INTERNATIONAL MONETARY FUND

Reaping the Benefits of Financial Globalization

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EXECUTIVE SUMMARY

Financial globalization—defined as the extent to which countries are linked through cross-border financial holdings, and proxied in this paper by the sum of countries' gross external assets and liabilities relative to GDP—has increased dramatically over the past three decades. This trend has been particularly pronounced in advanced economies, with emerging market and developing countries having experienced more moderate increases in their external stock positions over the period. These diverging trends stem from different capital control regimes, as well as from a range of persistent factors, including different degrees of institutional quality and domestic financial development. Persistent factors related to geography and historical linkages—though they can be mitigated to some extent by greater financial market and corporate sector transparency—also help to explain different degrees of financial openness across the IMF's membership.

While, in principle, financial globalization should enhance international risk sharing, reduce macroeconomic volatility, and foster economic growth, in practice the empirical effects are less clear-cut. Risk sharing has increased somewhat in advanced countries—consistent with their greater levels of financial openness—but has not been noticeably affected in emerging market and developing countries. International financial integration has not increased macroeconomic volatility or crisis frequency in countries with well-developed domestic financial systems and a relatively high degree of institutional quality; it has, however, increased volatility for countries that have failed to meet these preconditions or thresholds. The link between financial globalization and economic growth is also complex. Although foreign direct investment and other non-debt creating flows are positively associated with long-run growth, the impact of debt seems to depend on the strength of a country's policies and institutions.

The paper's empirical results are broadly supportive of the IMF's "integrated" approach, which envisages a gradual and orderly sequencing of external financial liberalization and emphasizes the desirability of complementary reforms in the macroeconomic policy framework and the domestic financial system as essential components of a successful liberalization strategy. For countries that do not yet meet the relevant thresholds, the focus of policy makers should lie squarely with improving the relevant economic fundamentals. In addition, opening up to foreign direct investment (FDI)—a type of flow that appears to be beneficial even for countries with relatively weak fundamentals—would seem desirable at an early stage. Liberalization to other types of flow should be delayed until country fundamentals are more in line with the relevant thresholds. For countries that are closer to meeting the thresholds, opening to debt flows is unlikely to have strong adverse effects on volatility, though, equally, growth benefits have not been identified as being particularly significant in this case.

In deliberating appropriate policies with respect to the financial account, policy makers need to consider not only the relationship between country fundamentals and relevant thresholds, but also the empirical association between financial openness and "collateral benefits"—for example, domestic financial sector development and higher economic efficiency—that in turn foster economic growth. In addition, the pace of liberalization will need to factor in the significant microeconomic costs associated with capital controls. Looking ahead, improved macroeconomic policies in many countries, as well as the increased share of equity and FDI in countries' external liabilities, suggest that financial globalization may prove to be more beneficial in coming years than in the past.

I. INTRODUCTION

1.   Financial globalization—defined as the extent to which countries are linked through cross-border financial holdings, and proxied in this paper by the sum of countries' gross external assets and liabilities relative to GDP (see Box 1)—has made the interaction between international financial flows and domestic financial and macroeconomic stability an increasingly central issue for IMF surveillance.[1] In discharging its mandate, a key issue for the IMF is to advise member countries about how they can reap the benefits of international financial integration while limiting its potentially harmful effects on macroeconomic volatility and crisis propensity. On various occasions—including in the context of discussions of recent Biennial Surveillance Reviews (IMF, 2004) and the report on the IMF's approach to capital account liberalization (Independent Evaluation Office of the IMF, 2005)—Executive Directors have called upon staff to undertake further research into the issue of managing the risks associated with international financial integration in a way that maximizes the net benefits. The present paper is a step in that direction, focusing on policies and reforms that can be carried out by recipient countries (and especially emerging market and developing countries), with issues related to the role of macroeconomic/prudential policies in source countries being left to later analysis.[2]

2.   Over the past three decades, *de facto* financial globalization has increased in most member countries, but integration has moved furthest in the OECD countries, where it has primarily taken the form of two-way ("diversification") asset trade, with large gross holdings of external assets and liabilities, but relatively small net external asset positions. More moderate increases are apparent among middle-income countries, with benign worldwide financial conditions and abundant liquidity having supported the process in recent years. The smallest increases have been experienced by low-income countries.

3.   The analysis presented below suggests that these trends reflect a number of factors. First, country-specific policies—in particular the relative strength of countries' *de jure* capital controls—are correlated with relative *de facto* financial globalization. Controls that are maintained for many years seem to have a significant effect in slowing integration, even if controls aimed at fine-tuning the timing or composition of financial flows tend to lose their effectiveness beyond the short run. Early external financial liberalization by advanced countries seems, for example, to be a key factor behind their greater degree of *de facto* integration. Second, beyond financial account policies, the extent of financial integration among emerging market and developing countries—including those with relatively open *de jure* regimes—has been constrained by other factors, including lower degrees of perceived institutional quality (a factor that also seems to affect the composition of a country's external liabilities) and lower domestic financial sector development. Third, while the bilateral pattern

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[1] The terms "financial globalization," "international financial integration," and "financial openness" are used interchangeably throughout this paper.

[2] The paper also does not examine the issue of managing large or volatile capital inflows, including the role of exchange rate, demand management, and financial policies in dealing with capital flow surges—topics which are to be taken up by IMF staff in the near future.

Box 1. Measuring Financial Globalization

A country's degree of financial globalization/integration/openness (terms used interchangeably in this paper) is a multifaceted concept, usually referring to the size of gross *stocks* of external assets and liabilities, the potential for large net *flows* (that is, differences in saving and investment flows), or the absence of arbitrage opportunities between *returns* on assets in different countries. Correspondingly, the various measures of this concept can be divided into three broad categories:

1. *Quantity-based measures.* The most widely applicable, and now generally accepted, measure of international financial integration is the sum of gross external assets and liabilities, relative to GDP (Lane and Milesi-Ferretti, 2006). This paper relies mainly on this measure, reflecting the need for a broad cross-country coverage over an extended time span. An alternative stock-based measure compares the size and geographic allocation of a country's external asset holdings with the portfolio predicted by an optimal risk-return frontier. Country coverage of such a measure is, however, limited. Still other quantity-based measures focus on gross financial inflows plus outflows (analogous to measures of trade openness based on imports plus exports). However, stock-based measures—which are less affected by short-term economic fluctuations—are preferable in the context of this paper in light of its long-term focus.

2. *Saving-investment correlations.* While investment can differ from domestic saving for countries with access to international financial markets, investment must equal saving under financial autarky. Saving-investment correlations have thus been used to measure the degree of international financial integration for groups of countries in different historical periods. Measures based on the *size* of net flows are also closely related, the current account surplus being the difference between saving and investment. A drawback of all such measures is that saving and investment are highly correlated even for groups of countries that seem to be fully open to international flows (the "Feldstein-Horioka puzzle"), and a warranted, or benchmark, correlation against which to compare actual correlations is difficult to identify empirically (but see Ghosh and Ostry, 1995; and Obstfeld and Taylor, 2004).

3. *Price-based indices*. Under financial integration, there should not be unexploited arbitrage opportunities from trade in similar assets. Comparisons of prospective returns on financial instruments in different countries (for example, covered or uncovered interest parity) thus provide a natural gauge of the extent of international financial integration. Alternative measures focus on *real* interest rate comparisons across countries. The applicability of these measures to emerging market and developing countries is hampered not only by difficulties in controlling for cross-country differences in risk or liquidity premia, but also by the possibility that inefficient arbitrage may reflect domestic rather than international financial frictions.

of a country's external portfolio of assets/liabilities is strongly influenced by geographical distance (as in a standard "gravity" trade model) and by linkages related to language and colonial history, domestic policies aimed at reducing informational asymmetries—for example, by making local stock markets more transparent—can help to mitigate the role of persistent "gravity" factors. Financial transparency is thus a potentially important vehicle for boosting financial integration in the presence of a variety of persistent constraints.

4.   Regarding the consequences of greater financial integration, economic theory suggests that financial globalization confers a number of potential benefits. Increases in international asset trade may foster economic growth, particularly if assets are used to finance worthwhile projects, or if they facilitate technology transfer (for example, through foreign direct investment), thereby underpinning increases in economic efficiency. In addition, such trade may lead to enhanced international risk sharing—indeed, the sizable gross external stock positions of advanced countries seem indicative of large potential risk-sharing gains, while an enhanced ability of emerging market and developing countries to borrow abroad in cases of natural disaster or temporary recessions would seem likely to contribute to greater consumption-smoothing. Looking ahead, large potential risk-sharing gains are apparent for emerging market and developing countries in light of their relatively large economic fluctuations while, from the standpoint of advanced-country residents, the ability to invest in emerging market and developing countries would be especially welcome, given the low correlation of these countries' economic fluctuations with the global economic cycle.

5.   While there seem to be sizable potential gains from international financial integration, these will need to be set against the possible costs in the form of greater macroeconomic volatility and vulnerability to crisis. Indeed, the emerging market crises of the 1990s have only served to highlight the potential for sudden reversals of capital inflows in financially open economies, and the associated large and abrupt recessions, often with serious social consequences. External financial liberalization has more generally been seen as amplifying vulnerabilities to possible contagion/herd effects, particularly in cases where domestic institutions and policies are not strong enough to steer through bad times.

6.   Against the background of the large potential gains and costs, what can be said of the actual effects of trends in *de facto* financial globalization? The results presented below suggest that the impact has varied depending on country characteristics:

- With respect to risk-sharing, evidence based on data for the past three decades suggests that, while some gains have accrued to advanced economies, this has not been the case for emerging market and developing countries, perhaps reflecting the more limited increase in financial integration for these countries.

- With respect to volatility, the findings suggest that for countries with sufficiently developed domestic financial systems, relatively open trade systems, good governance, and sound macroeconomic policies (that is, for countries that meet a number of "thresholds" to use the jargon from the globalization literature), greater integration has not been associated with increased macroeconomic volatility or more frequent crises. Volatility is adversely affected for countries that fail to meet such thresholds, though the broad trend toward improved policies and greater trade openness may point to diminishing policy relevance of volatility concerns over time.

- The relationship between financial globalization and economic growth is more complex—consistent with the difficulties the economic literature has encountered in establishing robust empirical evidence linking growth to economic fundamentals more generally. The results presented below point to the importance of unbundling financial globalization into different components in order to uncover its effects. Foreign direct investment and other non-debt forms of financial globalization are found to be positively and significantly associated with economic growth for all countries, whereas the impact of debt seems to depend on whether borrowers meet certain policy and institutional thresholds. While empirical analysis based on macroeconomic data fails to establish a robust relationship between economic growth and all types of financial integration, it does suggest that greater integration is associated with factors that in turn have been found to support economic growth. Examples of such "collateral benefits" are: development of the domestic financial sector; macroeconomic policy discipline; faster trade growth; and improvements in economic efficiency. Indeed, recent microeconomic evidence suggests that the efficiency costs of maintaining capital controls are significant.

7.   In determining an appropriate pace of external financial liberalization, an important consideration is the extent to which countries meet the preconditions, or thresholds, for a favorable impact. However, it bears emphasizing that, even for countries that currently fall somewhat short of meeting the thresholds, greater financial integration—if it engenders collateral benefits as discussed above—may itself facilitate over time progress in attaining relevant policy and institutional thresholds. Moreover, two broad developments suggest that the impact of financial globalization may be more beneficial in coming years than in the past: first, foreign direct investment and other non-debt forms of international asset trade constitute a higher share of external financing today than in recent decades; and second, steps taken by countries to raise their game in relation to policy and institutional fundamentals are likely to imply greater net benefits from financial integration than would be apparent from empirical analysis of past data. The results are broadly supportive of the "integrated" approach (a key input in the IMF's policy advice on these issues), which envisages a gradual and orderly sequencing of external financial liberalization and emphasizes the desirability of complementary reforms in the macroeconomic framework and the domestic financial system as essential components of a successful liberalization strategy (Ishii and Habermeier, 2002).

8.   The remainder of the paper is structured as follows. Section II summarizes developments in *de facto* financial globalization for various groups of countries and types of assets and liabilities, and considers a possible relationship with changes in *de jure* capital controls. Section III analyzes the determinants of cross-country differences in *de facto* financial globalization, including the role of both highly persistent factors (such as institutional quality) and factors that can be substantially affected by policies in the relatively near term (such as capital controls). Section IV estimates the potential gains from international risk sharing for different segments of the IMF's membership and reports evidence on the extent to which such gains have been realized in practice. Section V estimates the impact of financial globalization on macroeconomic volatility, the frequency of crises, and long-run economic growth. Section VI concludes.

II. SOME FACTS ON FINANCIAL GLOBALIZATION

9.   The global economy has become substantially more financially integrated over the past three decades. Average *de facto* financial globalization (measured, as discussed in Box 1, by gross external assets and liabilities as a share of GDP) has approximately tripled since the mid-1970s. Experience has differed by income group: the worldwide increase in financial globalization has been driven mainly by high-income countries, where financial integration has accelerated since the early 1990s (Figure 1). Although low- and middle-income countries have also become more financially integrated, average increases have been more moderate. Regionally, many countries in developing and emerging East Asia as well as in Eastern and Central Europe have displayed relatively large increases in international financial integration—sixfold, and threefold, respectively, on average, compared with a twofold increase in the low- and middle-income countries as a whole.

