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Financial Globalization: A Reappraisal

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The literature on the benefits and costs of financial globalization for developing countries has exploded in recent years, but along many disparate channels with a variety of apparently conflicting results. There is still little robust evidence of the growth benefits of broad capital account liberalization, but a number of recent papers in the finance literature report that equity market liberalizations do significantly boost growth. Similarly, evidence based on microeconomic (firm- or industry-level) data shows some benefits of financial integration and the distortionary effects of capital controls, but the macroeconomic evidence remains inconclusive. At the same time, some studies argue that financial globalization enhances macroeconomic stability in developing countries, but others argue the opposite. This paper attempts to provide a unified conceptual framework for organizing this vast and growing literature, particularly emphasizing recent approaches to measuring the catalytic and indirect benefits to financial globalization. Indeed, it argues that the indirect effects of financial globalization on financial sector development, institutions, governance, and macroeconomic stability are likely to be far more important than any direct impact via capital accumulation or portfolio diversification. This perspective explains the failure of research based on cross-country growth regressions to find the expected positive effects of financial globalization and points to newer

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approaches that are potentially more useful and convincing. [JEL F02, F21, F36, F4]
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Few issues have stirred such passionate debate among development researchers and policymakers as the merits of financial globalization, including integration of equity, bond and money markets, as well as direct ownership of foreign capital or foreign direct investment (FDI). On the one hand, many economists see enhanced financial globalization as an important step for middle-income emerging markets that aspire to the levels of income and stability achieved by advanced industrial economies (for example, Fischer, 1998; Summers, 2000). On the other hand, many influential researchers argue forcefully that financial integration carries huge risks that far outweigh the potential benefits for most middle-income countries (for example, Bhagwati, 1998; Rodrik, 1998; Stiglitz, 2002). These economists point to the plethora of developing country financial crises that swept across Latin America, Asia, and Africa in the 1980s and particularly in the 1990s as clear evidence of the potentially disastrous consequences of financial globalization.

For policymakers in developing countries, the topic is of enormous practical relevance, not least because countries such as China and India are still very much in the early stages of financial globalization, and face numerous ongoing decisions about the timing and pace of further integration. For researchers, financial globalization is fascinating not only because of its compelling policy relevance, but because of the enormous variation of approaches and experiences across countries. Differences in speed and approach to financial globalization have often been driven as much by philosophy, regional fads, and political circumstances as by economic factors. Hence, cross-country studies of the effects of financial integration can potentially exploit a wide array of natural variation in experiences. A massive empirical literature has evolved over the past 10 years on the growth and volatility effects of international financial globalization, with literally hundreds of published studies. Most of this work is of relatively recent vintage, because the latest wave of financial globalization got started in earnest only in the mid-1980s.

This survey will attempt to give the reader a synthesis and some perspective on this rapidly evolving literature, including both early contributions and more recent work.[1] Although our overall take is that the literature is still inconclusive, we argue that newer approaches that attempt to

[1]The working paper version of this paper provides a comprehensive list of references (see Kose and others, 2006). In this paper, we limit ourselves to mentioning some key papers and do not aim to be exhaustive in our citations.

focus more on the indirect effects of financial globalization on productivity and GDP growth hold considerable promise. At the same time, we find that there is scant empirical support to underpin the more polemic claims of those who argue that capital account liberalizations (as opposed to, say, inappropriately rigid exchange rate regimes) are the root problem behind most developing country financial crises of the past two decades.

Newer approaches depart from the standard neoclassical framework that largely guided the earlier wave of the financial globalization literature. This literature viewed the key benefit of financial globalization as arising from long-term net flows of capital from industrial to developing economies. Because the former group of countries is capital rich but the latter is relatively capital poor, this should generate higher growth in developing economies and welfare gains for both groups. Perhaps not surprisingly, in light of the corresponding literature on growth in closed economies (for example, Hall and Jones, 1999), this literature often found conflicting results. As we shall see, despite having the advantage of a striking array of policy variation, the earlier literature also suffered from a variety of measurement problems that have since been recognized and at least partially addressed.[2]

The fundamental conceptual point that guides our interpretation of the newer literature is that the main benefits to successful financial globalization are probably catalytic and indirect. The benefits are not simply, or even primarily, the result of enhanced access to financing for domestic investment. When viewed from this perspective, we will see that there is modest but increasing evidence that financial openness can in many circumstances promote development of the domestic financial sector, impose discipline on macroeconomic policies, generate efficiency gains among domestic firms by exposing them to competition from foreign entrants, and unleash forces that result in better public and corporate governance. That is, it can generate significant indirect or "collateral" benefits that, in quantitative terms, are likely to be the most important sources of enhanced growth and stability for a country engaged in financial globalization. True, the research we survey does not contain any simple formulas a country could follow to avoid the pitfalls of financial globalization. However, simply understanding that the main benefits are likely to be catalytic rather than direct is already useful guidance to policymakers.

The notion that financial globalization mainly influences growth through indirect channels has important implications for empirical analysis of its

[2]Eichengreen (2001), who focuses on the relationship between growth and measure of restrictions on capital account transactions, argues that the evidence is quite mixed. A subsequent survey by us on the broader dimensions of financial globalization deepens the puzzle (Prasad and others, 2003). We conclude that the vast empirical literature provides little robust evidence of a causal relationship between financial integration and growth. Moreover, we find that, among developing countries, the volatility of consumption growth relative to income growth appears to be positively associated with financial integration, the opposite of what canonical theoretical models would predict.

benefits. For one thing, building institutions, enhancing market discipline, and deepening the financial sector takes time, and so does the realization of growth benefits from such channels. This may explain why, over relatively short periods, it may be much easier to detect the costs of financial globalization than it is to see the benefits. Indeed, even at long horizons, detecting the benefits may be tricky, because they are indirect and work through improvements in structural, institutional, and macroeconomic policy variables. If these variables are included separately in long-run cross-country regressions, the catalytic effects of financial globalization may be hidden.

The approach we emphasize helps to link together a number of other pieces of the literature. For instance, most papers looking at the effects of financial integration have relied on *de jure* measures of capital account openness, which reflect legal restrictions (or lack thereof) on capital movements. But the collateral benefits are likely to be realized at least as much through *de facto* integration, which, as we show, can be quite different. In practice, the distinction between de jure and de facto openness can be very important. Many countries have capital controls that are quite strict on paper but toothless in practice so their de facto level of integration—as measured by capital flows or stocks of foreign assets and liabilities—is quite high; this in itself could act as a disciplining device on the government and firms.[3]

Focusing on collateral instead of direct benefits to financial globalization can also help explain why recent research that examines the growth effects of equity market liberalizations finds such strong positive effects even though portfolio equity inflows are typically small relative to other types of flows. Equity market liberalizations typically take place in tandem with various other domestic reforms, and when national governments have confidence in their ability to adequately supervise domestic financial markets. Thus, equity inflows are precisely the ones that, along with FDI, are most likely to confer the collateral benefits discussed above. Our analysis may also help explain why there is much stronger evidence based on microeconomic (firm- or industry-level) data on the distortionary effects of capital controls and the benefits of capital account liberalization.

We will begin by providing a brief overview of theory and then turn to measurement issues. We then survey the empirical literature looking at the direct growth impact of financial globalization, before turning to newer approaches that focus more on potential collateral benefits. In the concluding section, we summarize implications for future research.

[3]We emphasize up front that our analysis focuses largely on private capital flows and does not encompass the effects of official flows, including foreign aid, and other flows such as remittances (which should, strictly speaking, appear in the current account of the balance of payments).

I. A Brief Overview of Theory

We begin with a brief introduction to the basic theoretical arguments about how financial globalization should affect growth and volatility; we will continue to introduce further theoretical channels through which financial globalization has an impact on growth as we discuss relevant issues in the empirical literature.

