reforms at the same time. Some of the risks arising from capital account liberalization can be reduced by appropriately sequencing the stages of liberalization and coordinating them with complementary policies (including sound macroeconomic policy and reform). The next section explores how reforms related to liberalization can be sequenced.

Sequencing Capital Account Liberalization

Successful international capital account liberalization often requires careful sequencing of policies, requiring a detailed assessment of country-specific circumstances. In particular, it is important that reforms take place in an institutional environment that can support the opening of the capital account and avoid exchange rate or financial crises. In particular, focus is needed on the ordering of liberalization of types of flows, such as FDI, and long- and short-term financial instruments, as well as the speed at which the often numerous restrictions on such flows are lifted.

Two basic approaches have been put forward as being the best method to achieve financial integration:

- The *conventional* view emphasizes the pre-conditions for liberalization. In particular, this approach suggests that liberalization should come after macroeconomic stability has been achieved; financial reform has been implemented, and trade liberalization undertaken.²² Based on this view, liberalization should occur gradually and late in the process of economic reform.
- The *political economy* view stresses the constraints imposed by political factors on reforms and the limited capacity of countries to reform themselves in the absence of external pressures. This view recognizes that

the approach to reform is often dictated as much by political feasibility as technical requirements and hence suggests that liberalization should come early in the process as a “big bang,” serving as a catalyst for further economic reforms and helping to overcome opposition to reform.

The experiences of countries that have engaged in international financial market liberalization indicate that both views have merit (Box 4.4). However, the pace and timing of reforms are often not as important as the consistency of the reforms and policies that are followed at each particular point in time. For capital account liberalization, the coordination of specific reforms and policies in the domestic and external sectors, especially domestic financial sector reforms and the implementation of a consistent monetary and exchange rate policy mix, are considered the most important (Johnston, Darbar, and Echeverria, 1999). In Asia, for example, problems have generally occurred in situations where financial supervision was not sufficiently rigorous, while in Latin America problems have more often come through the macroeconomic policy mix.

In practice, liberalization in industrial countries has tended to follow the gradual and phased approach to economic reforms.²³ Developing countries, on the other hand, have followed both “big bang” and gradual approaches to liberalization of their capital accounts. The differences in experiences reflected existing conditions as much as the speed of reform and other factors.

While country experiences illustrate there is no simple rule for the sequencing and coordination of capital account liberalization with other policies, the following general three principles can help guide liberalization in any particular case (see Ishii and others, 2001):

- *Sound and sustainable macroeconomic policies are an important pre-condition for liberalization.* Macroeconomic instability can exacerbate

²²See for example McKinnon (1973), Shaw (1973), and Hanson (1995).

²³In those countries, capital account liberalization followed trade reforms and domestic financial reforms.

Box 4.4. Country Experiences with Sequencing Capital Account Liberalization

Country experiences illustrate that there is no unique correct approach to sequencing and coordinating capital account liberalization with other policies.¹ This box examines the experiences of eight advanced and emerging market economies that exemplify many of the issues that countries have encountered in the course of capital account liberalization. Four of the countries (Austria, Hungary, South Africa, and the United Kingdom) were able to fully or very substantially liberalize the capital account without suffering a systemic financial crisis, and no or only mild balance of payments problems. The four other countries (Korea, Mexico, Sweden, and Turkey) suffered severe financial system and external

crises, even though at least one (Korea) still maintained a broad range of capital controls.

The country experiences are summarized in the Table. Four important conclusions emerge from the analysis of these experiences:

- The pace of capital account liberalization had no systematic effect on the likelihood of a crisis. Of the four countries that experienced major financial sector disruptions following capital account liberalization, Korea, Mexico, and Sweden took a gradual approach to liberalization. Conversely, the United Kingdom and Hungary avoided crises even though they rapidly liberalized capital flows.
- Sequencing capital account liberalization in a particular way is not by itself sufficient to protect a country from crisis. Most of the coun-

¹For a detailed discussion see Ishii and others (2001).

Summary of Country Experiences with Sequencing

	Pace and Sequencing of Liberalization	Financial Sector Policies	Macroeconomic Policies
1. Countries that avoided a crisis			
Austria	Gradual. Long-term flows liberalized before short-term flows.	Sound and well-supervised financial sector.	Stable macroeconomic environment.
Hungary	Rapid. FDI and other long-term flows liberalized before short-term flows.	Rapid financial sector reforms. Foreign bank participation encouraged early.	Macroeconomic stabilization following 1995 crisis.
South Africa	Gradual. Restrictions on non-residents' capital flows liberalized first.	Well-capitalized banks. Steps to strengthen prudential regulation and supervision.	Sound macroeconomic policies.
United Kingdom	Rapid.	Strong market discipline and prudential policies.	Generally sound policies, despite 1992 ERM exchange rate crisis.
2. Countries that experienced a crisis			
Korea	Gradual and partial. Financial institutions not subject to significant restrictions on short-term external borrowing, but limits on long-term external borrowing.	Weaknesses in the financial sector. Poor corporate governance and high leverage.	Sound macroeconomic policies, with low inflation and stable public finances.
Mexico	Gradual. FDI liberalized first. Capital account substantially liberalized on the eve of the 1994 crisis.	Poorly supervised and managed financial sector that relied heavily on short-term foreign borrowing.	Growing macroeconomic imbalances inconsistent with the tightly managed exchange rate regime.
Sweden	Gradual, but accelerated in late 1980s. Long-term flows generally liberalized before short-term flows.	Extensive domestic financial liberalization, but with inadequate supervision.	Expansionary macroeconomic policies leading to an unsustainable credit and asset price boom.
Turkey	Rapid. Most capital controls removed between 1988 and 1991. Direct investment liberalized slightly earlier than portfolio investment.	Weak banks, poor supervision, government ownership.	Growing macroeconomic imbalances and uncertain policy setting marked by high and variable inflation and interest rates.

tries studied here liberalized FDI and other long-term flows before short-term flows. Even so, some of them (for example Mexico and Sweden) experienced serious crises. This does not mean that the order in which flows are liberalized is irrelevant. Korea liberalized short-term flows before long-term flows, which encouraged excessive short-term foreign borrowing and left the economy vulnerable to external shocks.