Figure 1. Gross External Assets and Liabilities by Income Group, 1975–2004
(In percent of GDP)
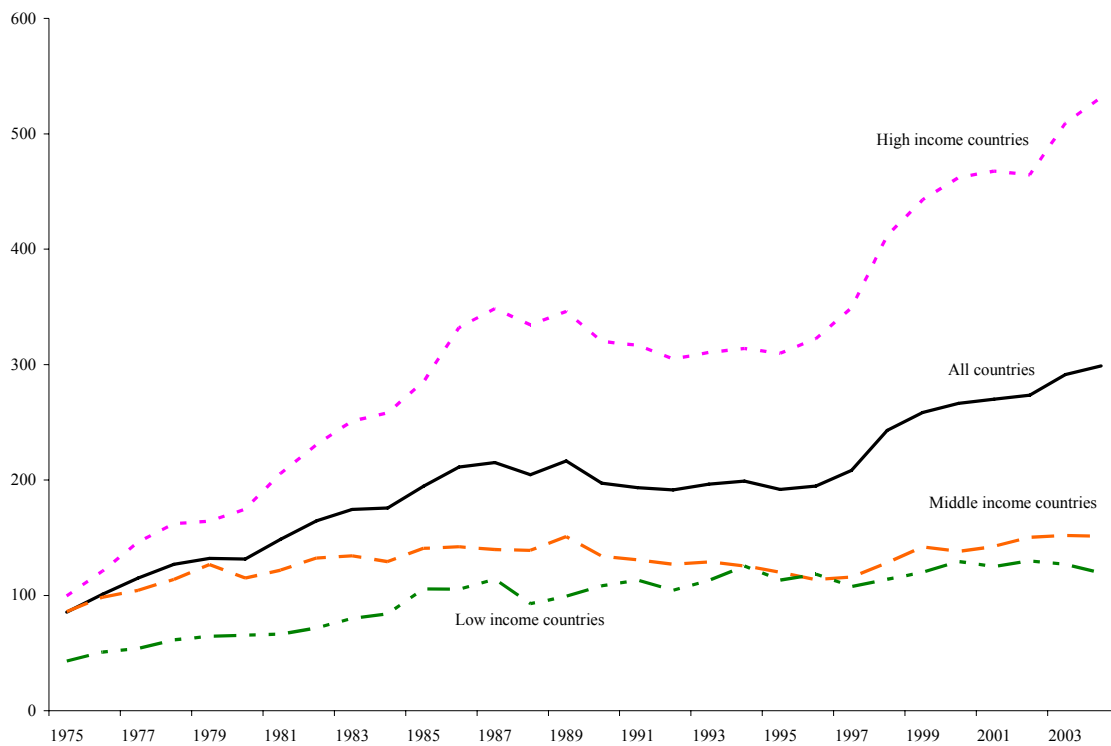
Source: Lane and Milesi-Ferretti (2006).
Notes: Based on a sample of 74 countries (see Appendix Table 1) for which data on *de facto* financial globalization and *de jure* capital controls are available for the entire sample period. Income groups are according to the World Bank definition. The graph depicts unweighted averages of countries' ratios of the sum of external assets and liabilities relative to GDP.

10.   Increasing financial integration among OECD countries has been characterized by two-way, or "diversification," asset trade—large gross holdings of assets and liabilities that have resulted in a relatively small net external position (Table 1).[3] In contrast, for other countries, net liability positions are relatively large. The data also suggest that the composition of external assets and liabilities has shifted away from debt instruments over the past decade, though debt remains—across income groups and regions—the largest component of external liabilities (Figure 2).[4] FDI inflows have gained importance in many low- and middle-income countries, whereas portfolio equity finance has increased substantially in several high-income countries.

Table 1. Gross and Net External Positions, 2004
(In percent)

	External Position		GLI
	Gross	Net	
High Income	531.5	44.7	92
OECD	462.1	-13.5	97
Non-OECD	664.5	156.4	76
Middle Income	151.3	-45.8	70
Low Income	119.3	-49.3	59

Source: Lane and Milesi-Ferretti (2006); and staff calculations.
Note: Unweighted averages for each subgroup. A country's gross external position is defined as the sum of external assets (A) and liabilities (L) relative to GDP; the net external position is defined as (A-L)/GDP. The Grubel-Loyd index (GLI), which indicates the fraction of a country's gross external assets and liabilities that constitutes two-way trades (Obstfeld, 2004), is defined as 1-|A-L|/(A+L).

De Jure Financial Openness

11.   Legal (*de jure*) controls on capital account transactions—a policy variable—are potentially important determinants of *de facto* financial globalization.[5] Over the past three

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[3] All cross-border financial holdings are included in the data presented in this paper: debt, bank loans, equity investment, and FDI. Existing data on cross-border holdings of assets and liabilities do not allow a clear-cut distinction between public and private positions. This distinction, even if possible, would in any case be blurred by past conversions of defaulted private obligations into public debt.

[4] There is also evidence that the currency composition of emerging market debt is changing: the share of local-currency-denominated debt in marketable sovereign debt rose from 73 percent in 1996 to 82 percent in 2004 (International Monetary Fund, 2006).

[5] For the purposes of this paper, indices that measure controls on inflows and outflows separately, as well as controls on different categories of assets (equity, debt, and direct investment), have been developed for 91 countries for 1995–2005, drawing on the information in the *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER): see Appendix I for further details. Long-term trends since 1975 draw on the AREAER's original binary index, which was extended to 2005 for the purposes of this paper. Shortcomings common to all indices based on the AREAER are that they do not capture differences in enforcement and the economic impact of controls across countries and time periods.

Figure 2. Composition of Gross External Assets and Liabilities, 1975 and 2004

Source: Lane and Milesi-Ferretti (2006).

Notes: Based on a sample of 32 high-income, 31 middle-income, and 11 low-income countries. For each year and income group, the pie charts depict the shares of each type of external assets plus liabilities in total external assets plus liabilities. Group averages are unweighted.

decades, most countries have relaxed *de jure* controls on the capital account, though the process of liberalization has slowed since the mid-1990s. This broad trend is apparent for both the relatively liberalized and the relatively non-liberalized countries, though liberalization efforts took place somewhat earlier in the former group than in the latter group (Figure 3, top panel). About one half of the countries in the sample are currently considered fully open to capital flows, up from under a third in 1975. While liberalizations were the dominant trend over the period, about ten percent of the countries in the sample tightened their controls, often in response to crises. The capital controls index developed in this paper indicates that

Figure 3. Capital Controls by Financial Openness and Income Group, 1975–2005
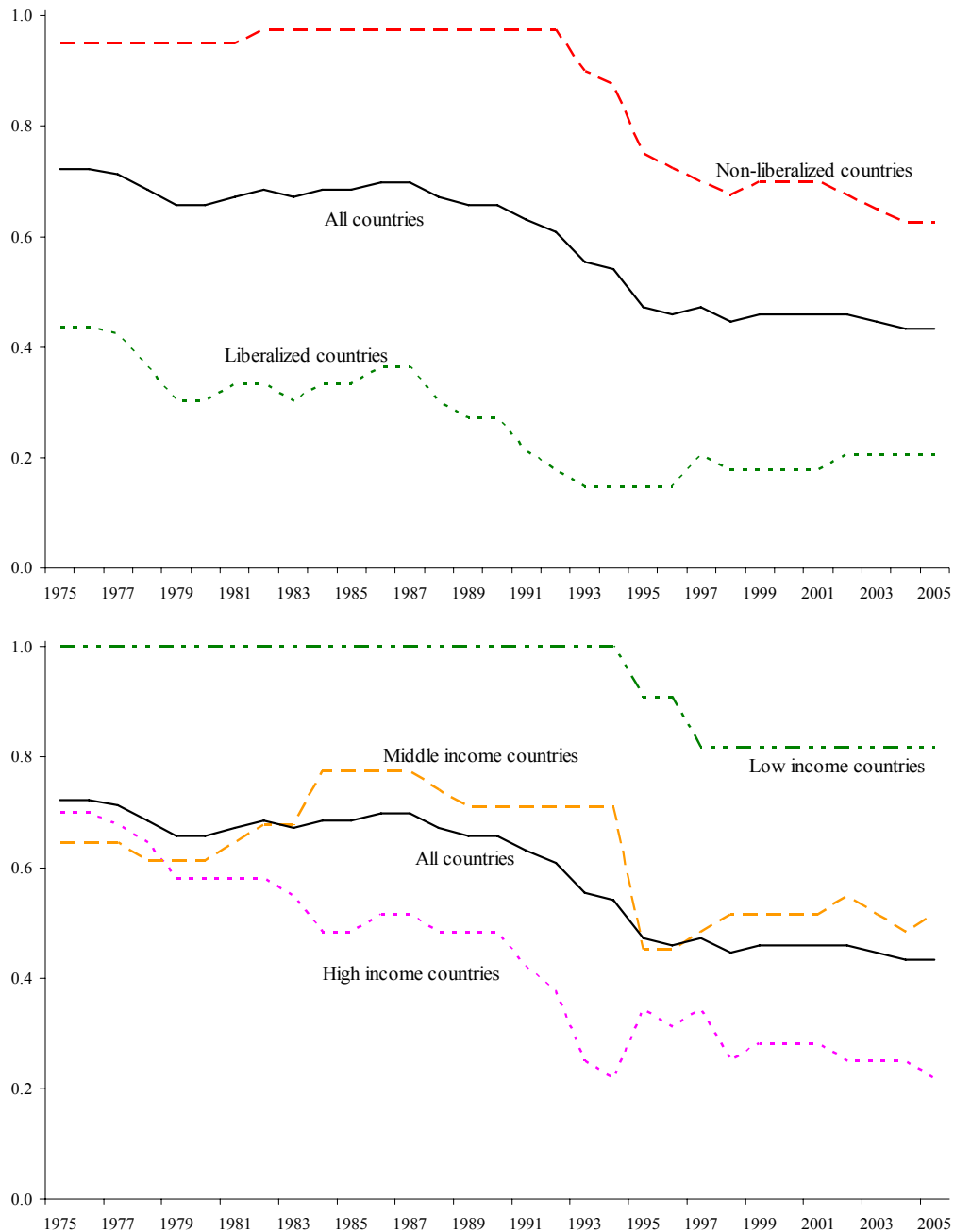
Source: Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), IMF; and staff calculations.

Notes: Based on a sample of 74 countries for which data on *de facto* globalization and *de jure* capital controls are available for the entire sample period. The graph depicts unweighted averages of countries' capital controls, using the IMF's binary capital controls indicator (based on the AREAER's pre-1995 methodology). Countries in the top panel are categorized according to the 1975-2005 mean of their capital controls variable: the cutoff for liberalized versus non-liberalized is the sample mean. Countries in the bottom panel are grouped according to the World Bank definition (see Appendix Table 1).

17 countries not fully open in 1995 had fully opened their capital accounts by 2005, while only four countries opted to fully close their capital accounts between 1995 and 2005.[6]

12.   Although the level of controls appears to be inversely related to a country's per-capita income, countries in all income groups—on average—have relaxed capital controls over the past three decades (Figure 3, bottom panel). Liberalizations were pervasive among OECD countries—many of which moved from a highly restricted financial account position in 1975 to being fully open by 2005, while among emerging market and developing economies there were regional differences. Many countries in Eastern Europe and Latin America liberalized their financial accounts—owing, in a number of cases, to prospective EU accession or bilateral or regional trade agreements (IEO, 2005, p. 32; and Árvai, 2005). In contrast, several countries in East Asia and the Middle East tightened capital controls, and most countries in sub-Saharan Africa maintained financial account restrictions. Several high-income oil-exporting countries also introduced new restrictions during the 1990s.

13.   Among countries that retained capital controls, on average outflows were somewhat more restricted than inflows while, in low-income countries, restrictions on short-term debt were more common than those on long-term debt (Table 2). It is also worth noting that controls on equity, and especially FDI, were brought down considerably between 1995 and 2005 across the membership, whereas controls on debt remained essentially unchanged, on average. More generally, in recent years, changes in the structure of capital controls have brought more countries in line with what has come to be referred to as the "integrated approach" (Box 2). According to that approach, countries should liberalize FDI inflows first; this should generally be followed by lifting controls on other long-term and non-debt flows, such as equity and outward FDI, before the liberalization of short-term flows and debt flows.[7] In fact, as shown in Figure 4, both the number of countries with more liberal long-term than short-term flows, and the number of countries with more liberal non-debt flows, increased by 10–15 percent between 1995–1997 and 2002–2005.[8]

14.   Countries' *de facto* financial integration has been influenced by their *de jure* financial account openness (Figure 5, top panel). First, during 1975–2004, *de jure* "liberalized" countries (defined as those with a lower than average index of capital controls over

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[6] Countries with an aggregate capital controls index greater than 0.9 are here defined as fully closed, and those with an index less than 0.1 as fully liberalized. Using instead a definition based on the extreme values of the index (0.0 and 1.0), only two countries became fully closed, wheres 14 countries fully opened up.

[7] The liberalization of some short-term flows into the banking system may be required at an early stage to foster the development of key domestic financial markets, notably the interbank money and foreign exchange markets. Suitable prudential measures in the banking system should be adopted in parallel.

[8] This exercise takes a "snapshot" of whether a country's capital controls structure is broadly in line with the integrated approach, though this is only a rough indication of consistency, because the approach allows for deviations from the broad patterns being considered when warranted by country-specific circumstances. Also, the exercise does not examine whether individual countries have adhered to the *sequencing* of liberalization implicit in this approach. Árvai (2005), who examines liberalization efforts of eight EU accession countries, reports that sequencing was broadly in line with the integrated approach.

Table 2. Capital Controls by Type, 1995–2005

Type of Control	All Countries		Low Income	Middle Income	High Income
	1995	2005	1995-2005 average		
Aggregate	0.36	0.30	0.56	0.38	0.17
Inflows	0.32	0.26	0.50	0.33	0.16
Outflows	0.40	0.34	0.63	0.44	0.18
Equity	0.37	0.30	0.61	0.38	0.18
Debt	0.33	0.32	0.50	0.40	0.15
Short-Term Debt	0.34	0.30	0.59	0.40	0.15
Long-Term Debt	0.33	0.33	0.41	0.40	0.15
FDI	0.38	0.27	0.54	0.37	0.20

Sources: Annual Report on Exchange Arrangements and Exchange Restrictions, IMF; and staff calculations.
Notes: Unweighted averages of countries' capital controls, based on a capital controls index constructed by staff. Data for long-term debt refer to 1997 in the left panel and 1997–2005 in the right panel, respectively.