Growth

The simplest—one might say even naïve—benchmark one-sector neoclassical growth model suggests that financial globalization should lead to flows of capital from capital-rich economies to capital-poor economies because, in the latter, the returns to capital should be higher. We call the model naïve because, in fact, the actual volumes of such flows do not come anywhere near what the baseline models predict, as famously emphasized by Lucas (1990).[4] In theory, these financial flows should complement limited domestic saving in capital-poor economies and, by reducing the cost of capital, allow for increased investment.[5] Certain types of financial flows could also generate technology spillovers and serve as a conduit for imbibing managerial and other forms of organizational expertise from more advanced economies.

Newer analyses emphasize more subtle and indirect channels. For example, when domestic residents are able to hold foreign assets, they can insure themselves against country-specific shocks to their income. This naturally allows for greater diversification of income risk which can, in turn, encourage higher productivity and economic growth through greater specialization.[6] In addition, financial flows could foster development of the domestic financial sector and, by imposing discipline on macroeconomic policies, lead to more stable policies. We discuss the mechanisms and evidence for these channels later in the paper.

[4]Indeed, from 2004 to 2006, developing countries and emerging markets collectively averaged a large current account surplus, rather than a deficit. Lucas himself offered a new growth model based on increasing returns to human capital to explain what was then a low volume of net flows to developing countries, though recent work has tended to focus more on the financial channel emphasized contemporaneously by Gertler and Rogoff (1990). Mendoza, Quadrini, and Rios-Rull (2007) and Alfaro, Kalemli-Ozcan, and Volosovych (2007) argue that institutional failures more generally may lead to capital flow reversals. Reinhart and Rogoff (2004) suggest that recurrent defaults and financial crises in developing countries may depress investment there. Gordon and Bovenberg (1996) focus on the role played by information asymmetries.

[5]Henry (2007) argues that, even in the context of the basic neoclassical model, the financing channel should imply only a temporary, rather than permanent, pickup in growth from financial integration. It is not clear, however, how important this nuance is likely to be empirically in studies that look at growth experiences over periods of just two to three decades.

[6]Among developed countries and across regions within developed countries, better risk sharing is associated with greater specialization (Obstfeld, 1994; Acemoglu and Zilibotti, 1997; and Kalemli-Ozcan, Sorensen, and Yosha, 2003).

Volatility

In theory, the effects of financial integration on *output* volatility are ambiguous. Financial integration allows capital-poor countries to diversify away from their narrow production bases that are often agricultural or natural resource-dependent, thereby reducing macroeconomic volatility. At a more advanced stage of development, however, trade and financial integration could together allow for enhanced specialization, as we have already noted. This could make middle-income developing countries more vulnerable to industry-specific shocks and thereby lead to higher output volatility.[7] If financial integration takes the form of heavy reliance on external debt, it could expose these countries to world interest rate shocks and, thus, to higher output volatility.

Theory does have a strong prediction, however, about the relationship between financial integration and *consumption* volatility. Because consumers and, by extension, economies are risk-averse, consumption theory tells us that they should desire to use financial markets to insure against income risk, thereby smoothing the effects of temporary idiosyncratic fluctuations in income growth on consumption growth. Although the benefits of international risk-sharing could be quite large in theoretical models, the magnitudes of these benefits depend on various model-specific features.[8] Recent research convincingly shows that the higher volatility that developing countries experience implies that they can potentially reap large benefits from international risk-sharing arrangements (see Pallage and Robe, 2003).

Theoretical Caveats to the Benefits of Financial Globalization

We could continue at considerable length about how financial globalization matters in theory, and will indeed keep introducing further ideas throughout the paper. However, what makes the debate over financial globalization fascinating is that several prominent economists question whether, in practice, the effects are positive at all. Most of these economists base their arguments on the theory of the second best and the potential presence of other distortions stemming from the trade policy regime, macroeconomic policies, labor markets, and information asymmetries. For example, if certain industries are protected by trade barriers, international capital could flow into these sectors to exploit the benefits of protection in domestic markets and result in welfare losses and suboptimal growth (Eichengreen, 2001). Information asymmetries stemming from a lack of transparency in financial

[7]See Kose, Prasad, and Terrones (2004) for a more detailed exposition.

[8]In particular, the welfare gains depend on the volatility of output shocks, the rate of relative risk aversion, the risk-adjusted growth rate, and the risk-free interest rate in these models (see the discussion in Obstfeld and Rogoff, 2004, Chapter 5; Lewis, 1999; and van Wincoop, 1999). Lucas's (1987) claim that macroeconomic stabilization policies that reduce consumption volatility can have only minimal welfare benefits continues to be influential in the literature (see Barlevy, 2004).

institutions could lead to inefficient allocation of financial flows, generate maturity mismatches, and result in costly crises (Stiglitz, 2004).

The concern that financial globalization can sometimes spin off negative side effects in highly distorted developing economies is a legitimate one, though not necessarily debilitating. Indeed, as we shall see, in light of the ambiguity of theoretical findings, the critical question in this entire literature is whether empirical evidence can guide us on why financial globalization seems to have clearly positive effects in some cases, whereas it appears to be counterproductive in others.

II. Measuring Financial Openness

The traditional approach to measuring financial openness is to use measures of legal restrictions on cross-border capital flows. Such capital controls come in many varieties—controls on inflows vs. those on outflows, quantity vs. price controls, restrictions on foreign equity holdings, and so on. Indeed, the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER) measures over 60 different types of controls. The early literature on capital account liberalization employed a 0/1 measure of capital account openness based on information from these reports. Some researchers have used a "share" measure, reflecting the fraction of years in the sample in which a country's capital account was open. Other authors have taken the detailed information in the AREAER publications to construct finer measures of capital account restrictiveness.[9]

All of these measures, despite their increasing sophistication and fineness, suffer from a variety of similar shortcomings. For example, they do not capture the degree of enforcement of capital controls (or the effectiveness of that enforcement), which can change over time even if the legal restrictions themselves remain unchanged. Moreover, these measures do not always reflect the actual degree of integration of an economy into international capital markets. Another complication is that, despite the extensive coverage of the AREAER, there could be other regulations that effectively act as capital controls but are not counted as controls. For instance, prudential regulations that limit the foreign exchange exposure of domestic banks could, in some circumstances, have the same effect as capital controls.

This discussion suggests that the distinction between de jure and de facto financial integration is a crucial one. After all, what matters in analyzing the effects of financial globalization is not how integrated economies seem on paper but how integrated they are in practice. Many Latin American economies have experienced massive capital flight at times during the last two

[9]Share measures have been created by Grilli and Milesi-Ferretti (1995), Rodrik (1998), and Klein and Olivei (2006). Finer measures of openness based on the AREAER have been developed by Quinn (1997, 2003), Miniane (2004), Chinn and Ito (2006), Mody and Murshid (2005), and Edwards (2005). Edison and Warnock (2003) construct measures of capital account restrictions related to just equity flows. Bekaert and Harvey (2000) and Henry (2000a) compile dates of equity market liberalizations for developing countries. We briefly discuss some of these narrower measures in more detail later.

decades despite having controls on outflows. And China, despite its extensive regime of capital controls, has not been able to stop inflows of speculative capital in recent years (Prasad and Wei, 2007).

But how does one go about measuring de facto integration? One approach has been to look at price-based measures of asset market integration. The logic is that integration of capital markets should be reflected in common prices across national borders of similar financial instruments (Karolyi and Stulz, 2003). There are, however, serious practical problems in using such measures for emerging markets and low-income developing economies. Returns on financial instruments in these economies may incorporate a multitude of risk and liquidity premiums that are difficult to quantify. Also, domestic financial markets may simply not be deep or liquid enough to allow for efficient arbitrage of price differentials.[10]

Quantity-based measures of integration based on actual flows provide, in our view, the best available measure of a country's de facto integration with global financial markets. Should one measure integration using gross flows (the sum of total inflows and total outflows) or net flows (the difference between inflows and outflows)? Although the choice depends on the precise question one is interested in, gross flows in general provide a less volatile and more sensible picture of integration. Indeed, this measure has the advantage of capturing two-way flows that one would expect to see if economies were sharing risk efficiently in a world with multiple financial instruments and agents with different risk profiles.