- Financial sector stability is of paramount importance. All of the countries that avoided a crisis following capital account liberalization paid careful attention to the soundness of the financial sector and put in place strong prudential policies. The financial system in the United Kingdom, for example, was able to withstand recession and withdrawal from the ERM owing, among other things, to effective

supervision and strong market discipline. By contrast, there were major weaknesses in the financial sector in all of the countries that experienced a crisis.

- Stable macroeconomic policies are important to an orderly capital account liberalization. All of the countries that avoided crises had sound macroeconomic policies in place. For example, Austria consistently geared its macroeconomic policies to maintaining the peg with the deutsche mark. By contrast, in Mexico, Sweden, and Turkey, a fixed or tightly managed exchange rate was maintained for too long in the face of expansionary policy settings. A counter-example is provided by Korea, where sound macroeconomic policies offered no protection from vulnerabilities stemming from deep-seated structural problems in the financial and corporate sectors.

financial sector weaknesses; and financial and capital account liberalization in such circumstances can accentuate such instability. Sound macroeconomic policies are essential to defusing this two-way linkage.

- *A series of financial sector reforms should be implemented during liberalization, if they do not already exist.* In particular, market-based monetary arrangements and associated central banking reforms should be implemented early to foster domestic financial liberalization. Prudential regulation and supervision and financial restructuring policies should be phased in to complement other reforms aimed at enhancing competitive efficiency and market development to help manage risks in liberalization and to foster financial sector stability.
- *The pace, timing, and sequencing of liberalization need to take account of social and regional considerations.* In particular, account needs to be taken of the authorities' commitment to and ownership of a reform strategy, as well as other considerations, such as mem-

bership in regional groups. Also, the operational and institutional arrangements for policy transparency and data disclosure—including monetary and financial policy transparency—need to be adapted to support capital account opening.

These principles are consistent with various speeds of capital account liberalization; and they do not imply that liberalization should be unduly delayed. Countries should therefore feel able to proceed with both capital account liberalization and financial sector development and reform in accord with these principles, and, as quickly as they can, develop the ability to effectively manage the risks associated with international capital flows.

Policy Considerations

The remarkable growth of cross-border capital flows has been in part associated with the reduction in impediments to capital movements and in part associated with the general trends in globalization. Recent experience has made it

clear that international financial market liberalization can have both favorable and adverse effects. On the positive side, over time liberalization can significantly raise domestic investment, create spillovers to the rest of the economy from technological transfer (particularly for FDI flows) and deepen domestic financial markets (particularly for portfolio flows). Estimates reported in this chapter provide evidence that, for a “typical” liberalization, these benefits are associated with an increase in growth of a half of a percent a year or more (a quarter percent from higher investment, a quarter percent from greater domestic financial development, and up to a quarter percent from FDI spillovers). As experience has shown, however, liberalization entails significant risks. In particular, weak financial supervision and inconsistent macroeconomic policies can be associated with excessive capital inflows that are allocated inefficiently and lead to rapid capital outflows. As a result, strong overall growth benefits from liberalization are difficult to identify.

The challenge for emerging market countries, therefore, is to maximize net benefits from liberalization. For those countries that already have significant involvement in international capital markets, the key requirement is to create institutions that strengthen the positive aspects of financial integration. In this respect, the lessons of the financial crises of the 1990s underscore the importance of strong macroeconomic policies and sound financial systems, which enable countries to protect themselves against adverse swings in investor sentiment. The experience of the debt crisis in the 1980s and of the Asian and Russian crises more recently also suggests that imposing capital controls during crises on financial systems that have been liberalized internationally has only a limited impact on outflows and may distract governments from their prime task of strengthening the financial and macroeconomic environment.

For those countries that are not involved—or only partially involved—in global capital markets, capital account liberalization should remain the ultimate goal, but the pace at which it

can be achieved will vary significantly. Country experiences suggest that successful capital account liberalization requires careful sequencing of policies that may help to reduce the likelihood of external or financial sector instabilities. These experiences illustrate that there is no simple rule for sequencing either the speed or the order of liberalization of capital flows. Rather, reforms and policies need to be implemented consistently at each point. Two of the most important areas of reform relate to the support and reinforcement of sound macroeconomic policy and financial sector reform. If these two factors are not in place it may be best for a country to adopt a slow and gradual approach to opening the capital account.

Finally, turning to the poorest developing countries, on the positive side, FDI flows can play an important role. However, a top priority should be to implement policies that make their country more attractive for domestic savings and investment so as to encourage foreign capital. Improvements in financial development, especially if associated with stronger financial and policy institutions, can also help cushion the negative impact of liberalization on social conditions by reducing the poor’s exposure to macroeconomic volatility and financial crises. It would be a mistake for these countries to think that involvement with global capital markets offers a magic, near-term fix for their problems. Creating the conditions and institutions that make savings and investment attractive will, however, over time offer poorer countries opportunities for higher living standards, through, among other sources, capital inflows from abroad.

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