1975–2005) had gross external assets and liabilities (relative to GDP) nearly twice as high as the non-liberalized countries (defined as those with a higher-than-average index of capital controls).[9] Second, the "least liberalized" countries (those in the decile with the highest controls) saw smaller increases in *de facto* globalization than were experienced by countries with less restrictive regimes, though even the least liberalized countries did not isolate themselves completely from the trend toward greater *de facto* financial globalization—the ratio of their gross external assets and liabilities to GDP almost doubled over the period. Third, for countries that went from having above-average *de jure* restrictiveness during the first half of the sample period to below-average restrictiveness during the second half, *de facto* integration reached levels similar to those in countries that had been open throughout. Conversely, in countries that tightened controls during 1990–2005, financial integration converged to the lower and flatter trend of countries that had been closed throughout (Figure 5, bottom panel). These effects, it bears noting, portray the medium-run impact of highly durable characteristics of the capital control regime, rather than the impact of specific measures maintained for a relatively short time. On this latter issue, evidence from case studies suggests that when controls are re-imposed in countries that have experienced relatively liberal flows for a number of years, they tend to lose their effectiveness relatively quickly, especially where domestic financial markets are well developed (Obstfeld, 2007).

15.   Beyond the relationship between the *de jure* regime and the overall level of *de facto* financial integration, there is also some evidence—e.g., Eichengreen and others, 1998—that the *structure* of capital controls affects the *composition* of countries' external assets and liabilities. Indeed, other things equal, the evidence suggests that controls on portfolio equity

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[9] These results also hold when controlling for per-capita income.

**Box 2. The Integrated Approach to Capital Account Liberalization**

As noted in the Independent Evaluation Office's report (2005), the IMF's "integrated" or "sequencing" approach to capital account liberalization, developed in the late 1990s/early 2000s, appears to be widely accepted among IMF staff and underlies much of the institution's policy advice in this area. The approach considers capital account liberalization as part of a broader economic reform package encompassing the macroeconomic policy framework, the domestic financial system, and prudential regulation. The approach also emphasizes the importance of following a sequence of measures and reforms.[1]

The integrated approach consists of the following ten general principles: (1) capital account liberalization is best undertaken against a background of sound and sustainable macroeconomic policies; (2) financial sector reforms that support and reinforce macroeconomic stabilization should be given priority in implementation; (3) financial sector reforms that are mutually reinforced and operationally linked should be implemented together; (4) domestic financial reform should be complemented by prudential regulation and supervision, and financial restructuring policies; (5) liberalization of capital flows by instruments and/or sectors should be sequenced to take into account concomitant risks—in general, long-term and non-debt creating flows (especially FDI) should be liberalized before short-term and debt-creating flows; (6) the pace of reform should take into account the conditions in the non-financial sector; (7) reforms that take time should be started early; (8) reforms need to take into consideration the effectiveness of controls on capital flows in place at the time of liberalization; (9) the pace, timing, and sequencing of liberalization need to take account of political and regional considerations; and (10) the arrangements for policy transparency and data disclosure should be adapted to support capital account opening.

The evidence reported in this paper suggests that member countries have increasingly followed the integrated approach to liberalization. Taking a "snapshot" of countries' capital control structures, the extent to which countries follow the approach should be reflected in the share of countries with more controls on short-term debt than on long-term debt; and with more controls on debt than non-debt flows. As shown in Figure 5, the degree to which countries' practice appears to conform to the approach has increased since the mid-1990s. More generally, as shown in Appendix II, most countries covered in the case studies have also liberalized FDI inflows early on, long-term before short-term flows, and non-debt flows before debt flows, particularly in the more recent period.

[1] Eichengreen and others (1998); and Ishii and Habermeier (2002).

Figure 4. Patterns of *De Jure* Financial Openness, 1995–97 vs. 2003–05
(In percent of all countries)
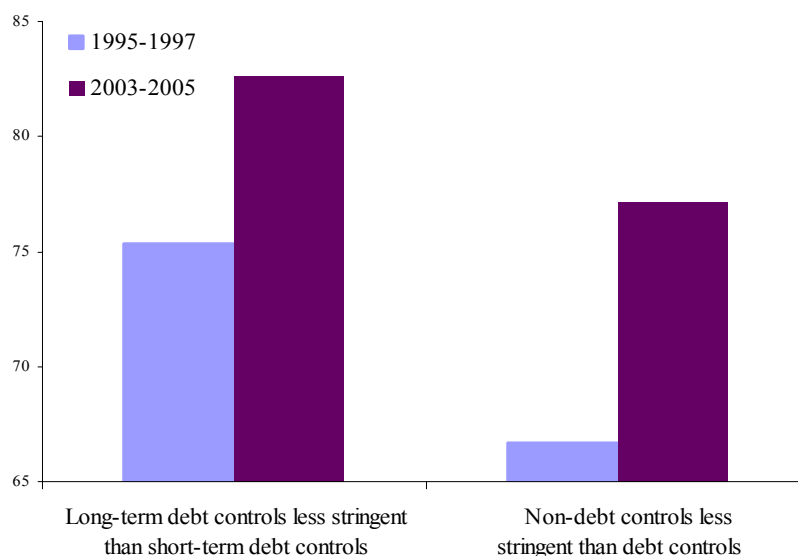
Source: Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), IMF; and staff calculations.

Notes: Based on a sample of 73 countries excluding countries with continuously closed (1) or open (0) financial accounts during 1995–2005. The first pair of bars shows the fraction of countries where, on average during 1995–97 and 2003–05, respectively, long-term debt flows were less restricted than short-term debt flows, while the second pair of bars shows the fraction of countries where non-debt (equity and FDI) flows were less restricted than debt (bonds and money-market) flows. These comparisons provide a snapshot of the percent of countries whose capital controls structure was consistent (in 1995–97 and 2003–05, respectively) with the two aforementioned aspects of the integrated approach described in the text.

and FDI are easier to enforce—and therefore more likely to be effective—than controls on debt and bank flows (Edwards, 1999). This evidence would seem to be broadly consistent with the observation that the share of FDI and equity in countries' external portfolios has increased during the past three decades, over the same period that *de jure* controls on FDI and equity were reduced compared with other types of controls.[10]

16.   On the whole, the stylized facts in this section underscore the degree to which countries that have maintained controls in place for many years have experienced smaller increases in *de facto* globalization than countries which were always open. However, even the countries that maintained the strictest controls in the sample experienced some increase in financial integration, perhaps because trade in financial assets is closely associated with trade in

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[10] A more formal approach, based on panel regressions, however, does not find significant evidence linking the shift toward equity and FDI finance to changes in the structure of capital controls (Faria and others, 2007). It is possible that the cross-country variation in lifting controls on equity and FDI compared with other flows has been insufficient for its impact to be captured in regressions.

Figure 5. Gross External Assets and Liabilities by Levels and Changes in
De Jure Financial Openness, 1975–2004
(In percent of GDP)
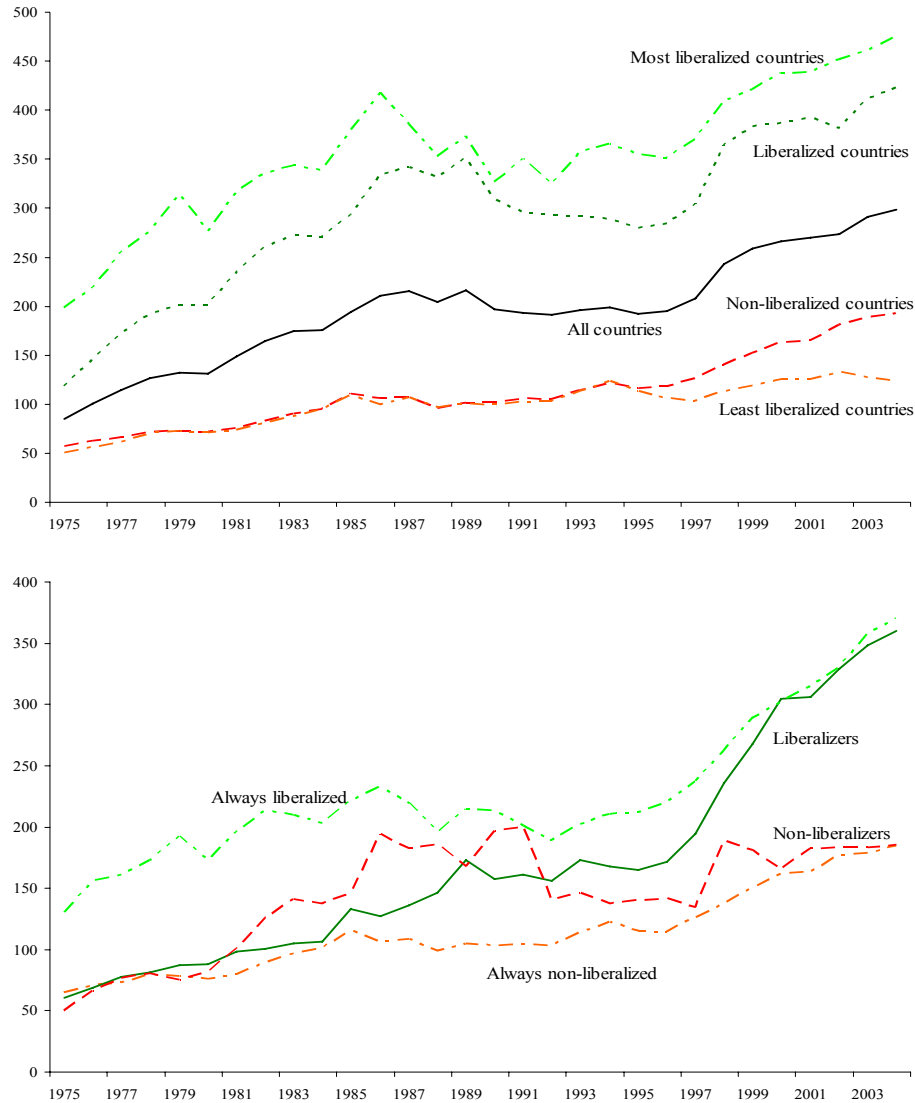
Source: Lane and Milesi-Ferretti (2006).
Notes: The graph depicts unweighted averages of countries' ratios of the sum of external assets and liabilities relative to GDP. The top panel is based on a sample of 74 countries for which data on *de facto* globalization and *de jure* capital controls are available for the entire sample period. Countries are categorized according to the 1975–2005 mean of their capital controls variable. The cutoff for liberalized versus non-liberalized is the sample mean; the most (least) liberalized countries represent the bottom (top) decile of the capital controls variable. In the bottom panel, six oil-producing countries are excluded. For each of the subperiods 1975–1989 and 1990–2005, countries are categorized as liberalized (non-liberalized) if the mean of a country's capital controls variable is below (above) the sample mean for the sub-period. Countries switching from non-liberalized in 1975–1989 to liberalized in 1990–2005 are labeled liberalizers, and vice versa for non-liberalizers.

goods, and it would have been too costly for these countries to isolate themselves from globalization in the broader sense. While durable aspects of the capital account regime seem to have long-term effects on financial integration, controls aimed at fine-tuning the level and composition of flows tend to lose their effectiveness relatively quickly, and may become increasingly difficult to enforce as countries' financial systems develop.

III.   DETERMINANTS OF FINANCIAL GLOBALIZATION—A CROSS-COUNTRY PERSPECTIVE

17.   What determines cross-country differences in *de facto* financial globalization (in contrast to the evolution over time in integration discussed in the previous section)? Despite the major increase in *de facto* financial globalization documented in Section II, countries' *relative* success in attracting international investors has been broadly stable over time: comparing countries' rankings by *de facto* financial globalization in different years, the rank correlation is 0.4 between the rankings in 1975 and 2004, and 0.7 between the rankings in 1995 and 2004. Such stability suggests that persistent country characteristics are likely to be key drivers of a country's *de facto* international financial integration. This section analyzes the role of such persistent factors, as well as that of capital controls.

18.   Cross-country differences in *de facto* financial globalization may be related to both foreign investors' and domestic policy makers' views on whether foreign financing will be put to productive use. For example, foreign investors are likely to prefer to hold external liabilities of countries where such financing is expected to yield higher returns, while policy makers are likely to embrace financial globalization if they believe it will lead to higher growth without engendering excessive volatility. In fact, cross-country evidence drawn from two waves of financial globalization (1870–1913 and 1970s-present) suggests that key determinants of the productivity of foreign capital—including the quality of broad institutions and, to some extent, measures of human capital—are also the main determinants of international investors' willingness to hold a country's external liabilities (Faria and others, 2006). Similar factors also seem to affect the composition of a country's external liabilities: in a cross section of emerging market and developing countries, equity-like liabilities (FDI and portfolio equity) as a share of countries' total external liabilities are positively and significantly associated with indicators of educational attainment, natural resource abundance, and especially, institutional quality (Faria and Mauro, 2004).

19.   Controlling for the persistent factors identified above, empirical analysis suggests that domestic policies vis-à-vis the financial account also have an impact on countries' external liabilities. Table 3 presents estimates of the impact of capital controls, institutional quality, trade openness, and level of economic development on total external liabilities as well as their components. The effect of each of these factors is both economically and statistically significant. In particular, a one-standard-deviation increase in the index of capital controls— equivalent to moving from the average for the Latin American countries to the average for developing and emerging East Asia-Pacific countries—is associated with a 17 percent reduction in total liabilities per capita, other things equal. While a one-standard-deviation change in the capital controls index is certainly sizable, it has been undertaken by several countries, within a few years, during the sample period considered.