However, annual gross flows tend to be volatile and prone to measurement error. To mitigate these problems, it is preferable to use the sum of gross stocks of foreign assets and liabilities as a ratio to GDP. This preserves the spirit of measuring de facto integration and obviates many of the problems associated with flow data. Moreover, for some purposes—particularly risk sharing—stock measures are more appropriate. For instance, if countries have large stocks of foreign assets and liabilities, small exchange rate changes can have large valuation effects and serve as a mechanism for risk-sharing even if net asset positions are small.

The measures of financial integration that we use in the next section draw upon the pioneering work of Lane and Milesi-Ferretti (2006), who have constructed an extensive data set of gross liabilities and assets for 145 countries covering the period 1970–2004.[11] Their data set contains

[10]Other measures of integration include saving-investment correlations and, related to the price-based approach discussed above, various interest parity conditions (see Frankel, 1992; and Edison and others, 2002). However, these measures are also difficult to operationalize and interpret for an extended period of time and for a large group of countries.

[11]These authors substantially extend their *External Wealth of Nations* database (Lane and Milesi-Ferretti, 2001) using a revised methodology and a larger set of sources. Although their benchmark series are based on the official estimates from the International Investment Position, they compute the stock positions for earlier years using data on capital flows and account for capital gains and losses.

information about the composition of international financial positions, including FDI, portfolio equity investment, external debt, and official reserves.[12] In addition, the data set accounts for valuation effects and other problems that typically plague raw country-level data, and also corrects for some differences across countries in data definitions and variable construction.

We do not claim that our preferred de facto measure of financial integration is flawless. Collins (2007) has argued that, notwithstanding their other merits, de facto indicators are likely to be endogenous in growth regressions, making it difficult to pin down causal effects. As we discuss later, de jure measures also have a strong element of endogeneity to them, in addition to their various other deficiencies. Our bottom line is that there is important information in both the de jure and de facto measures of financial integration, but de facto measures provide a better picture of the extent of a country's integration into global financial markets and, for many empirical applications, this measure is more suitable.

Patterns of Financial Globalization

Measures of de facto integration based on the Lane-Milesi-Ferretti data show a surge in financial globalization since the mid-1980s.[13] Figure 1 compares the evolution of de jure integration based on the IMF's binary capital account restrictiveness measure, averaged across all countries in each group, and corresponding group averages of the de facto financial openness measure (stock of international financial assets and liabilities expressed as a ratio to GDP).[14] By both measures, advanced economies have become substantially integrated into global financial markets. For emerging market economies, average de jure openness has not changed much based on the IMF measure, but de facto integration has increased sharply over the last two decades. For other developing economies, de jure openness on average rose sharply over the last decade, to a level higher than that for emerging market economies, but the de facto measure has stayed flat over this period. This figure highlights the different informational content in the two types of integration measures and the importance of taking these differences into account in analyses of the effects of financial globalization.[15]

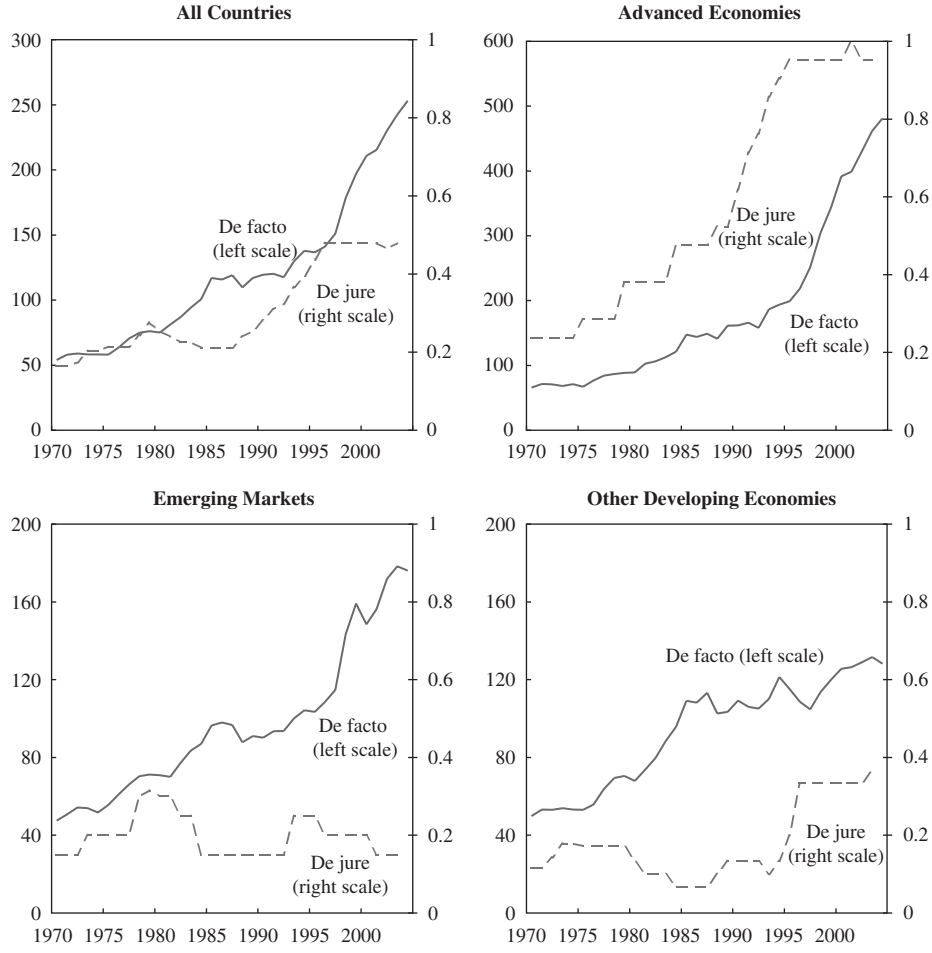
[12]FDI refers to direct investment in a domestic company, giving the foreign investor an ownership share. Portfolio equity inflows refer to foreign investors' purchases of domestically issued equity in a company. Debt inflows include foreign investors' purchases of debt issued by corporates or the government, and also foreign borrowing undertaken by domestic banks.

[13]An earlier wave of financial globalization (1880–1914) has been analyzed by Bordo, Taylor, and Williamson (2003), Obstfeld and Taylor (2004), and Mauro, Sussman, and Yafeh (2006).

[14]The sample of countries used in our analysis is listed in the Data Appendix.

[15]Certain measures of de jure integration do track the de facto measures better. For instance, the Edison-Warnock measure of restrictions on equity inflows does change more in line with de facto integration in emerging markets, but this measure is available for only a limited number of countries and for a short time interval. Moreover, equity inflows constitute only a small portion of total inflows.

Figure 1. Evolution of International Financial Integration: 1970–2004



Note: This figure shows unweighted cross-country averages, within each group, of two measures of capital account openness. The de jure measure is based on the IMF 0–1 capital account restrictiveness classification, with 1 representing countries that have open capital accounts. The de facto measure is based on the ratio of gross stocks of foreign assets and liabilities to GDP, with the raw data taken from Lane and Milesi-Ferretti (2006). See the Data Appendix for a listing of countries in each group.