Table 3. Determinants of Gross External Liabilities Per Capita, 2004

	Total Liabilities	FDI and Portfolio Equity	Debt
	(1)	(2)	(3)
GDP per capita (log)	0.86***	0.97***	0.80***
	(0.07)	(0.10)	(0.08)
Institutional quality index	0.48***	0.35**	0.50***
	(0.13)	(0.17)	(0.15)
Trade openness	0.46***	0.81***	0.29
	(0.16)	(0.18)	(0.20)
Controls on inflows	-0.46***	-0.36**	-0.55***
	(0.15)	(0.17)	(0.20)
Constant	-0.10	-1.58***	-0.41***
	(0.15)	(0.22)	(0.16)
R^2	0.94	0.92	0.90

Sources: Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency, deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. GDP per capita is from the World Bank's World Development Indicators (WDI). The institutional quality index is the simple average of six indicators from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Trade openness is the sum of imports and exports, divided by GDP, also from WDI. Controls on inflows are averages of all available years between 1995 and 2004 of indices of capital controls on total inflows (1), equity inflows (2), and debt inflows (3). Capital controls index constructed by staff based on the *Annual Report on Exchange Arrangements and Exchange Restrictions*, IMF.

Notes: The sample consists of 96 observations. Offshore financial centers are excluded. Estimated by OLS, with robust standard errors in parentheses. The symbols *, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent level, respectively.

20.   Empirical analysis also sheds light on how each country allocates foreign assets and liabilities across other countries. Estimating a fixed-effect "gravity model" for bilateral financial holdings of equity, FDI, bank loans, and other debt—similar to such models used to explain trade flows—country pairs characterized by historical links (common language, colonial history, and common legal systems) are found to have larger bilateral holdings (Table 4—see also Lane and Milesi-Ferretti, forthcoming). Moreover, countries that are further apart geographically and that do not share a border have significantly lower bilateral financial integration. The economic magnitude of the coefficient on geographical distance is substantial: for example, the estimates predict that bilateral equity holdings should be about 75 percent larger between France and the United States than between Australia and the United States. Moreover, geographical distance and historical linkages have a significant

Table 4. Gravity Estimates for Bilateral Foreign Asset Positions, 2004

	(1) Equity	(2) Debt	(3) Bank Loans	(4) FDI	(5) Trade	(6) Equity	(7) Debt	(8) Bank Loans	(9) FDI
ln(Distance)	-0.77***	-0.80***	-1.08***	-1.29***	-1.65***	-4.12***	-1.27	-7.46***	-5.58***
	(0.06)	(0.06)	(0.09)	(0.11)	(0.03)	(0.04)	(0.04)	(0.05)	(0.07)
Border	0.64***	0.14	-0.10	0.63*	0.75***	0.52**	0.06	0.00	0.67*
	(0.22)	(0.20)	(0.31)	(0.38)	(0.12)	(0.22)	(0.20)	(0.28)	(0.38)
Common language	0.49***	0.23	1.14***	0.54**	0.81***	0.62***	0.24*	1.12***	0.28
	(0.15)	(0.14)	(0.15)	(0.27)	(0.06)	(0.14)	(0.14)	(0.23)	(0.27)
Common colony	1.08***	2.33***	...	...	1.01***	1.08***	2.24***	...	...
	(0.39)	(0.47)			(0.09)	(0.32)	(0.63)		
Common legal origin	0.20**	0.12	0.09	0.32*	0.04	0.18**	0.15	0.09	0.43**
	(0.09)	(0.09)	(0.10)	(0.17)	(0.04)	(0.09)	(0.09)	(0.12)	(0.17)
Capital control - source closed, recipient open	2.52***	-0.06	...	0.43	...	0.54	-0.66	1.08	0.43
	(0.96)	(0.51)		(0.72)		(0.72)	(0.46)	(1.70)	(0.83)
Capital control - source open, recipient closed	2.66***	0.06	-0.13	0.31	...	3.63***	0.06	-0.88	0.53
	(0.59)	(0.47)	(1.17)	(0.57)		(0.62)	(0.47)	(1.73)	(0.62)
Capital control - both open	5.44***	1.10**	-0.47	1.30*	...	3.74***	0.41	...	1.20
	(0.91)	(0.54)	(1.13)	(0.68)		(0.78)	(0.47)		(0.80)
Recipient Transparency × ln(Distance)	...	...	...	...	...	0.26***	0.32***	0.14	0.22*
						(0.07)	(0.07)	(0.10)	(0.12)
Recipient GDP × ln(Distance)	...	...	...	...	...	0.07**	-0.05	0.22***	0.12*
						(0.04)	(0.04)	(0.05)	(0.07)
Observations	1560	1346	1775	793	15526	1304	1040	915	578
R^2	0.83	0.85	0.80	0.86	0.75	0.85	0.86	0.83	0.89

Sources: Equity and debt holdings are from the IMF's Coordinated Portfolio Investment Survey, bank loans from the BIS, FDI from the OECD, and trade from the IMF's *Direction of Trade Statistics*. The financial transparency measure is taken from issues of the World Economic Forum's *Global Competitiveness Report*. Capital controls data are constructed by staff based on the *Annual Report on Exchange Arrangements and Exchange Restrictions*, IMF.

Notes: All dependent variables in natural logarithms, and measured in end-of-year 2004 U.S. dollars. The capital control variables refer to controls on the specific type of flows, and refer to inflows for the recipients and outflows for the source. Source and recipient country dummies (fixed effects) are included. The estimated capital controls coefficients are relative to the "base" case where both source and recipient countries are closed. Robust standard errors in parentheses. The symbols *, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent level, respectively. The effects of "common colony," "common legal origin," and "capital control—both open" cannot be estimated for bank loans and FDI (columns 3, 4, 8, and 9), owing to insufficient variation across country-pairs for those cases.

impact on financial asset allocation even controlling for the strong correlation between trade and financial patterns.[11] The estimates also confirm that capital controls on inflows in recipient countries and on outflows in source countries (for each type of flow) are negatively correlated with bilateral holdings.

21. The finding that bilateral gross asset holdings are closely associated with factors such as distance, language, and former colonial links may seem surprising in a globalized world where information appears to flow freely. If distance is instead a proxy for residual informational frictions, it may be expected to matter less for relatively transparent recipient countries and for large markets that are well covered by financial analysts. To investigate this hypothesis, Table 4 also considers the impact of the interaction between distance and a survey-based indicator of the recipient country's financial market transparency, as well as market size. Both greater financial transparency and country size in the recipient country are found to dampen the negative impact of distance on bilateral equity holdings.[12] The implication is that improved transparency may help persuade international investors to hold a larger stock of a country's external liabilities. Moreover, this effect seems to be greater for countries that are relatively isolated from the majority of international investors.

IV. RISK-SHARING BENEFITS OF FINANCIAL GLOBALIZATION—THEORY AND PRACTICE

22. One of the key purported benefits of international financial integration relates to greater risk sharing: by making it possible for a country's residents to hold financial assets whose returns are linked to output performance abroad, financial openness provides opportunities to enjoy relatively stable consumption streams despite fluctuations in domestic output. This section considers both *potential* gains from risk sharing—by comparing the extent to which the volatility of domestic consumption exceeds that of foreign output—as well as *actual* gains measured on the basis of observed declines in the correlation between domestic consumption and domestic output. Section V will then shift the focus to the observed effects of financial globalization on domestic consumption volatility, as well as crisis propensity and long-run economic growth.

23. Economic theory suggests that under full financial integration, each country will consume a fixed share of the output produced by the group of countries with which it is integrated.[13] In other words, the growth rate of consumption will be the same for all countries

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[11] A regression specification controlling for bilateral trade flows delivered similar results.

[12] This result is robust to including an interaction of distance and the recipient's financial market development, as measured by stock market capitalization relative to GDP, but not to adding the interaction between distance and the recipient's per capita GDP, which might proxy for other facets of economic development beyond financial market transparency.

[13] The precise definition of full international financial integration in this theory involves full sharing of GDP risk, which could in principle be attained via a network of bilateral GDP swaps or the trading of claims on GDP. The analysis assumes that international financial integration does not affect GDP growth correlations across countries: see Obstfeld and Rogoff (1996, chapter 5).

"in the group" and will equal the growth rate of groupwide output. Although this is unlikely to happen in practice, it is a useful benchmark for assessing the potential risk-sharing gains from financial integration. In simple terms, a practical way of measuring potential risk-sharing gains is to compare an individual country's consumption volatility with the volatility of groupwide output: if a country's individual consumption volatility is much higher than it would be under full financial integration within the group, then potential risk-sharing gains are relatively large.[14] The main findings, reported in Table 5, are as follows:

- The potential risk-sharing benefits (reduction in consumption volatility) from full financial integration with the rest of the world are substantial for every country: the standard deviation of worldwide output growth is 0.8 percentage points, far lower than the median standard deviation of consumption growth for individual countries (4.4 percentage points), and lower even than the standard deviation for the country with the lowest consumption volatility (1.4 percentage point).

- The potential gains from financial globalization are larger for countries whose economies are more volatile because they are subject to more frequent and relatively damaging idiosyncratic shocks (e.g., smaller, and therefore less diversified, countries) or because their ability to smooth such shocks through countercyclical policies or domestic financial markets is lower (e.g., countries at a lower stage of economic and domestic financial development).

- The potential gains are greater for countries whose international financial integration is relatively low, which to a large degree are countries whose economic cycles are less correlated with worldwide economic developments.

24.   Against the benchmark of the potential gains from *global* financial integration, what can be said about "optimal" groupings of countries from a risk-sharing perspective? Empirical analysis (based on Imbs and Mauro, 2007) suggests the following:

- The bulk of the potential risk-sharing benefits available to a country within a given sample of countries (e.g., the world, a region, or countries within a given range of per capita income) can be attained in a small pool consisting of a handful of well-chosen partners. For example, consumption volatility can be reduced by more than half for a typical advanced country through full financial integration with an "optimally-chosen" pool of five countries. The potential gains are even higher for optimal pools of emerging market and developing countries.

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[14] The results are similar using an individual country's output volatility rather than consumption volatility. Some authors (e.g. Lucas, 1987) have argued—based on evidence for advanced countries—that the welfare gains from reducing consumption volatility are small. However, others have shown that the welfare gains are much larger for emerging market and developing countries than for advanced countries (e.g., Pallage and Robe, 2003). Potential risk-sharing benefits presented in the paper suggest sizable welfare gains.

Table 5. Potential Gains from Risk Pooling Among Countries

	(1)	(2)
	Median σ Individual Country (Consumption)	σ Whole Group (Income)
All countries	4.45	0.81
Interest in Risk-sharing, by Level of Development, Size		
Advanced countries	2.19	1.18
Emerging markets	4.01	1.29
Developing countries	8.24	1.30
Interest in Risk-sharing, by Size of Country		
Small countries	6.72	1.23
Large countries	3.48	0.95
Current Degree of International Financial Integration		
High integration countries	2.45	0.85
Low integration countries	6.10	1.31
Adherence to International Arrangements		
Relatively strong	2.31	1.07
Relatively weak	6.11	1.26
Above-average institutional quality	2.45	1.10
Below-average institutional quality	6.17	1.32

Sources: Foreign assets are from Lane and Milesi-Ferretti, 2006; GDP data in current U.S. dollars are from the IMF's World Economic Outlook. GDP and consumption data at PPP are from the World Bank's World Development Indicators.

Notes: Column (1) reports the median (across countries in the indicated sub-sample) standard deviation (σ) of individual country growth in 1975–2004. Column (2) reports the standard deviation of the growth rate of total output for the group of countries as indicated. Small (large) countries are those with a total population of less than (more than) 5.2 million in 1970. High (low) capital integration countries are those in the top (bottom) half of the sample when ranked by total foreign assets to GDP. Above and below average institutional quality is measured according to the index by Kaufmann, Kraay, and Mastruzzi (2005). Relatively strong adherence to international arrangements is defined as above average institutional quality and no defaults on international debt in 1970-2004 according to Detragiache and Spilimbergo (2001), and Reinhart, Rogoff and Savastano (2003).

- While regional pools can provide major benefits, risk-sharing benefits tend to be greater when countries choose partners from the worldwide sample rather than within a region. For example, median volatility of consumption growth for Latin American emerging markets equals 6.2 percentage points and can be lowered to 1.9 percentage points by pooling with five optimally-chosen Latin American emerging markets, but to 1.3 percentage points by pooling with five optimally-chosen emerging markets in the absence of geographical constraints. Similarly, the median Asian emerging market can reduce its volatility from 4.1 percentage points to 1.9 percentage points in a pool of five Asian emerging markets, and to 1.4 percentage points in a pool of five emerging markets chosen also from outside the region.[15]

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[15] An approach based on the number of crises common to more than one member of a given pool yields higher costs of geographical constraints, reflecting a regional element in past emerging market crises.

International Risk-Sharing in Practice

25.   Even if the potential benefits of international risk sharing are large, to what extent has international risk sharing actually taken place in practice? In particular, has the increase in international financial integration over the past three decades resulted in improved risk sharing? A possible empirical proxy for high international risk sharing is a low correlation between domestic consumption and domestic output. Based on nine-year rolling window estimates of this measure, the empirical evidence suggests that international risk sharing has indeed increased somewhat for advanced countries, especially over the past two decades, but that for emerging market and developing countries there has been relatively little change (Kose, Prasad, and Terrones, 2007). Other studies confirm a favorable effect of financial integration on actual international risk sharing in advanced countries, especially among OECD, EU, and EMU countries—that is, groups where integration has increased relatively rapidly (Artis and Hoffmann, 2006a, 2006b). Relatedly, analyses of recent changes in the pattern of countries' holdings of international financial assets have found that home bias has declined in the advanced countries; and that such decline has indeed been associated with somewhat increased international risk sharing (Sørensen and others, 2007).[16]

26.   The finding that actual risk-sharing benefits have been larger for advanced countries than for emerging market and developing countries, in contrast to the larger potential gains for these latter groups, may reflect faster and more substantial increases in *de facto* integration in the first group, as discussed in Section II. It may also result from a dependence of risk-sharing benefits on whether countries have in place certain preconditions—related for example to trade openness or domestic financial sector development (Kose, Prasad and Terrones, 2007; Levchenko, 2005). Looking ahead, an implication may be that a large increase in *de facto* financial integration and/or accompanying progress with regard to domestic fundamentals are required for emerging market and developing countries to reap significant risk-sharing benefits, and it may thus take several years for this segment of the membership to attain such benefits, unless present financial integration and reform trends accelerate significantly. This being said, recent increases in the share of equity and FDI—that is, forms of financing that facilitate international risk sharing owing to the procyclical nature of the associated payments—may suggest that actual risk sharing will be higher in the next decades than it has been in the past.

V.   How Does Financial Globalization Affect Stability and Growth?

27.   Financial globalization has been argued to affect many aspects of economic performance—including long-run economic growth, the propensity to experience growth upturns or downturns, the sustainability of growth spells, the volatility of economic growth, the frequency of economic crises, and the depth and duration of output drops in the aftermath

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[16] "Home bias" refers to the observation that investors diversify across countries substantially less than would appear to be warranted based on standard portfolio theories: in other words, by increasing their holding of foreign assets, investors in most countries would be able to reduce the riskiness of their portfolios, while maintaining a constant expected rate of return.

of crises. This section focuses on financial globalization's effects on three of these aspects, namely: macroeconomic volatility, crisis propensity, and economic growth.[17]

28.   A number of underlying mechanisms are likely to be involved in the transmission of financial globalization to economic volatility and growth:

- ***Financial sector development.*** Well-developed domestic financial markets may be instrumental in moderating boom-bust cycles that could be triggered by sudden stops in financial flows (Aghion and Banerjee, 2005) and in efficiently allocating foreign financial flows to competing investment projects, thereby promoting economic growth (Aoki, Benigno and Kiyotaki, 2006). Furthermore, access to international markets is not available to all members of society, and underdeveloped domestic financial systems may prevent the pooling of risk across agents (Levchenko, 2005).

- ***Institutional quality.*** Better institutional quality helps to shift the composition of financial flows towards FDI and portfolio equity, thereby enhancing growth and macroeconomic stability benefits (Becker and others, 2007). Bordo and Meissner (2007) suggest that countries with stronger institutions (in addition to well-developed financial markets and prudent macroeconomic policies) enjoyed greater economic growth benefits from financial integration during the 1870–1913 period.

- ***Sound macroeconomic policies.*** In the absence of a sound macroeconomic policy framework, international financial integration may lead to excessive borrowing and debt accumulation, thus increasing vulnerability to crisis.

- ***Trade integration.*** A high degree of trade openness seems to be associated with fewer sudden stops and current account reversals. Trade integration may also facilitate recoveries from financial crises and mitigate their adverse growth effects (Edwards, 2005; and Calvo, Izquierdo and Mejia, 2004).

A. Volatility and the Frequency of Crises

29.   Following the Asian crisis, a presumption emerged in some policy circles that financial globalization would tend to exacerbate macroeconomic volatility in emerging market and developing countries, and increase vulnerability to sudden stops. The academic literature, however, has found generally inconclusive results on the issue (Kose and others, 2006). Empirical evidence presented below suggests that the relationship between financial integration and macroeconomic volatility (proxied here by consumption volatility) depends on a country's domestic financial development and the quality of its institutions, consistent with a "thresholds" view of the effects of financial integration.

30.   Indeed, in the panel regression results reported in Table 6 and Figure 6, the estimated slope coefficient on *de facto* financial integration is positive and significant for countries with relatively weak perceived institutional quality and a relatively low degree of domestic

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[17] It should be noted that, for a number of the empirical associations examined in this section, causality may run in both directions.

Table 6. Impact of Financial Integration on Consumption Volatility

	(1) Private credit	(2) Institutional quality
Financial integration	0.03**	0.06***
	(0.01)	(0.02)
Terms of trade volatility	0.13***	0.12**
	(0.04)	(0.05)
Trade openness	0.04***	0.03**
	(0.01)	(0.02)
ln(Initial income per capita)	0.03**	0.02**
	(0.01)	(0.01)
Financial integration*private credit	-0.02*	…
	(0.01)	…
Private credit (percent of GDP)	0.01	…
	(0.02)	…
Financial integration*institutional quality	…	-0.37***
	…	(0.12)
Institutional quality (divided by 100)	…	0.01
	…	(0.15)
R^2 adjusted	0.14	0.14
N	81	76
Threshold	1.15	15.85

Sources: *International Financial Statistics,* IMF; and staff estimates.
Notes: Estimated by panel fixed effects (country and decade dummies) over 1965–2004, subject to data availability. The dependent variable is the standard deviation of the growth rate of consumption per capita over each decade. Financial integration is defined as total liabilities as percent of GDP. Dummy variables are included for each decade, but the estimated coefficients are not reported, for the sake of brevity. Robust standard errors are reported in brackets. The symbols *, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent level, respectively.

financial development, whereas the impact is not significantly different from zero for countries with stronger institutions and more developed domestic financial systems.[18] Equivalently, the positive relationship between financial integration and consumption volatility holds for countries with relatively poor institutional quality and low financial sector development; for countries over a certain threshold, the relationship is neutral and may even turn negative (more integration implying less volatility).

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[18] This result is robust to estimation in a cross section of long-run averages, changes in country coverage and sample period.

Figure 6. Financial Integration and Consumption Volatility

Percent of countries (left scale)
at level of financial development
indicated on horizontal axis

Marginal impact (in percentage
points, right scale) of financial
integration on consumption
volatility at level of financial
development indicated on
horizontal axis

Private Credit / GDP

Institutional Quality
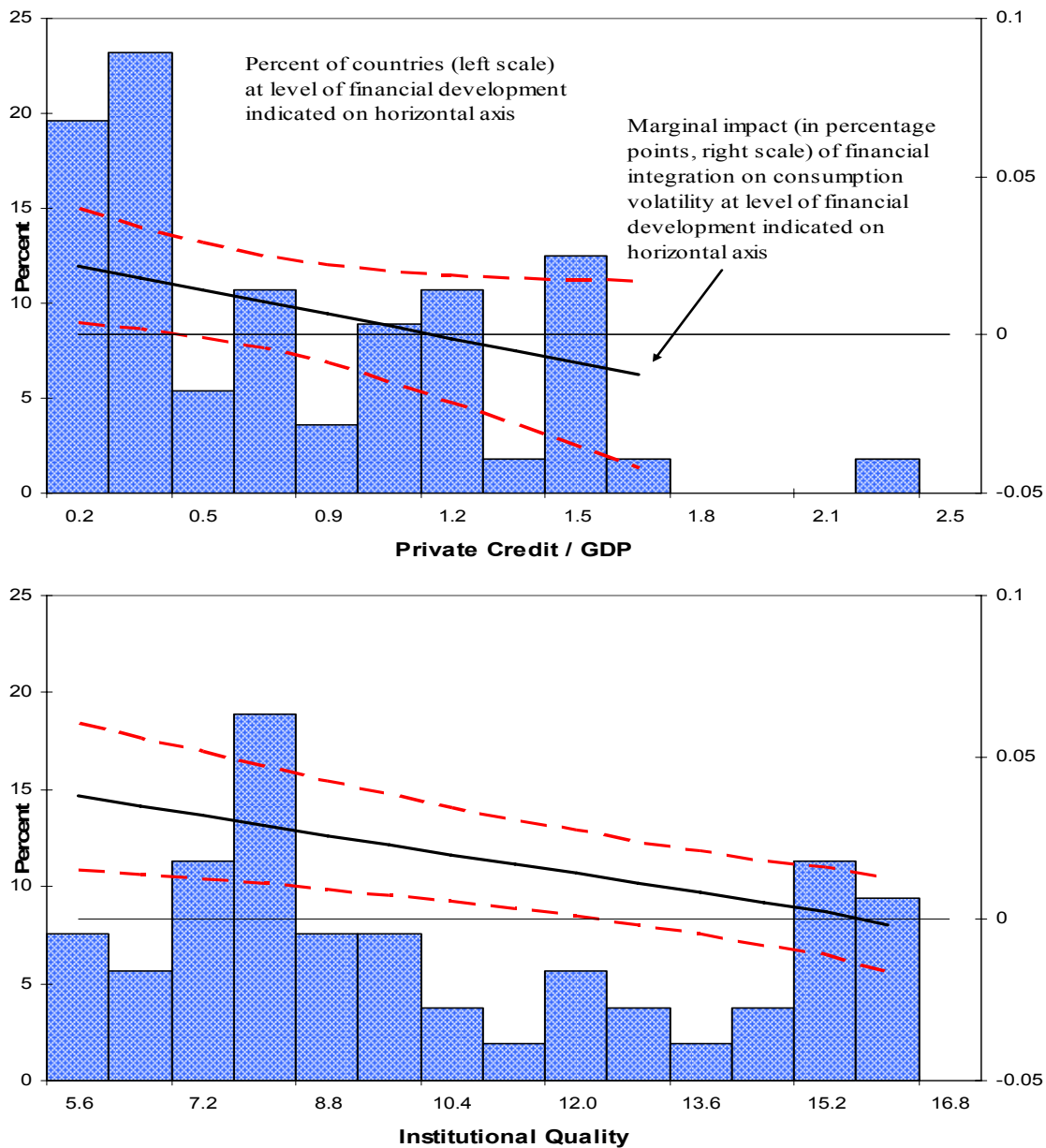
Sources: International Financial Statistics, IMF; *International Country Risk Guide*, PRS.
Notes: Figure based on regression results reported in Table 6, which refer to the estimated impact of an increase in *de facto* financial globalization on consumption volatility, including an interaction effect for domestic financial development (or institutional quality). The solid line shows the impact (marginal effect) of an increase in total external liabilities on consumption volatility, as a function of the ratio of private credit to GDP (or institutional quality) at the different levels indicated along the horizontal axis. The dashed lines are the standard error bands around the estimated marginal effect. The histogram reports the percentage of countries in the sample at each given level of credit market development (or institutional quality) as of 2004, indicated along the horizontal axis. Institutional quality is the sum of three indices (Law and Order; Bureaucratic Quality; and Absence of Corruption), each of which ranges from 0 to 6.

31.   Drawing on the regression results, it is possible to estimate thresholds for institutional quality and domestic financial development beyond which financial globalization's impact is no longer positive or no longer statistically significant. While the exact values of the thresholds need to be interpreted with caution, given the considerable uncertainty surrounding the estimates, based on average data over the period 2000–04, virtually all advanced countries and about one third of emerging market countries meet the thresholds beyond which the estimated effect of financial integration on consumption volatility is insignificant. The developing countries in the sample are currently below the thresholds.

32.   How large is the impact of financial globalization on consumption volatility for different groups of countries? One way to address this question is to hold the level of domestic financial development constant at a given level, and trace the impact of a change in financial globalization. Using this approach, for a country at the 25th percentile of the distributions of both financial development and financial integration (where average consumption volatility is about 6 percent), an increase in financial integration to the 75th percentile is associated with an increase in volatility of 1.4 percentage points. This effect becomes smaller and loses statistical significance as financial development increases. For example, for a country at the 75th percentile of financial development, the impact of financial integration on volatility is not statistically significant.

33.   Turning now from volatility to crisis propensity, despite a widespread perception that financial globalization may lead to higher frequency of crises, existing empirical studies (surveyed in Kose and others, 2006) do not support the view that greater financial integration increases the likelihood of crisis. On the contrary, a majority of studies find that crises are, if anything, less frequent in financially open countries than in financially closed ones. This could of course be an outcome of self selection, in which countries less prone to crises will choose to open up, whereas more vulnerable countries might choose to remain closed. However, some studies suggest that, even taking into account the possibility that self-selection could result in estimation bias, the frequency of currency crises is not higher in more financially open countries (Glick and others, 2006).

34.   Consistent with their role in the transmission of financial openness to macroeconomic volatility, thresholds also appear to influence the impact of financial openness on crisis propensity, with factors such as financial sector development, institutional quality, macroeconomic policy soundness, and trade openness playing key roles. Specifically, within a sample of countries with *de facto* open financial accounts (that is, above the median with respect to financial integration), countries above the median of the distribution for at least three of the four factors listed above experienced significantly lower crisis frequency between 1970 and 2004 compared with countries that were above the median for no more than two factors (Table 7).[19] This suggests that threshold effects—at work in the case of the

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[19] The results are significant for currency crises, debt crises, and sudden stops, though not for banking crises. Results are robust to: splitting the sample on the basis of whether they meet 50 percent (or 100 percent) of the thresholds; excluding the advanced economies from the sample; defining countries as financially open if they are in the top tercile, instead of the top half; and using *de jure*, instead of *de facto*, measures of financial openness. Definitions and data sources for the various types of crises are in Becker and others (2007).

Table 7. Countries with *De Facto* Open Financial Accounts: Frequency of Crises (1970–2004)

Above the Median in At least Three out of Four of the Factors	*N*	Banking Crises	Currency Crises	Debt Crises	Sudden Stops
Yes	23	0.61	0.57	0.22	0.7
No	19	0.74	0.89***	0.53***	0.89*

Sources: International Financial Statistics (IFS), staff estimates based on the sources and definitions of sudden stops, and banking, currency, and debt crises described in Becker and others (2007, Appendix I). A country has a currency crisis if the following three conditions hold at some point during a calendar year: (i) devaluation/ depreciation rate of at least 25 percentage cumulative over a 12-month period; (ii) devaluation/ depreciation rate by at least 10 percentage points greater than in the preceding 12 months; (iii) a minimum of three years since last crisis; this definition was applied using IFS data. Sudden stops in capital flows are defined as a decline in financial flows by five percentage points of GDP.
Notes: The factors are financial sector development, institutional quality, macroeconomic policies soundness, and trade openness. Frequency of crises: fraction of countries that had at least one crisis during the sample period. *N* is the number of countries in each group. One-sided test of equality of means: * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level.

effects of financial globalization on macroeconomic volatility—also appear to be present in determining the interaction of financial integration and crisis risks.