FDI and portfolio equity flows have become the dominant form of new flows into developing economies, although debt still accounts for more than half of the stock of all external liabilities. The share of debt in gross stocks of foreign assets and liabilities declined from 75 percent in 1980–84 to 59 percent in 2000–04 (Table 1). Among advanced economies, the biggest increase has been in the share of portfolio equity. For emerging markets, the share of FDI and portfolio equity rose from 13 percent in 1980–84 to 37 percent in 2000–04, reflecting the wave of mergers and acquisitions,

Table 1. International Financial Integration

	Gross Stocks of Foreign Assets and Liabilities			Gross Inflows		
	1980–84	1990–94	2000–04	1980–84	1990–94	2000–04
All countries (billions of dollars)	7,124	26,411	76,142	397	1,209	3,564
Share of foreign direct investment	15.6	17.9	21.8	12.9	15.6	19.6
Share of equity	4.9	9.5	15.9	3.9	9.4	12.0
Share of debt	75.1	69.4	58.7	83.2	75.0	68.4
Share of other	4.4	3.3	3.6	—	—	—
Advanced economies (billions of dollars)	6,100	23,969	69,441	325	1,008	3,260
Share of foreign direct investment	16.1	17.9	21.4	12.3	13.9	16.9
Share of equity	5.5	9.9	16.5	4.4	9.0	12.1
Share of debt	74.8	69.7	59.8	83.3	77.2	71.0
Share of other	3.6	2.5	2.3	—	—	—
Emerging markets (billions of dollars)	859	2,167	6,221	66	194	288
Share of foreign direct investment	12.0	17.6	26.6	15.9	24.4	48.6
Share of equity	1.3	6.1	10.6	1.5	11.7	12.1
Share of debt	77.9	64.6	46.6	82.6	63.9	39.3
Share of other	8.8	11.7	16.2	—	—	—
Other developing economies (billions of dollars)	165	276	480	6	7	16
Share of foreign direct investment	16.0	14.4	22.7	15.1	27.7	44.5
Share of equity	0.2	0.3	1.0	1.1	0.5	0.4
Share of debt	73.8	78.5	58.3	83.8	71.8	55.1
Share of other	6.7	5.6	12.0	—	—	—

Note: Data shown in this table are based on cross-country averages of annual data over the relevant five-year period for each group of countries. The sample comprises 21 industrial, 20 emerging market, and 30 other developing countries. See the Data Appendix for a listing of countries in each group. The category "Other" includes financial derivatives and total reserves minus gold. Shares are in percentage of total. The raw data are based on a data set constructed by Lane and Milesi-Ferretti (2006).

privatizations of state firms, and stock market liberalizations that spurred flows to these economies in the early- to mid-1990s. In recent years, accumulation of official international reserves has accounted for a significant portion of the increase in gross foreign assets of emerging and other developing economies; consequently, the share of the "other" category has jumped over the last decade.

Some of these patterns are stronger when one looks at gross private inflows (Table 1). Although debt financing remains the most important source of inflows for advanced economies, FDI now accounts for almost half of total inflows into developing economies. Equity flows have become quite

important for emerging markets, accounting for almost 12 percent of inflows, but this category still remains virtually nonexistent for other developing economies, reflecting their underdeveloped stock markets.

III. Macroeconomic Evidence on the Effects of Financial Globalization

In this section, we review macroeconomic evidence on the effects of financial globalization in terms of both growth and volatility. The main conclusion is that the evidence based on cross-country regression frameworks has been inconclusive in some respects and, as we discuss below, has a number of conceptual limitations that cannot easily be overcome just by using better cross-country data sets or more sophisticated econometric techniques.

Effects on Growth

A large swath of the literature on the benefits of financial globalization has been based on cross-country growth regressions. This literature suffers from many of the drawbacks of other related growth literatures that use the same empirical approach. Nevertheless, there is some hope that this approach may work better for detecting the growth effects of financial integration. After all, in addition to cross-country variation in levels of financial integration, these levels have varied enormously over time for most countries and the approaches taken by different countries to opening up to financial flows have also varied widely.

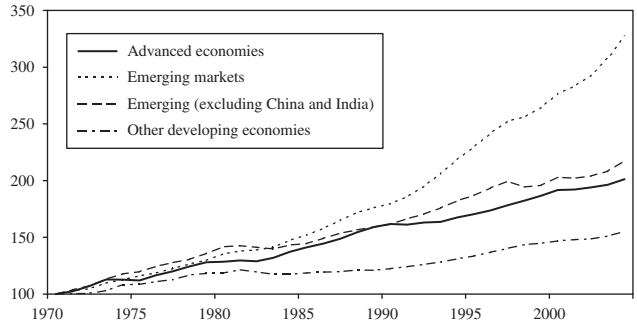
Common perceptions about the growth benefits of financial integration owe much to the fact that emerging market economies have, as a group, experienced far higher cumulative growth since 1970 than other developing countries or even industrial countries (Figure 2). Excluding China and India from the list of emerging markets makes the performance of this group look less spectacular, although it is still better than that of the group of other developing countries.

To obtain an intuitive impression of the relationship between financial openness and growth, Table 2 presents a list of the fastest-growing economies during 1980–2005 and a list of the slowest-growing (or fastest declining) economies during the same period.[16] One can tell from this table that financial globalization is *not a necessary condition* for achieving a high growth rate. For example, Mauritius managed to achieve high growth despite not being very open to financial flows. The fastest growing economy in the world during this period was China, which was open to FDI but not to other types of flows.

It is obvious that financial integration is also *not a sufficient condition* for rapid economic growth. For example, both Bolivia and Venezuela were

[16]Some countries underwent financial integration during this period, especially in the latter half of the 1990s. Therefore any result based on the average growth over this period should be interpreted with caution. The list of countries in our sample is listed in the Data Appendix.

Figure 2. GDP Per Capita, PPP-Weighted



Note: This figure shows cumulative changes in indices of per capita GDP for each group of countries, computed using growth rates of real GDP for each country and weighting these by a purchasing power parity (PPP) adjustment factor. The indices are set to 100 in the base period. See the Data Appendix for a listing of countries in each group.

Table 2. Fastest- and Slowest-Growing Developing Economies During 1980–2005 and Their Status of Financial Openness

Fastest-Growing Economies	Average GDP Growth	Financially Open?	Slowest-Growing Economies	Average GDP Growth	Financially Open?
China, P.R.	8.49	Yes/No	Niger	−1.78	No
Korea, Rep. of	5.52	Yes	Zambia	−0.90	No
Thailand	4.57	Yes	Zimbabwe	−0.79	No
Singapore	4.49	Yes	Venezuela, Rep. Bol.	−0.74	Yes/No
Mauritius	4.19	Yes/No	Togo	−0.73	No
India	3.96	Yes/No	Bolivia	−0.14	Yes/No
Indonesia	3.73	Yes	Malawi	−0.13	No
Malaysia	3.69	Yes[1]	El Salvador	−0.01	No
Chile	3.57	Yes[1]	Paraguay	0.01	No
Sri Lanka	3.00	Yes/No	Kenya	0.02	No

Note: The average growth rates are computed using the real per capita GDP series (in constant local currency units) from the World Bank's World Development Indicators database. To classify a country as financially open or not, we have attempted to construct a measure that incorporates information from both de jure and de facto measures of openness. We classify as "Yes/No" countries for which the de jure and de facto measures of financial openness are very different, or that are open to (and receive) certain types of flows only. For example, there are some countries like China that are very open to and receive significant amounts of certain types of flows (FDI) but are closed to other types of flows.

[1]Chile and Malaysia, while being open in de facto terms, had very restrictive controls of short-term inflows for parts of this period.

partially open to foreign capital flows during this period; yet, their economies on average registered negative growth. The table does suggest, however, that declining economies are in general more likely to be financially closed, though the direction of causality is not clear.

To further illustrate the relationship between economic growth and financial openness, Figure 3a (left panel) presents a scatter plot of the average growth rate of real per capita GDP against the average level of de facto financial openness over the past two decades. There is no systematic relationship between these variables.[17] There is a weak positive association between average GDP growth and the *change* in the financial openness measure (Figure 3b, left panel), consistent with the notion that economies that integrated into global financial markets grew faster. But once other growth determinants are controlled for, even this relationship vanishes (Figure 3b, right panel).

In Table 3a, we provide an overview of the empirical literature that aims to establish a causal relationship between financial openness and growth. Although some of these studies conclude that there are growth benefits associated with international financial integration, the majority of them tend to find no effect or a mixed effect (results that are not robust across alternative specifications) for developing countries. This confirms our claim that, if financial integration has a positive effect on growth, it is apparently not robust, especially once the usual determinants of growth are controlled for.

Why do different studies reach such diverse conclusions about the importance of financial integration in affecting long-run economic performance? Empirical studies using finer de jure measures of capital account openness appear to reach more positive results about the impact of financial integration on economic growth. In a much-cited study, Rodrik (1998) finds that capital account liberalization has no significant effect on economic growth. His analysis is based on a binary measure of capital controls, which is obviously a very coarse measure of international financial integration. Employing a finer and more informative version of the same de jure openness measure, Quinn and Toyoda (2008) document a positive association between capital account liberalization and economic growth. In studies that use both de jure and de facto measures, specifications where capital account openness is measured using de facto measures tend to lend more support for the potential growth enhancing effects of financial integration than those employing de jure measures.[18]

There are other reasons why the results differ markedly across studies—the sample period, country coverage, and choice of empirical methodology all make a big difference. For example, Rodrik's analysis covers the period 1975–89 but Quinn and Toyoda's sample covers a longer period, 1955–2004.

[17]We excluded from these plots a few countries that were outliers, mostly those with very high levels of financial openness relative to GDP (see the Data Appendix). Using the full sample of countries made little difference to the correlations shown here. We do not systematically examine the effects of outliers as these plots are meant to be descriptive and do not constitute formal empirical evidence.

[18]See Kraay (1998), O'Donnell (2001), and Edison and others (2002).

Figure 3a. Level of Financial Openness and GDP Growth, 1985–2004

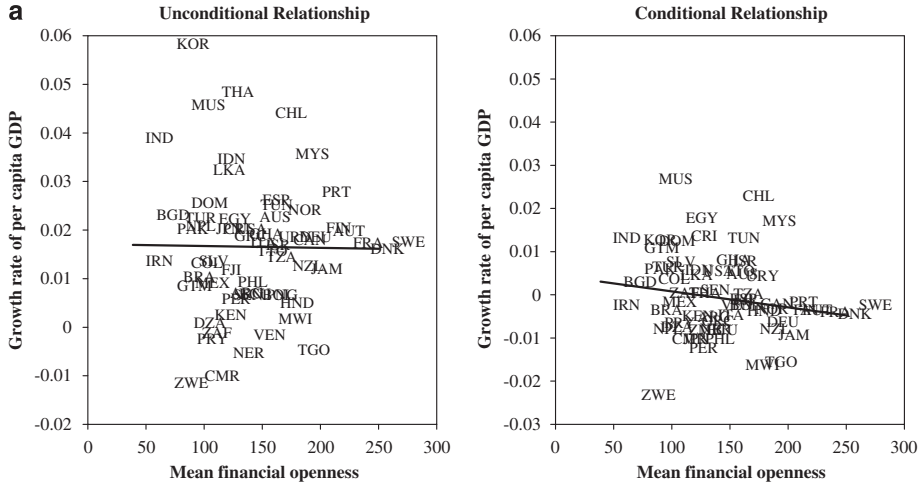
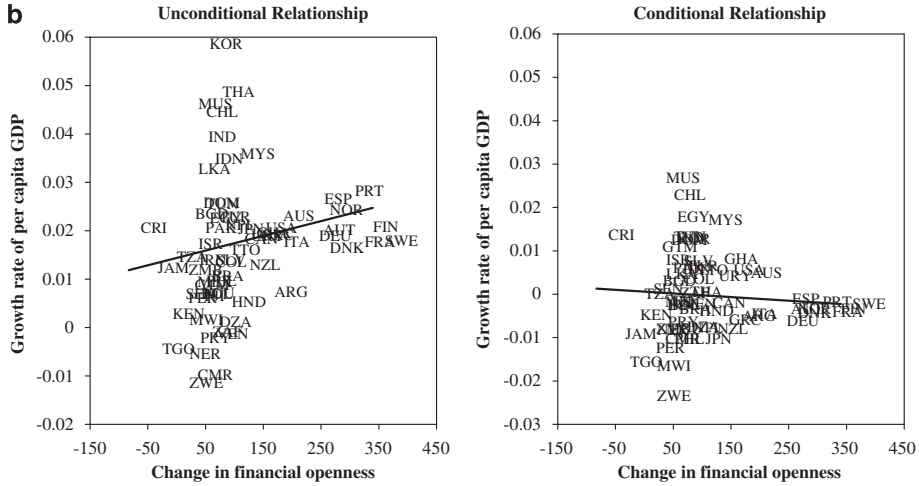


Figure 3b. Change in Financial Openness and GDP Growth, 1985–2004



Note: Growth refers to average real per capita GDP growth. Financial openness is defined as the ratio of gross stocks of foreign assets and liabilities to GDP and is based on a data set constructed by Lane and Milesi-Ferretti (2006). The second panel in each figure uses residuals from a cross-section regression of growth on initial income, population growth, human capital, and the investment rate.

Table 3a. Summary of Key Empirical Studies on Financial Integration and Growth

Study	Number of Countries/*Time Period*	Dependent Variable/ *Regression Methodology*	Financial Openness Measure	Main Findings
Alesina, Grilli, and Milesi-Ferretti (1994)	20 *1950–89*	ΔY and ΔY_c *Annual panel pooled OLS*	Binary	NO EFFECT: No clear impact of capital controls on growth in the OECD countries.
Grilli and Milesi-Ferretti (1995)	61 *1966–89*	ΔY_c *Five-yearly panel pooled IV*	Share	NO EFFECT: No evidence of a robust correlation of capital account restrictions with growth.
Quinn (1997)	64 *1960–89*	ΔY_c *Cross-section OLS*	ΔQuinn	POSITIVE: There is a robust positive association between capital account liberalization and growth.
Kraay (1998)	117 *1985–97*	ΔY_c *Cross-section OLS and IV*	Share, Quinn, Volume	MIXED: Change in financial openness is not significantly related to growth (coefficient on Volume significantly positive but result not robust).
Rodrik (1998)	95 *1975–89*	ΔY_c *Cross-section OLS*	Share	NO EFFECT: No evidence of a significant effect of financial openness on growth.
Bosworth and Collins (1999)	58 *1978–95*	I/Y, S/Y *Annual panel FE and IV*	Volume	MIXED: FDI is highly beneficial for domestic investment but portfolio flows have no discernible effect and loans lie in between. Insignificant impact of international flows on saving.
Bailliu (2000)	40 *1975–95*	ΔY_c *Five-yearly panel dynamic GMM*	Volume	MIXED: Capital inflows foster higher economic growth but only for economies where the banking sector has reached a certain level of development.

Table 3a. *(continued)*

Arteta, Eichengreen, and Wyplosz (2003)	61 *1973–92*	ΔY_c *Cross-section OLS and IV; sub-period panel pooled OLS*	Quinn, ΔQuinn	MIXED: Evidence on positive association between capital account liberalization and growth fragile but stronger correlation with growth when openness measures are interacted with trade openness and rule of law.
Edwards (2001)	62 *1980–89*	ΔY_c, ΔTFP *Cross-section WLS, IV WLS*	Share, Quinn, ΔQuinn	MIXED: Capital account openness positively affects growth only after a country has achieved a certain degree of economic development and financial development.
McKenzie (2001)	112 *1960–89*	ΔY_c *Cross-sectional OLS; five-yearly panel dynamic GMM*	Binary	MIXED: No robust evidence of significant impact of capital controls on economic growth.
O'Donnell (2001)	94 *1971–94*	ΔY_c *Cross-section OLS, IV*	Share, Volume	MIXED: No evidence of capital controls on growth, but volume is sometimes significant.
Quinn, Inclan, and Toyoda (2001)	76 *1960–98*	ΔY_c *Five-yearly panel FE*	Quinn, ΔQuinn	POSITIVE/MIXED: Capital account liberalization has a robust positive impact on growth in most countries.
Quinn and Toyoda (2008)	85 *1955–2004*	ΔY_c *Cross-section and five-yearly panel. FE, dynamic system GMM*	Quinn, Quinn, Share, SMLD	POSITIVE: Capital account openness (and international equity market liberalizations) associated with subsequent economic growth. Little evidence of effects being due to contingency on other factors.
Reisen and Soto (2001)	44 *1986–97*	ΔGNP_c *Annual panel dynamic GMM*	Volume	MIXED: Both FDI and portfolio equity flows have a significant positive impact on growth, but bank lending contributes to growth only if banking system is well capitalized.