35. Evidence based on case studies (summarized in Appendix II) also suggests that, among financially integrated countries, those with sound macroeconomic and fiscal policies and well-developed and regulated financial systems are noticeably less likely to face crisis. For countries that do not meet these preconditions, the case studies suggest that a gradual approach to liberalization—with appropriate sequencing of liberalization of capital controls and improvements in the domestic financial sector and macroeconomic framework—seems to reduce the likelihood of a crisis; external anchors (such as EU membership) are also associated with reduced crisis propensity. Overall, the case studies suggest that the likelihood of currency and debt crises following financial account liberalization is noticeably reduced when such liberalization is an element of a broader reform package, macroeconomic policies are sound, and external imbalances are limited.

B. Economic Growth

36. The theoretical presumption that financial globalization should raise economic growth is appealing and intuitive, yet a vast empirical literature relying on cross-country regressions has failed to identify robust evidence of such a relationship. This subsection considers first this macroeconomic evidence, and then turns to an emerging literature based on microeconomic evidence, which tends to find more significant effects of (*de jure* and *de facto*) financial globalization on economic growth or its proximate causes (such as improvements in economic efficiency or domestic financial development).

37. A survey of more than 40 empirical studies based on macroeconomic data and cross-country regressions concludes that the evidence of a link between financial integration and

economic growth is not robust: while a few studies, mostly focusing on equity market liberalizations, find positive and significant effects, the majority of studies find insignificant effects, or results that do not hold up to changes in specification and country sample (Kose and others, 2006).[20] This is corroborated by cross-country and panel regressions estimated by staff of economic growth on financial integration and a few other standard determinants, where the results appear to be fragile (Table 8). The apparent absence of robust evidence of a link between financial globalization and economic growth may not be surprising, in light of the well-known difficulties involved in finding robust determinants of economic growth in cross-country or panel regressions. Nevertheless, it does raise the question of how to reconcile the theoretical promise of financial integration with the mixed/fragile empirical evidence. To address this question, three issues are considered:

- **Composition.** Unbundling financial globalization into different types of financial flow helps to uncover a relationship between financial integration and economic growth. Cross-country and panel regressions reported in Table 9 suggest that countries with a higher share of foreign direct investment in total liabilities tend to experience more rapid economic growth.[21] The link is statistically and economically significant, and robust to variations in estimation technique. Concretely, keeping constant the stock of foreign liabilities, an increase in foreign direct investment by 10 percentage points of GDP (about the average of FDI in the sample) is associated with an increase in average growth of 0.3 percentage point. This evidence is consistent with many studies that have documented a positive impact of foreign direct investment on economic growth (e.g., Moran, Graham, and Blomstrom, 2005).

- **Thresholds**. There is some evidence that the impact of financial integration on growth depends on factors similar to those governing the relationship between financial integration and volatility discussed above.[22] Although the results are not particularly robust,

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[20] Some studies have found positive and significant evidence for limited sub-samples of countries, such as Eastern Europe (Abiad and others, 2007).

[21] In some instances, the distinction between FDI and non-FDI flows may be blurred in the data, in an environment where multinationals can to a large extent choose how to book transactions across branches/subsidiaries in different countries, for example to take advantage of tax or regulatory differentials. In terms of the empirical implementation, such features imply that both FDI and non-FDI flows are likely to be measured with error. It should be emphasized that this type of "measurement error" would tend to make it more difficult to establish a differential impact of FDI and non-FDI flows on growth. Taking this possible "attenuation bias" into consideration, the finding of a statistically significant difference between the impact of FDI and non-FDI flows is thus even more revealing.

[22] A number of empirical studies (surveyed in Kose and others, 2006) report evidence suggesting that preconditions with respect to domestic financial sector development, institutional quality, and trade openness need to be met for financial integration to have a beneficial impact on economic growth. Reliance on foreign capital (especially non-FDI forms of financing) has not been found to be positively associated with economic growth in a broad cross section of countries, though it has for a sub-sample consisting of advanced and transition economies. Prasad and others (forthcoming) find that greater domestic financial development strengthens the favorable impact of foreign capital on economic growth.

Table 8. Financial Integration and Economic Growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Initial income per capita (log)	-1.04***	-1.09***	-1.31***	-1.44***	-1.42***	-1.17***	-1.03***	-1.04***	-1.03***	-0.81***
	(0.26)	(0.29)	(0.27)	(0.28)	(0.29)	(0.3)	(0.28)	(0.28)	(0.28)	(0.26)
Average investment to GDP	9.90***	9.75***	7.71**	7.67**	7.33**	9.89***	9.46**	9.50**	9.43**	12.14***
	(2.93)	(3.65)	(3.12)	(3.07)	(3.17)	(3.56)	(3.68)	(3.66)	(3.68)	(3.26)
Years of schooling	0.13	0.13	0.12	0.15*	0.14*	0.14	0.13	0.11	0.13	0.06
	(0.09)	(0.1)	(0.08)	(0.08)	(0.08)	(0.1)	(0.1)	(0.09)	(0.1)	(0.08)
Population growth	-31.50	-34.10	-63.89***	-82.47***	-67.14***	-36.55	-32.41	-30.55	-32.33	-28.92
	(20.33)	(23.1)	(20.18)	(19.69)	(20.01)	(23.74)	(21.84)	(21.94)	(21.78)	(17.43)
Africa dummy	-0.63	-0.62	-0.65	-0.53	-0.66	-0.61	-0.63	-0.66	-0.63	-0.59
	(0.55)	(0.57)	(0.55)	(0.54)	(0.55)	(0.56)	(0.56)	(0.56)	(0.56)	(0.57)
Gross fin. openness to GDP (stock)		0.06*								
		(0.03)								
Total inflows to GDP			8.62**							
			(4.04)							
Gross flows to GDP				1.56***						
				(0.42)						
Total outflows to GDP					6.75					
					(5.31)					
External assets to GDP						0.19**				
						(0.09)				
External liabilities to GDP							0.02			
							(0.11)			
FDI plus portf. equity liab. to GDP								0.93		
								(1.12)		
Debt liabilities to GDP									0.01	
									(0.12)	
De jure financial openness										-0.84
										(0.51)
Constant	8.84***	9.25***	11.66***	13.12***	12.77***	9.89***	8.86***	8.80***	8.84***	7.11***
	(1.99)	(2.28)	(1.97)	(2.12)	(2.1)	(2.35)	(2.16)	(2.09)	(2.15)	(1.88)
Observations	91	87	86	86	86	87	87	87	87	84
R^2	0.39	0.39	0.47	0.46	0.45	0.4	0.38	0.39	0.38	0.42

Sources: *International Financial Statistics*, IMF; Penn World Tables version 6.2; and staff estimates.

Notes: Cross-country regressions, ordinary least squares, 1975–2004. The symbols *, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent level, respectively. Outliers, such as financial centers are excluded from the sample; results are stronger when they are included.

Table 9. Impact of FDI on GDP Growth

Initial income	1.45
	(1.46)
Schooling years	-0.43
	(0.31)
Population growth	0.11
	(0.45)
Investment (share of GDP)	0.09
	(8.55)
Government balance (share of GDP)	14.24**
	(5.64)
CPI inflation	-0.99***
	(0.38)
Trade openness	0.40
	(0.69)
Private credit (share of GDP)	-3.12
	(2.81)
FDI and equity liabilities (share of GDP)	3.00*
	(1.74)
Total liabilities (share of GDP)	-0.14
	(1.11)

Source: International Financial Statistics, IMF; and staff estimates.
Notes: System Generalized Method of Moments estimates on a panel of six 5-year periods over 1975–2004. The dependent variable is the average growth rate of GDP per capita over each 5-year period. The results are based on 410 observations (73 countries). Robust standard errors are reported in brackets. The symbols *, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent level, respectively.

financial integration appears to be beneficial for growth in countries that meet certain thresholds with respect to financial development, institutional quality, macroeconomic policy soundness, and trade openness, but has potentially large negative effects in countries that do not.[23] Such thresholds seem to be especially relevant for the effects of external debt accumulation on economic growth, and less relevant for FDI, whose effects on economic growth do not seem to depend on thresholds.

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[23] In particular, the significance of the results and the estimated thresholds beyond which the impact of financial integration is positive/negative are sensitive to changes in estimation technique and sample composition. Thus, further research is needed to make these findings applicable to policy analysis.

- **Indirect Benefits**. A growing body of empirical work suggests that financial liberalization has a positive impact on several variables that are associated with economic growth, even if their effects are difficult to detect in cross-country growth regressions:[24]

  ➢ *Total factor productivity growth*. Panel regressions estimated by staff (Table 10) suggest that total factor productivity growth (TFP) is positively and significantly associated with de jure financial openness. This result may be surprising, given the lack of robust evidence of a relationship between financial integration and economic growth, and little evidence of threshold effects impinging on the transmission of financial openness to TFP. One possible interpretation of these results is that financial openness enhances economic efficiency but has an unstable and seldom significant effect on factor accumulation, so that the ultimate effect on economic growth is difficult to pinpoint in the data.

  ➢ *Domestic financial sector development.* Financial integration may catalyze domestic financial market development, through greater competitive pressures on financial intermediaries and movement toward international best practices in accounting, financial regulation, and supervision. Foreign ownership of banks may also facilitate transfer of technology and risk-management techniques (Goldberg, 2004; Levine, 2005; and Mishkin, 2006). As reported in Table 11, *de jure* financial openness and domestic financial sector development are significantly correlated, controlling for a range of other determinants. These results, moreover, appear to be robust across sample compositions and econometric specifications.

  ➢ *Macroeconomic policies.* Financial integration may improve policy discipline and signal a country's commitment to sound policies (Bartolini and Drazen, 1997; and Gourinchas and Jeanne, 2005). Empirical studies suggest that countries with higher levels of financial openness experience lower inflation rates (Tytell and Wei, 2004; and Gupta, 2007), though evidence is more mixed for fiscal policies (Garrett and Mitchell, 2001; and Kim, 2003).

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[24] Consistent with this view, while the coefficient on financial globalization is sometimes significant in the regressions reported in Table 8, such significance tends to disappear if the list of explanatory variables includes—as is the case in most empirical studies—measures of "collateral benefits," such as domestic financial sector development, sound macroeconomic policies, and higher external trade. Beyond these effects, financial globalization may also impact the duration of growth spells—an effect that is difficult to capture in growth regressions—and, like trade openness, may improve institutional quality by creating constituencies for economic reform (Berg, Ostry, and Zettelmeyer, 2007; Johnson, Ostry, and Subramanian, 2006; and Rajan, 2006).

Table 10. Financial Openness (*De Jure*) and Total Factor Productivity Growth

	Fixed Effects	System-GMM
Initial total factor productivity	-0.56***	-0.25**
	(0.08)	(0.11)
Trade openness (% GDP)	0.52***	0.24
	(0.18)	(0.24)
Financial openness (de jure)	0.08***	0.07**
	(0.03)	(0.03)
Population growth (%)	-0.02	-0.09***
	(0.03)	(0.02)
R^2	0.45	
Sargan test *p*-value		0.25
AR1 test *p*-value		0.02
AR2 test *p*-value		0.10

Sources: Penn World Tables version 6.2; World Development Indicators (World Bank); *Annual Report on Exchange Arrangements and Exchange Restrictions*, IMF; and staff estimates.
Notes: Fixed effects and system of generalized method of moments (System-GMM) panel estimates. The dependent variable is the ten-year non-overlapping growth rate of total factor productivity (TFP) over 1965–2005. Period dummies are included but not reported. In addition to the internal instruments, an emerging markets dummy has been used in the system-GMM. The results are based on 263 observations (68 countries). Robust standard errors (clustered by country) are reported in brackets. The symbols *, **, and *** indicate statistical significance at the 10 percent, 5 percent and 1 percent level, respectively. Outliers, such as financial centers, are excluded from the sample; results are stronger when they are included.

38.   Turning to the microeconomic, and especially firm-level, evidence, as well as event studies surrounding equity market liberalizations, a clearly beneficial impact of financial globalization on market capitalization, financial development, and the cost of capital is apparent (Bekaert and others, 2005; Henry, 2006). Equity market liberalizations have also been found to reduce the cost of capital (Stulz, 1999) and to boost investment growth (Alfaro and Hammel, 2006). Relatedly, microeconomic studies (surveyed in Forbes, 2005a) have found that capital controls may impose significant efficiency costs, including through:

- *Lower international trade.* Wei and Zhang (2006) present evidence suggesting that capital controls increase the cost of engaging in international trade even for those firms that do not intend to evade capital controls. A one-standard-deviation increase in controls on foreign exchange transactions reduces trade by the same amount as a hike in external tariffs by about 11 percentage points, according to their results. More generally, there is ample evidence from case studies that capital controls create incentives for circumvention through mis-invoicing.

Table 11. Financial Integration and Financial Sector Development

	Fixed Effects	System-GMM
Ln private credit to GDP, lagged	-0.53***	-0.26***
	(0.07)	(0.06)
Ln real GDP per capita PPP	0.38***	0.14**
	(0.1)	(0.06)
Ln (1+ CPI inflation rate)	-0.01	0.01
	(0.06)	(0.06)
Ln trade openness	0.34**	0.18**
	(0.17)	(0.09)
Financial account openness index	0.21***	0.19**
	(0.07)	(0.09)
Constant	-2.05	-0.58
	(1.23)	(0.64)
R^2	0.34	
Sargan test p-value		1
AR1 test p-value		0.01
AR2 test p-value		0.9

Sources: International Financial Statistics, IMF; Financial account openness index (equal to 1 if country is classified as open and 0 if closed) constructed by staff based on the *Annual Report on Exchange Arrangements and Exchange Restrictions*, IMF; and staff estimates.

Notes: Panel of non-overlapping 5-year averages during 1975–2004. Dependent variable is change in the logarithm of private credit to GDP. Period dummies included but not reported. The results are based on 339 observations (59 countries). Robust standard errors clustered by country in brackets. The symbols *, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent level, respectively. In system-GMM estimation, all control variables enter as endogenous.