Edison and others (2002)	57 *1980–2000*	ΔY_c *Cross-section OLS, IV; five-yearly panel dynamic GMM*	Share, Volume	NO EFFECT/MIXED: With isolated exceptions, unable to reject the null hypothesis that international financial integration does not accelerate growth even when controlling for particular economic, financial, institutional, and policy characteristics.
Eichengreen and Leblang (2003)	47 *1975–95*	ΔY_c *Five-yearly panel dynamic system GMM*	Binary	MIXED: An open capital account boosts growth in periods of financial stability in international markets with controls playing insulating role during instability. Similar results for 27 economies, 1880–1997.
Bonfiglioli and Mendicino (2004)	90 *1975–99*	ΔY_c *Five-yearly panel dynamic system GMM*	Binary	MIXED: Capital liberalization has positive effect on growth but mainly via indirect channels, for example, mitigating effects of banking crises (whereas equity market liberalization has direct effect but no interaction with banking crises).
Durham (2004)	80 *1979–98*	ΔY_c *Cross-section OLS*	Volume	MIXED: Growth effects of FDI and portfolio flows depend on the absorptive capacity of host countries, especially financial or institutional development.
Edison and others (2004)	73 *1976–95*	ΔY_c *Cross-section OLS*	Share, Quinn	MIXED: Capital account liberalization has positive growth effect in middle-income countries.
Bussiere and Fratzscher (2004)	45 *1980–2002*	ΔY_c *Five-yearly panel dynamic GMM*	KS, Volume	MIXED: Positive short-run growth impact of capital account liberalization but longer term effect depends on institutional quality, FDI flows, and liberalization sequencing.
Vanassche (2004)	45 *1980–97*	ΔIND *Cross-section OLS, IV*	Share, Quinn	POSITIVE: Financial openness has a positive effect on sectoral value added growth but with greater relative impact on those sectors more reliant on external financing.
Chanda (2005)	82 *1976–95*	ΔY_c *Cross-section OLS*	Share	MIXED: Capital account liberalization significantly raises growth in more ethnically homogeneous countries.

Table 3a. *(concluded)*

Klein (2005)	71 *1976–95*	ΔY_c *Cross-section OLS, IV, NLLS*	Share	MIXED: Capital account openness has a statistically significant impact on growth in countries with better (not the best) institutions.
Mody and Murshid (2005)	60 *1979–99*	I/Y *Annual and three-yearly panels FE, IV, dynamic GMM*	Volume, A Sum	MIXED: FDI had strongest positive impact on domestic investment. Positive relationship between capital flows and investment growth is more emphasized with stronger policies.
Vlachos and Waldenström (2005)	*42* *1980–90*	ΔIND *Cross-section with FE, OLS and IV*	Volume, Binary	MIXED: Value added growth in sectors more dependent on external finance no higher post-liberalization but positive effects on growth in output and number of firms.
Klein and Olivei (2006)	70 *1976–1995*	ΔY_c *Cross-section OLS, IV*	Share	MIXED: Developed countries with open capital accounts enjoyed greater growth and financial deepening (with latter effect not present for developing economics).

Note: Dependent variable: *EBITDA*: Earnings Before Interest, Taxes, Depreciation and Amortization; ΔGNP_c: Growth rate of real per-capita GNP; I: Investment; I/Y: Investment over GDP; ΔI_c: Growth rate in investment per capita; ΔIND: Growth rate of industry-level measures, for example, real value added, output or number of firms; $\Delta \ln I$: Growth rate of real private investment; S/Y: Saving over GDP; ΔTFP: Growth rate of total factor productivity; ΔY_c: Growth rate of real per-capita GDP; ΔY: Growth rate of real GDP.

Regression methodology: Cross-section: Single observation for each country over entire period; FE: Country and/or industry fixed effects; GMM: Generalized method of moments; IV: Instrumental variables; NLLS: Nonlinear least squares; OLS: Ordinary least squares; Panel: Repeated observations on countries (or country industries) observed over multiple periods (which may be, for example, annual, five years or a decade); Pooled: Assumes no country-specific fixed effects; RE: Country random effects; SUR: Seemingly unrelated regressions; WLS: Weighted least squares.

Financial openness measure: A Sum: Sum of four binary AREAER liberalization indicators across the following categories—capital account, current account, export proceeds, and multiple exchange rates; Binary: 0/1 dummy variable from AREAER taking the value of one when capital controls in place; KS: Measure based on Kaminsky and Schmukler (2003); Quinn: Measure based on Quinn (1997); $\Delta Quinn$: Change in Quinn measure; Share: The proportion of years in which countries had liberalized capital accounts based on the binary variable from AREAER; SMLD: Official Date of Stock Market Liberalization; Volume: Variable based on actual flows/stocks of financial flows.

Main findings: NO EFFECT: No evidence of a significant effect of greater financial integration on growth; MIXED: Evidence of positive effect of financial integration on growth is conditional upon other economic characteristics (for example, financial development or human capital) or otherwise nonrobust (for example, conditional on different country samples); POSITIVE: Significant positive effect of greater financial integration on growth.

Thus, the impact of the debt crises of the 1980s receives a higher weight in Rodrik's study. Longer time spans are presumably more suitable for studying the impact of international financial integration on economic growth. At the same time, one must keep in mind that capital flows to developing countries have really taken off only in the last two decades. Some authors find that capital account liberalization tends to have a positive impact in all groups of countries—advanced, emerging market and other developing economies; others have found that the impact is limited for the last group.[19]

At any rate, our reading of this large literature based on aggregate data is that it remains difficult to find robust evidence that financial integration systematically increases growth, once other determinants of growth are controlled for. Nevertheless, the weight of the evidence seems to be gradually shifting toward finding positive marginal effects on growth, especially when financial integration is measured using de facto or finer de jure measures, when data over longer time periods are used, and when interaction terms accounting for supportive conditions (such as good policies and institutions) are properly included in cross-country regression frameworks. We will expand on these themes later in the paper.

We should note again, however, that endogeneity between financial integration and growth remains a potentially problematic issue in studies that find a positive association between these variables. Some authors have attempted to deal with this problem by using lagged measures of financial integration and generalized method of moments techniques in panel regressions. This problem may ultimately be intractable in macroeconomic data; looking at more disaggregated data may be one way out. Another possibility, as we will discuss later, is that it is difficult, even at a conceptual level, to make strong causal statements about the direct effects of financial globalization on GDP growth, independent of whether macro or micro data are used.

Effects on Volatility

Capital account liberalization is believed to have played an important role in fomenting financial crises and has been indicted by some observers as the proximate cause for the crises experienced by emerging markets in recent decades. But there is little empirical evidence to support the view that capital account liberalization by itself increases vulnerability to crises. Indeed, the literature on the effects of financial integration on volatility (and crises) is much sparser than the literature on its growth effects. Further research is warranted in this area.

[19]On the last point, see Edwards (2001) and Edison and others (2004). Quinn (1997) and Arteta, Eichengreen, and Wyplosz (2003) report uniform results for all groups of countries.

Crises

Some papers that have analyzed the effects of capital controls on susceptibility to financial crises have found that countries *with* capital controls are in fact more subject to crises. But this could simply be because of a "selection effect"—often it is countries with poor macroeconomic fundamentals that put controls in place to try and insulate themselves from crises. Glick, Guo, and Hutchison (2006) address this issue—they find that capital account openness reduces the probability of currency crises, even after controlling for selection bias in terms of how macroeconomic policies influence the existence of capital controls.[20] The relationship between capital controls and crises could also reflect the fact that some of the countries are actually more integrated in terms of de facto measures of integration (capital flight) and that capital controls therefore do not insulate them from crises.

Edwards (2005) examines this issue using a new measure of de jure financial openness that attempts to capture the intensity of capital account restrictiveness. He looks at two manifestations of external crises—sudden stops of inflows and current account reversals—and finds no evidence that countries with higher capital mobility tend to have a higher incidence of crises. In subsequent work, Edwards (2008) concludes that there is no evidence that the output costs of currency crises are smaller in countries that restrict capital mobility.

Although currency crises have been emphasized in the literature on the risks of capital account liberalization, it is worth noting that banking crises account for about one-third of financial crises over the last three decades and that their frequency increased in the 1980s and 1990s. Banking crises tend to be more disruptive and generally have larger adverse effects on output growth than currency crises. Glick and Hutchison (2001) find little evidence that capital account liberalization by itself affects vulnerability to banking crises; moreover, the adverse effects of banking crises seem to be weaker for countries with open capital accounts.[21]

In sum, there is little formal empirical evidence to support the oft-cited claims that financial globalization in and of itself is responsible for the spate of financial crises that the world has seen over the last three decades.[22] Of course, as we will discuss in more detail below, the interaction between capital account liberalization and other policy choices (for example, fixed exchange rate regimes that are not well supported by other macroeconomic

[20]These authors use a binary capital account openness indicator based on the IMF's AREAER. Whether this relationship holds up with de facto measures remains to be seen.

[21]On the output costs of banking crises, see Hutchinson and Noy (2005) and Bonfiglioli and Mendicino (2004).

[22]The evidence cited on this point by some prominent critics of globalization in fact turns out to be about how domestic financial sector liberalization, rather than financial integration, has in some cases precipitated financial crises (see footnote 5 in Stiglitz, 2004).

policies) could, under certain circumstances, spell trouble for a developing economy.

Volatility

Although crisis episodes receive most of the attention, however, they are just particularly sharp manifestations of the more general phenomenon of macroeconomic volatility. Here the results are less favorable—there is no evidence that financial globalization has delivered on the promised benefit of improved international risk sharing and reduced volatility of consumption growth.

There has been a well-documented trend decline in macroeconomic volatility in most of the major industrial economies since the mid-1980s, although the reasons for this decline are still a matter of debate. Output volatility seems to have been on a declining trend in emerging market and developing economies as well. However, the existing evidence based on papers using a variety of regression models, different country samples and time periods leads to the conclusion that there is no systematic empirical relationship between financial openness and output volatility, which is, in a sense, consistent with the predictions of theory.[23]

Kose, Prasad, and Terrones (2003) note that, during the 1990s, average declines in output growth volatility were smaller for emerging markets than for either industrial or low-income developing economies. More importantly, they find that the ratio of consumption growth volatility to income growth volatility increased during the recent period of globalization for emerging market economies (and remained flat for the other two groups). What is surprising is not just that the volatility of consumption rose (perhaps because of crises experienced by some of these economies) but that it increased by *more* than income volatility. This is a striking result in that it runs exactly counter to a presumed theoretical benefit of financial integration—that it allows countries to share income risk and smooth consumption.[24]

These authors also find that the relative volatility of consumption growth (relative to income) increases with the degree of financial openness, but only up to a certain threshold level of integration. At higher levels of financial

[23]See Razin and Rose (1994), Easterly, Islam, and Stiglitz (2001), and Buch, Döpke, and Pierdzioch (2005).

[24]A number of recent theoretical papers have attempted to explain the hump-shaped relationship between financial integration and the relative volatility of consumption growth. Levchenko (2005) and Leblebicioglu (2006) consider dynamic general equilibrium models where only some agents have access to international financial markets. In both models, financial integration leads to an increase in the volatility of aggregate consumption because agents with access to international financial markets stop participating in risk-sharing arrangements with those who lack such access. Bekaert, Harvey, and Lundblad (2005) find that consumption volatility *declines* following equity market liberalizations. Kose, Prasad, and Terrones (forthcoming) show that emerging market economies, which have experienced large increases in cross-border capital flows, have seen little change in their ability to share risk during the globalization period.

integration, countries do seem to accrue the benefits of financial integration in terms of improved risk sharing and better consumption smoothing relative to autarky. Most emerging market economies are, however, below this threshold level of integration, but most industrial economies are above it. We will have more to say later on about the importance of various thresholds in attaining the benefits of financial globalization.

To summarize, the macroeconomic evidence on the growth and volatility effects of financial integration remains sobering although there are some grounds for optimism in more recent work. But most of the evidence so far is based on cross-country regressions that lump together different types of capital flows. Is there a different way to approach the issue?

IV. How Does the Composition of Capital Flows Matter?

An alternative line of inquiry into the effects of financial globalization is based on the notion that not all types of capital flows are created equal. As we have documented earlier, there have been substantial changes in the composition of financial flows over time. What does the evidence show about the macroeconomic effects of different types of flows? The empirical literature is fairly decisive about debt flows worsening the benefit-risk tradeoff related to inflows. Flows that have equity-like features—that is, FDI and portfolio equity flows—are not only presumed to be more stable and less prone to reversals, but are also believed to bring with them many of the indirect benefits of financial globalization such as transfers of managerial and technological expertise. Because a number of recent papers have focused on attempting to uncover the benefits of FDI and equity flows, we examine their effects first.

Foreign Direct Investment

There is a strong presumption in theory that FDI should yield more benefits than other types of financial flows because, in addition to augmenting the domestic capital stock, it has a positive impact on productivity through transfers of technology and managerial expertise. It has also been argued that FDI is less volatile than other inflows, making countries less vulnerable to sudden stops or reversals of these flows. Studies using aggregate data have, however, been unable to provide conclusive evidence about the positive impact of FDI on economic growth. Table 3b provides a summary of the key studies in this literature.[25]

Carkovic and Levine (2005) provide a comprehensive analysis of the growth effects of FDI; they conclude that FDI has no robust causal effect on economic growth. Interestingly, their baseline results suggest a positive association between FDI and economic growth; this association disappears when they introduce controls for trade and domestic financial credit. Thus,

[25]Recent surveys of this literature include Lipsey (2004) and Moran, Graham, and Blomström (2005).

Table 3b. Summary of Key Empirical Studies on Foreign Direct Investment and Growth

Study	Number of Countries/*Time Period*	Dependent Variable/ *Regression Methodology*	Financial Openness Measure	Main Findings
Balasubramanyam, Salisu, and Sapsford (1996)	46 1970–85	ΔY *Cross-section OLS, IV*	FDI/Y	MIXED: FDI has a positive impact on economic growth in countries which have export-oriented rather than import substituting trade policies.
Borensztein, De Gregorio, and Lee (1998)	69 *1970–89*	ΔY_c *Cross-section IV; decade panel pooled SUR, IV*	FDI/Y	MIXED: FDI contributes to growth in countries with a higher level of human capital.
De Mello (1999)	31 *1970–90*	ΔY, I, ΔTFP *VARs, cointegration; annual panel FE IV, pooled group*	FDI	MIXED: Growth effects of FDI depend on the degree of complementarity and substitution between FDI and domestic investment.
Haveman, Lei, and Netz (2001)	74 *1970–89*	ΔY_c *Five-yearly panel FE*	FDI/Y	POSITIVE: FDI leads to increased growth.
Lensink and Morrissey (2006)	88 *1970–98*	ΔY_c *Cross-section OLS, decade panel FE, IV*	FDI/Y	MIXED: FDI has a positive impact on growth, but evidence is weak in developing countries. FDI volatility has a negative growth effect.
Hermes and Lensink (2003)	67 *1970–95*	ΔY_c *Cross-section OLS, five-yearly panel FE, RE*	FDI/Y	MIXED: FDI has a positive growth impact if financial system sufficiently developed.

Table 3b *(concluded)*

Choe (2003)	80 *1971–95*	ΔY_c *Five-yearly panel VAR*	FDI/Y	MIXED: FDI Granger-causes economic growth, and vice versa, but effects are more emphasized from growth to FDI than from FDI to growth.
Alfaro and others (2004)	71 *1975–95*	ΔY_c *Cross-section OLS, IV*	FDI/Y	MIXED: FDI has a significantly positive effect on growth in countries with well-developed financial markets.
Carkovic and Levine (2005)	72 *1960–95*	ΔY_c *Cross-section OLS, five-yearly panel dynamic system GMM*	FDI/Y	MIXED: FDI inflows do not exert an independent influence on economic growth.
Blonigen and Wang (2005)	69 *1970–89*	ΔY_c *10-yearly panel RE, pooled SUR*	FDI/Y	MIXED: FDI has a positive impact on growth in less developed countries provided education levels are high enough, but not in developed countries.
Aykut and Sayek (2005)	37 *1990–2002*	ΔY_c *Cross section OLS IV*	FDI/Y	MIXED: Although manufacturing sector FDI has a positive impact on growth, primary or service sector FDI has no significant impact.