- *Cost of capital.* Capital controls are estimated to make it more difficult and expensive for small firms to raise capital (Forbes, 2005b). Moreover, multinational affiliates located in countries with capital controls face local borrowing costs that are about 5 percentage points higher than affiliates of the same parent company borrowing locally in countries without capital controls (Desai and others, 2004).

- *Distortions.* Economic behavior is likely to be distorted by capital controls, and resources and effort are wasted in seeking to circumvent controls. Moreover, a situation in which only some economic agents are able to evade controls may lead to an uneven playing field in which well connected firms—rather than the most efficient—survive. Beyond this, capital controls insulate domestic firms from competitive forces, and in some cases may even create a screen for cronyism and subsidies to politically-connected firms (Johnson and Mitton, 2003).

- ***Costs for the public administration.*** Significant administrative costs result from the need to monitor compliance with capital controls and, in many cases, to continually update the controls to close loopholes and limit evasion (Forbes, 2005a).

39.   To sum up, although policy advice on financial liberalization needs to consider whether countries meet certain thresholds that govern its impact, it also needs to take into account the impact of financial integration on countries' standing in relation to the thresholds, and the significant microeconomic costs of maintaining capital controls. This leads to a tension: on the one hand, liberalization for countries that do not meet the thresholds may amplify risks; on the other, liberalization may itself catalyze improvements in domestic financial development and macroeconomic policies, and reduce the distortionary costs of capital controls, perhaps engendering a virtuous circle in which ultimately the country will meet the necessary conditions to reap the full benefits of integration.

VI. CONCLUSION

40.   International financial integration has increased dramatically in the global economy over the past three decades, though this process has affected advanced countries to a much greater extent than other segments of the IMF's membership, in particular the developing countries. The differing trends in *de facto* financial integration reflect in part countries' different policies with respect to the strength of *de jure* capital controls—notably the relatively early liberalization of the financial account in advanced countries. In addition, relative institutional quality and domestic financial development have also acted as constraints on the extent of *de facto* financial integration among emerging market and developing countries. Notwithstanding differences across segments of the IMF's membership, the global trend toward increased international financial integration has affected all segments of the IMF's membership, and even—if to a lesser degree—those countries that have sought to lean against the wind through relatively restrictive financial account regimes.

41.   In principle, greater financial openness holds promise: gains may come from greater risk-sharing, a more efficient worldwide allocation of capital, and broader technology transfer. Sizable gross external asset and liability positions in advanced countries seem to be reflected in significant risk-sharing gains and, to the extent that international asset trade expands further in emerging market and developing countries in the years ahead, risk-sharing gains should be at least as large, in view of the relatively high current degree of consumption volatility in this segment of the IMF's membership. Closer integration of emerging market and developing countries into global financial markets may also provide significant benefits to advanced country residents through enhanced opportunities for portfolio diversification.

42.   Empirical evidence on the stability benefits of international financial integration is mixed. The results reported in the paper suggest that, for countries with relatively strong institutions, well-developed domestic financial systems, and sound macroeconomic policy frameworks, greater integration has not been accompanied by significantly higher macroeconomic volatility, whereas for countries without those conditions in place, volatility has tended to increase with greater openness. Likewise, within a sample of financially open countries, crisis frequency is found to be lower for countries that are relatively open to

international trade, and with strong institutions, sound policies, and well-developed financial sectors.

43.   The empirical relationship between international financial integration and long-run economic growth is complex. Evidence presented above stresses the importance of unbundling financial integration into different components: foreign direct investment and other non-debt forms of financing are found to be positively and significantly associated with economic growth, whereas the impact of debt seems to depend on the strength of a country's institutions and policies. It bears noting, however, that even for countries that do not meet relevant thresholds, policy makers will need to take into account—in framing their strategies in relation to financial liberalization—that greater financial openness is associated with a number of "collateral benefits" that in turn seem to foster economic growth. In other words, when assessing the merits of liberalization, policy makers will need to be cautious, but also consider the costs of caution implied by efficiency losses related to capital controls.

44.   The policy relevance of thresholds for country fundamentals is likely to differ across segments of the IMF's membership (Table 12). For countries that do not yet meet the relevant thresholds, the appropriate focus of policy makers is likely to be on improving fundamentals—such as domestic financial sector development, macroeconomic policy frameworks, and institutions. This said, opening up to inward foreign direct investment—a type of flow whose benefits do not seem to hinge on such preconditions—would appear to be desirable at an early stage, given FDI's favorable impact on growth and no adverse effect on stability; liberalization of other types of flow should be delayed until country fundamentals are raised to be more in line with relevant thresholds, and growth-stability tradeoffs are more favorable. For countries that are small or geographically isolated, greater financial market transparency can be an important vehicle for attracting foreign capital and obtaining corresponding benefits.

45.   The need to make early progress with respect to country fundamentals in order to reap net benefits from financial liberalization is highlighted, in particular, by the potentially large costs associated with maintaining a pervasive structure of capital account restrictions. Recent empirical studies based on microeconomic data suggest that controls may increase the difficulty and cost of corporate finance, particularly for small firms. The evidence also suggests that capital controls insulate domestic firms from competitive forces and thereby undercut economic efficiency; induce distortions in the "playing field" for local firms; carry significant administrative costs; and reduce international trade. Indeed, a promising area for future research is to quantify the macroeconomic implications of financial globalization beginning from estimates based on this more illuminating microeconomic evidence.

46.   Looking forward, the net benefits from financial integration are likely to be larger than in the past, in view of a more equity-based structure of international asset and liability positions, as well as policy and institutional reforms that increasingly are bringing emerging market countries up to the thresholds where net benefits associated with liberalization are likely to turn positive. These developments bode well for member countries' ability to fully reap the benefits of financial globalization in the years ahead.

Table 12. Summary of Findings and Policy Implications

Country Characteristics	Estimated Effects of Financial Integration		Recommended Focus of Policies
	Benefits	Costs	
Countries with well developed financial markets, high perceived institutional quality; sound macroeconomic policies.	Risk sharing benefits apparent. Higher TFP growth. Higher economic growth (FDI). Reduction in distortions associated with controls. Faster financial sector development. Macroeconomic policy discipline.	No significant increase in macroeconomic volatility. No detrimental effect from debt-creating flows.	Continued capital account liberalization. Promote financial market transparency and sound governance practices.
Countries close to meeting the thresholds in terms of financial market development, perceived institutional quality, and macroeconomic policies.	Potential for large increase in risk sharing. Higher economic growth. Higher TFP growth. Higher economic growth (FDI). Reduction in distortions associated with controls. Reduction in the cost of capital. Faster financial sector development. Greater macroeconomic policy discipline.	Moderate increase in macroeconomic volatility and the probability of financial crises. Growth effects of debt flows uncertain.	Inward FDI liberalization. Case-by-case evaluation of opportunity for broader liberalization. Strengthening of domestic fundamentals.
Countries far from meeting thresholds.	Greatest potential for increases in risk sharing. Higher TFP growth. Higher economic growth (FDI). Reduction in distortions associated with controls. Reduction in the cost of capital. Faster financial sector development. Greatest benefits for macroeconomic policy discipline.	Potential for significant increase in macroeconomic volatility and the probability of financial crises. Negative effect of debt-creating flows on growth.	Strengthening of domestic fundamentals. Inward FDI liberalization.

APPENDIX I. CAPITAL CONTROL INDICES

All capital controls indices in this paper, and essentially all existing cross-country indices in the broader literature, are based on information contained in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER). Until 1995, the AREAER summarized a country's openness to capital flows using a simple 0/1 dummy variable, where 1 represents a restricted capital account and 0 represents an open capital account. In 1995, the AREAER started providing information on restrictions on capital transactions in 11 categories: shares or other securities of a participating nature; bonds or other debt securities; money market instruments; collective investment securities; derivatives and other instruments; commercial credits; financial credits; guarantees, sureties and financial backup facilities; direct investment (including liquidation of direct investment); real estate transactions; and personal transactions. For each of these categories, the AREAER's new methodology distinguishes between restrictions on residents and those on non-residents.[25] For each of these specific types of restrictions, binary indicators were compiled.[26] More aggregate indicators for each country were then calculated as simple averages of the respective subcategories. For example, restrictions on equity inflows are the average of the restriction dummies on "purchase locally by nonresidents" and "sale or issue abroad by residents," and the equity inflows index can thus take three values, 0, 0.5, or 1. The broadest index for an individual country is the average of 18 dummies. The resulting index and its subcomponents are the most comprehensive and detailed indices of capital controls currently available. Compared with broad binary dummies, the new indices provide a more precise measure of controls, and permit analysis of various types of controls. This said, like all AREAER-based measures, the index cannot reflect differences in enforcement or economic relevance of controls across countries.

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[25] For the purposes of this paper, the focus is on a subset of these categories, namely, equity, money market, bond, collective investment and direct investment. These categories broadly correspond to the standard decomposition of *de facto* financial flows.

[26] Restrictions on capital transactions were coded as a 0 (not restricted) if they consisted merely of registration or notification requirements. They were also coded as 0 if a country is generally open but imposes restrictions on investments in a small number of selected industries, for example, for national security purposes, or if it is generally open but excludes a small number of countries, typically for political reasons. Using a binary index at this level facilitates consistency in coding across countries and years, though it requires abstracting from differences in the form of controls (prohibition, limitation, taxation, or registration requirements).

APPENDIX II. CASE STUDIES ON FINANCIAL ACCOUNT LIBERALIZATION

Using a variety of case studies on countries' experiences with financial account liberalization, it is possible to illustrate some of the findings reported in Section V. This appendix summarizes a variety of previously published case studies prepared by IMF staff and the IMF's Independent Evaluation Office.[27] Countries covered include eight advanced countries, 22 emerging market economies, and two developing countries (see Appendix Table 2). Countries' experiences are grouped along two dimensions: (i) depending on whether a country experienced a currency or debt crisis after it liberalized the financial account; and (ii) whether a country is above the median in at least three of the four factors emphasized in Section V, namely trade openness (imports plus exports, divided by GDP), the soundness of macroeconomic policies (government expenditures divided by revenues), institutional quality (the average index from the *International Country Risk Guide*, Political Risk Services), and domestic financial development (private credit/GDP).

As shown in the table below, the overall picture that emerges is that countries with relatively sound macroeconomic policies, and well-developed domestic financial systems are less likely to face crisis than countries without these characteristics. While the predicted pattern holds on average, a few countries experienced crises despite faring relatively well with respect to sound policies and domestic financial development, and some countries with policy and institutional shortcomings nevertheless avoided crises.

		Crisis	
		No	Yes
Above the median in at least 3 out of	Yes	11	4
4 factors at the time of liberalization	No	7	10

Notes: The cross-country medians for (i) trade openness, (ii) the soundness of macroeconomic policies, (iii) institutional quality, and (iv) domestic financial development were computed using the averages in the period 1975–2004. Then each country was classified according to whether it was above the median (for three out of four variables) for more than half of the period during which its financial liberalization took place.

As shown in the case studies, for the sample of countries covered, whether the pace of liberalization is fast, gradual, or slow does not appear to have a significant impact on the likelihood of crisis. On the whole, crisis propensity seems primarily related to whether financial account liberalization is part of a broader package aimed at the development and appropriate regulation of the domestic financial sector and sound macroeconomic policies (including external imbalances that are not excessive).

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[27] The country coverage in this Appendix differs from that underlying Table 7, because the latter covers only *de facto* integrated countries, and case studies were not available for all countries in Table 7. Nevertheless, the broad pattern of results is consistent across the two samples.

Countries that liberalized their financial account while suffering from weaknesses in the financial sector, in particular in the banking sector—as was the case for a number of countries affected by the Asian crisis—seem to be more likely to suffer crisis than countries that improved prudential policies before liberalizing the financial account. Countries with increasing current account deficits, rising inflation, and expansionary fiscal policies also seem more likely to suffer a currency or debt crisis when compared with countries with low current account deficits, low inflation, and solid public finances. Countries tied to a credible external anchor appear to be able to liberalize their financial account without suffering currency or debt crisis despite some weaknesses in the financial sector and/or macroeconomic imbalances, as was the case for some of the transition countries in their accession process to the European Union.

Appendix Table 1. Country Lists

High Income Countries		Middle Income	Low Income	Advanced Economies	Emerging Markets	Developing Countries
OECD [23]	Non-OECD [12]	[42]	[14]	[25]	[26]	[23]
Australia	Bahrain	Angola	Bangladesh	Australia	Argentina	Algeria
Austria	Brunei Darussalam	Argentina	Burkina Faso	Austria	Brazil	Bangladesh
Belgium	Cyprus	Bolivia	Côte d'Ivoire	Belgium	Chile	Benin
Canada	Hong Kong SAR	Brazil	Ghana	Canada	China	Bolivia
Denmark	Israel	Bulgaria	India	Hong Kong SAR	Colombia	Botswana
Finland	Kuwait	Chile	Kenya	Denmark	Cote d'Ivoire	Cameroon
France	Malta	China,P.R.: Mainland	Kyrgyz Republic	Finland	Dom. Rep.	Congo Rep.
Germany	Qatar	Costa Rica	Pakistan	France	Ecuador	Costa Rica
Greece	Saudi Arabia	Czech Republic	Tanzania	Germany	Egypt	Gabon
Iceland	Singapore	Dominican Republic	Togo	Greece	El Salvador	Gambia
Ireland	Slovenia	Ecuador	Uganda	Iceland	Hungary	Ghana
Italy	United Arab Emirates	Egypt	Uzbekistan	Ireland	India	Guatemala
Japan		El Salvador	Yemen, Republic of	Italy	Indonesia	Kenya
Korea		Georgia	Zambia	Japan	Korea	Lesotho
Netherlands		Guatemala		Luxembourg	Malaysia	Madagascar
New Zealand		Hungary		Netherlands	Mexico	Malawi
Norway		Indonesia		New Zealand	Morocco	Nicaragua
Portugal		Jamaica		Norway	Pakistan	Paraguay
Spain		Kazakhstan		Portugal	Peru	Rwanda
Sweden		Latvia		Singapore	Philippines	Senegal
Switzerland		Lebanon		Spain	South Africa	Syria
United Kingdom		Malaysia		Sweden	Thailand	Togo
United States		Mauritius		Switzerland	Tunisia	Trinidad and Tobago
		Mexico		United Kingdom	Uruguay	
		Moldova		United States	Venezuela	
		Morocco			Zimbabwe	
		Nicaragua				
		Oman				
		Panama				
		Paraguay				
		Peru				
		Philippines				
		Romania				
		Russia				
		South Africa				
		Sri Lanka				
		Swaziland				
		Thailand				
		Tunisia				
		Turkey				
		Uruguay				
		Venezuela, Rep. Bol.				

Note: Country coverage in the different exercises in the paper depends on data availability.

Appendix Table 2. Evidence from Selected Case Studies, 1979–2004

Countries above the median in at least three out of four factors at the time of liberalization: No currency or debt crisis after liberalization

Country	Pace, Sequencing, and Institutional Anchor of Liberalization	Financial Sector Policies and Context	Macroeconomic Policies and Context
Austria 1986-91	Gradual. Long-term flows liberalized before short-term flows. OECD accession.	Sound and well-supervised financial sector.	Stable macroeconomic environment.
Chile 1985-98	Gradual and selective. Liberalization of longer-term inflows and outflows, with selective capital controls on inflows that were later broadened because of circumvention. Focused initially on liberalizing inflows, though with strong restrictions on liquidation of FDI and repatriation of profits. Capital outflows gradually liberalized. Introduction of market-based capital controls (URR) on new foreign borrowing (except trade credits) and foreign currency deposits to limit short-term credit inflows.	Restructuring of banking system: the banks achieved low levels of nonperforming loans, comfortable level of provision for bad loans, compliance with BIS capital adequacy ratio. Central bank becomes independent and in charge of stability of financial system. Development of the stock exchange, money and exchange markets and local security markets.	Fiscal consolidation. Modification of exchange rate regime to allow for greater flexibility of the rate within a crawling band exchange arrangement to ensure orderly real appreciation of the currency. Restrictive monetary policy conducing to a reduction of inflation from more than 25 percent to 4 percent a year. High output growth. Progressive trade liberalization.
Czech Republic 1995	Fast. With the exception of some outflows, almost all controls removed by the end of 1995. FDI liberalized first. Inflows liberalized before outflows. Outflows by non-residents fully liberalized in 2001. Five-year program to eliminate controls in outflows in the context of accession to OECD 1995-2001.	Weak banking system.	Expansionary fiscal policy. Fixed exchange rate regime.
Estonia 1994	Fast. Almost all controls removed by 1994. Pension funds' investments last to be liberalized.		
France 1983-90	Gradual. Controls on FDI first to be eased. Last flows to be fully liberalized concerned bank lending in local currency to non-residents and residents' ownership of foreign exchange accounts. All controls abolished by January 1, 1990. Liberalization in the context of the transition to the European Monetary System. Safeguard clauses with respect to EEC liberalization obligations were abolished.	Major deregulation of financial sector in stages, with abolishment of quantitative credit controls.	Disinflation process. Reduction of current account deficit.
Hungary 1989-2001	Gradual. FDI liberalized first. Long-term flows liberalized before short-term flows. OECD accession.	Rapid financial sector reforms. Foreign bank participation encouraged early.	Macroeconomic stabilization following 1995 crisis.
Lithuania 1994-95	Fast. Real estate and pension funds' investments last to be liberalized.		
Slovak Republic 1990-2004	Gradual. Long-term flows liberalized before short-term flows; inflows before outflows; FDI and portfolio before financial credits. Most restrictions eliminated to meet EU requirements. OECD accession was also an important anchor.		
Slovenia 1999-2002	Gradual. After having introduced capital controls in 1995-99, credit operations liberalized first. Long-term flows liberalized before short-term flows. Portfolio flows last to be liberalized.		
Spain 1986-93	Gradual with occasional reversals. Controls on inflows abolished in February 1992 and temporarily reintroduced in 1992-93 during the EMS crisis. Liberalization in the context of admittance to the then EEC.		
Tunisia 1995-	Slow. Step-by-step approach effectively started in 1995. FDI inflows and resident-export-related transactions liberalized first. Many restrictions on inward portfolio investment and outward non-export-related capital transactions remain (check). In 1995, Tunisia signed an association agreement with the EU that implied the goal of full trade liberalization and capital account convertibility.	Banking sector restructuring (early 1990s), though still fragile. Undeveloped financial markets.	Macroeconomic stability. Prudent macroeconomic policies. Trade gradually liberalized (reduction of quantity restrictions on imports). Adopted full currency convertibility (1993).

Note: Descriptions drawn from previously issued IMF staff or IMF Independent Evaluation Office publications. Selection of the case studies was determined by availability.

Appendix Table 2 (Continued). Evidence from Selected Case Studies, 1979–2004

Countries above the median in at least three out of four factors at the time of liberalization: Crisis after liberalization (currency or debt crisis, or both)

Country	Pace, Sequencing, and Institutional Anchor of Liberalization	Financial Sector Policies and Context	Macroeconomic Policies and Context
Indonesia 1989-96	Gradual, partial, and with reversals. Gradual liberalization of FDI, though domestic ownership requirements were kept in place. Portfolio equity investment by foreigners allowed up to 49 percent (1989). Elimination of quantitative limits on bank borrowing from nonresidents, partially reverted later in 1991 to control surging capital inflows. Liberal regime for capital outflows by resident individuals and juridical entities, while prohibiting lending abroad by banks and financial institutions.	Liberalization of interest rates and partial removal of direct credit controls on the banking system. Enhancement of banking supervision, development of money market. Opening up to foreign banks, other financial institutions, and insurance firms. Strengthening of domestic capital markets.	Large current account deficit. Rising inflation. High interest rates. Exchange rate against the US dollar allowed to fluctuate within a narrow band. Partial liberalization of tariff system. Corruption and cronyism during the 1990s.
Malaysia 1986-97	Gradual, with interruptions in 1994 (controls on portofolio inflows re-enacted for one year) and in 1998 (controls on outflows). FDI inflows actively encouraged (although with restrictions in some sectors). Outward FDI unrestricted. Unrestricted portfolio inflows. Borrowing abroad and lending to residents and nonresidents by authorized entities were unrestricted, but subject to prudential limits (de facto limits on foreign currency borrowing by residents).	Structural weaknesses in the banking system led to deterioration in the asset quality of banks, despite improvements in the legal and regulatory framework and supervisory and prudential practices.	
Sweden 1980-92	Gradual, but accelerated in late 1980s. Long-term flows generally liberalized before short-term flows.	Extensive domestic liberalization but with inadequate supervision.	Expansionary macroeconomic policies leading to an unsustainable credit and asset price boom.
Thailand 1985-96	Rapid opening to inflows with partial reversal at later stage. Gradual liberalization of outflows. In 1995, short-term capital inflows were restricted with the imposition of a 7 percent URR on banks' nonresident baht accounts to control the growing proportion of short-term inflows. In 1996, these restrictions were extended to cover new foreign borrowing of less than one year.	Oligopolistic structure in banking system and other weaknesses despite improvements on supervision. Banks had inadequate loan provisioning and large exposure to property sector. Development of stock market.	Large current accout deficit. High interest rates. Rising inflation. *De facto* fixed exchange rate.

Note: Descriptions drawn from previously issued IMF staff or IMF Independent Evaluation Office publications.

Appendix Table 2 (Continued). Evidence from Selected Case Studies, 1979–2004

Countries below the median in at least two out of four factors at the time of liberalization: No currency or debt crisis after liberalization

Country	Pace, Sequencing, and Institutional Anchor of Liberalization	Financial Sector Policies and Context	Macroeconomic Policies and Context
China 1994–	Slow. Capital controls favor longer-term over shorter-term inflows.	Financial sector still suffers from some weaknesses: classification, provisioning, accounting standards, internal controls and risk management systems are all relatively weak.	Fixed exchange rate regime.
India 1991–	Slow. Capital controls designed to reduce reliance on short-term and debt-creating flows. FDI inflows first to be progressively liberalized, followed by porfolio equity investment by nonresidents. Strict control of short-term borrowing (except for trade-related purposes). More strict controls for outflows than for inflows, for residents than for nonresidents, for individuals than for corporations.	Steady progress toward more open and market-oriented financial system. Strengthening of prudential regulation and supervision of banking system. Problems remain: large state-controlled banking system, despite increased foreign bank participation. Reform of securities markets.	Increased exchange rate convertibility (1994). Exchange rate regime: managed float. Large public sector deficits and large net domestic public debt. Large accumulation of reserves. Reduction in trade barriers.
Japan 1979–	Gradual.	Gradual and partial approach to domestic financial market deregulation. Supervisory and risk-management practices did not keep pace with increased appetite for risk leading to a fall in credit standards. Asset price bubble.	
Latvia 1994-95	Fast. Real estate and pension funds' investments last to be liberalized.	Weak regulatory system.	De facto peg to SDR.
New Zealand 1984-85	Rapid. Before liberalization, most controls aimed at limiting outflows (particularly of portfolio investment).	Deregulation of financial system, with abolishment of controls on interest rates and credit growth.	Fiscal consolidation and reform of product and labor markets lagged behind capital account liberalization and reforms in financial sector.
Peru 1990-91	FDI liberalized first.	Abolishment of interest rate controls. Tighter prudential regulation and enforcement. Increased foreign bank participation.	Tight monetary policy and sound fiscal policy. Adoption of floating exchange rate regime. Structural reform and trade liberalization.
United Kingdom 1979	Rapid. All capital controls were abolished in four months, from June to October.	Strong market discipline and prudential policies.	Encompassing policy package aimed at increasing efficiency,and improving the functioning of the labor market. Growth did not improve during the 1980s and inflation fell.

Note: Descriptions drawn from previously issued IMF staff or IMF Independent Evaluation Office publications.

Appendix Table 2 (Concluded). Evidence from Selected Case Studies, 1979–2004

Countries below the median in at least two out of four factors at the time of liberalization: Crisis after liberalization (currency or debt crisis, or both)

Country	Pace, Sequencing, and Institutional Anchor of Liberalization	Financial Sector Policies and Context	Macroeconomic Policies and Context
Argentina 1991	Rapid. Convertibility plan.	Started with good and innovative banking supervision (BASIC), though prudential regulations to discourage use of dollarized debt were not in place. Privatization of 50 percent of state-owned banks and allowed entry of foreign banks (mostly Spanish). To address fiscal problems, government weakened banking regulation to allow banks to hold more government bonds.	Fiscal imbalances: debt to GDP ratio rose from 29.2 to 41.4 percent, with most of debt denominated in dollars. Currency board. Low growth after a period of high growth (1991-94). Rigid labor and product markets.
Brazil 1988-97	Gradual with temporary reversals. From 1993 to 1996, controls on inflows to avoid fiscal costs associated with massive sterilization. In 1997, capital controls on inflows relaxed.	Well-developed financial markets.	Trade liberalization.
Italy 1988-90	Gradual. In 1988, only restrictions on short-term transactions. All controls lifted by July 1, 1990. Liberalization in the context of the transition to the European Monetary System. EEC liberalization directive adopted in 1988.	Deregulation of domestic financial markets.	Large fiscal deficits.
Korea 1985-97	Gradual and partial. Liberalization favored short-term debt flows and kept relatively more restrictions on long-term flows, in particular on FDI. OECD accession.	Weaknesses in the financial sector. Deficiency in credit allocation. Poor governance, high leverage and liability dollarization (chaebols).	Sound macroeconomic policies, with low inflation and stable public finances (though with high contingent liabilities). *De facto* pegged exchange rate.
Kenya 1991-95	Gradual and partial.	Liberalization of financial sector. Weak prudential supervision and enforcement.	Expansionary monetary policy. External payments arrears.
Poland 1990-2002	Gradual. Long-term flows liberalized before short-term flows; inflows before outflows; FDI and portfolio before financial credits. Liberalization sped up during OECD accession negotiations (1994-96).		
Mexico 1989-94	Gradual. FDI liberalized first. Short-term capital flows substantially liberalized. Capital account greatly liberalized (though restrictions remained) by May 1994. NAFTA and OECD accession.	Poor supervision and lack of of adequate regulatory standards and accounting practices, together with fixed exchange rate regime encouraged liability dollarization. Lack of competition in banking sector (foreign banks not allowed).	Tightly managed exchange rate regime (de facto peg to the US dollar) and high current account deficit in a context of high interest rates.
Paraguay 1989-94	Gradual, on top of a relatively open capital account. Incentives to FDI.	Financial sector liberalization but in the context of a weak prudential framework.	Strengthening of macroeconomic policies and subsequent settlement of public sector external arrears. Significant trade liberalization measures. No significant macroeconomic imbalances and high level of official international reserves.
South Africa 1995-	Gradual. Cautious approach. Restrictions on non-residents' capital flows liberalized first. Capital controls on residents have been lifted gradually.	Well-capitalized banks. Steps to strengthen prudential regulation and supervision.	Sound macroeconomic policies: substantial reductions on inflation and fiscal deficit. Trade reforms.
Turkey 1988-91	Fast. Almost all controls removed between 1988 and 1991. FDI and portfolio equity investment were liberalized first. Turkey submitted itself to the obligations of the OECD code in the context of its OECD accession.	Weak risk management, despite bank reform and improved supervision: high dollarization and maturity mismatch of banks' balance sheets.	Weak macroeconomic fundamentals. High inflation environment and large budget deficits led to high and volatile nominal interest rates. Trade liberalization. Crawling peg (2000).

Note: Descriptions drawn from previously issued IMF staff or IMF Independent Evaluation Office publications.

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