Note: See notes to Table 3a.

the Carkovic-Levine results could be taken to imply that an expansion of FDI flows accompanied by an increase in trade could indeed enhance growth.[26]

There may be other reasons why the beneficial effects of FDI are difficult to detect in macroeconomic data. Pooling of data from developed and developing countries could dampen the estimated growth effects because FDI is more likely to crowd in domestic investment in developing countries. The growth benefits also depend on the sectoral composition of FDI and its interactions with domestic investment. Flows into the primary sector may have limited beneficial spillovers, because they often involve mega projects that scarcely employ domestically produced intermediate goods. FDI in the manufacturing sector, on the other hand, tends to have a significant effect on GDP growth because of stronger linkages between this sector and the rest of the economy. Some studies note that FDI boosts growth only in economies that have the right initial conditions, including high levels of human capital, financial sector development, and policies fostering free trade.[27]

Direct evidence on the role of horizontal spillovers—productivity spillovers from foreign firms to domestic firms in the same sector—in transmitting the productivity benefits of FDI remains inconclusive. Apart from causality issues (foreign firms may tend to locate in high-productivity sectors), studies looking for horizontal spillovers do not account for the possibility that foreign firms may try to minimize technological spillovers to domestic firms in the same sector in order to protect their firm-specific advantages.

However, foreign firms have incentives to transfer knowledge to their local suppliers and customers, implying that productivity spillovers from FDI may occur through ''vertical'' linkages. This is a promising line of research that has picked up steam in recent years. For instance, Javorcik (2004) uses enterprise-level data from Lithuania and employs semiparametric estimation methods to account for simultaneity and sample selection problems affecting ordinary least squares estimates. Her results suggest that, although there are positive spillovers from FDI through vertical linkages, there are few spillovers through horizontal channels.[28]

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[26]Along similar lines, it should be noted that Morocco and Venezuela were relatively closed to trade during the periods covered by the country-specific panel data sets used in the influential studies by Haddad and Harrison (1993) and Aitken and Harrison (1999), respectively, both of which concluded that FDI has minimal growth benefits (see Moran, Graham, and Blomström, 2005).

[27]Blonigen and Wang (2005) discuss the pooling issue but Aykut and Sayek (2005) analyze the effects of sectoral composition of FDI inflows. The importance of the three initial conditions is shown by Borensztein, De Gregorio, and Lee (1998), Hermes and Lensink (2003), Alfaro and others (2006), and Balasubramanyam, Salisu, and Sapsford (1996), respectively. On the last point, also see Melitz (2005).

[28]Lipsey and Sjöholm (2005) provide a survey of the evidence on FDI spillovers. Also see Görg and Greenaway (2004). For more evidence on FDI spillovers through backward linkages, see López-Córdova (2003), Alfaro and Rodríguez-Clare (2004), and Blalock and Gertler (2005).

In short, empirical research that takes a more nuanced approach, especially by accounting for the role of various initial conditions (human capital, trade openness), has been more successful at showing the potential links between FDI and growth. Similarly, at the micro level, a reassessment of the channels through which technological spillovers from FDI inflows should take place has begun to turn up more positive evidence of such spillovers.

Portfolio Equity Flows

The rising importance of portfolio equity flows to emerging markets has spurred a rapidly expanding literature that examines the growth effects of equity market liberalizations, with most papers finding significant positive effects. Whether these estimated growth effects (in macroeconomic data) could be picking up the effects of other factors—especially other reforms that tend to accompany these liberalizations—remains, in our view, an open question. On the other hand, there is now a growing body of micro evidence (using industry- and firm-level data) supporting the macro evidence on the benefits of equity liberalizations. Table 3c provides a summary of the key papers in this literature.

In an influential paper, Bekaert, Harvey, and Lundblad (2005; henceforth BHL) conclude that equity market liberalizations increase long-term GDP growth by about 1 percentage point, a remarkably strong effect.[29] Henry (2007) argues that it is not possible to explain such a strong effect on long-term growth using standard growth accounting techniques as this would require an elasticity of output with respect to capital of about 1. He notes that equity market liberalizations are often part of a larger reform program and that these reforms could have a positive impact on productivity, leading to a longer-term increase in output growth that is compatible with the predictions of standard production theory. When BHL attempt to control for other determinants of growth, including broader capital account and trade liberalizations, the magnitude of the growth effects of equity market liberalizations is dampened. But the growth impact remains statistically significant and in the range of 0.7 to 0.9 percentage points, still a large effect. It is unclear, however, whether their attempts to control for broader liberalization are really adequate to account for all the legal and institutional reforms required for stock market deepening, or for the massive privatizations that accompanied many stock market liberalizations.

[29]Also see Li (2003). Equity market liberalizations are defined as events that make shares of common stock of local firms available to foreign investors. Commonly used dates, drawn from Henry (2000a) and Bekaert and Harvey (2000), include official liberalization dates and dates of "first sign" of liberalization based on events such as the launching of a country fund or American Depository Receipt (ADR) announcement. ADRs are securities that are traded in the United States but represent underlying stocks listed in a foreign country.

Table 3c. Summary of Key Empirical Studies on Equity Market Liberalization and Growth

Study	Number of Countries/*Time Period*	Dependent Variable/ *Regression Methodology*	Financial Openness Measure	Main Findings
Henry (2000a)	11 *1977–94*	$\Delta \ln I$ *Annual panel FE*	SMLD	POSITIVE: Positive growth of real private investment following stock market liberalization.
Bekaert, Harvey, and Lundblad (2001)	30 *1980–97*	ΔY_c *Five-yearly panel GMM (overlapping periods)*	SMLD	POSITIVE: Positive effect on growth following equity market liberalization which is greater for countries with above median education levels.
Li (2003)	95 *1975–2000*	ΔY_c, I/Y, $\Delta Y_c/\Delta I_c$ *Annual panel FE, IV*	SMLD	POSITIVE: Positive growth impact of opening equity markets due mainly to productivity channel ($\Delta Y_c/\Delta I_c$) in middle- and high-income countries and to capital accumulation (I/Y) in low-income.
Bekaert, Harvey, and Lundblad (2005)	95 *1980–1997*	ΔY_c *Five-yearly panel pooled OLS; five-yearly panel (overlapping periods) GMM, IV*	SMLD	POSITIVE: Equity liberalizations increased growth (controlling for policy endogeneity) with stronger effects in better legal and investment environment and financial development.

Table 3c *(concluded)*

Gupta and Yuan (2005)	31 *1981–98*	Δ*IND* *Annual panel dynamic GMM, IV*	SMLD	POSITIVE/MIXED: Stock market liberalization leads to higher real value added growth in sectors more dependent on external finance (but, controlling for liberalization endogeneity, not in those with higher growth opportunities).
Mitton (2006)	28 *1980–2000*	Firm-level indicators, for example, Δlog(sales), EBITDA/total assets; log(sales/employees). *Annual panel FE*	Firm-specific SMLD	POSITIVE: Significant improvement in sales performance associated with liberalization of a firm's equity to foreign investors (controlling for growth opportunities).
Hammel (2006)	13 *1982–95*	Δ*IND* *Three-yearly panel FE*	SMLD	MIXED: Real value added in sectors more dependent on external finance grows faster following equity liberalization in countries with larger stock market capitalization to GDP.

Note: See notes to Table 3a.

Therefore, it is still debatable whether the large remaining growth effect may be fully attributed to equity market liberalizations or other supporting reforms.[30]

Because it is so difficult to disentangle the effects of the bundled reforms that typically accompany equity liberalizations, we view research using industry and firm-level data as important for obtaining a deeper understanding of their effects. This line of empirical research has indeed turned up encouraging results. For example, Gupta and Yuan (2005) find that, following such liberalizations, industries that are technologically more dependent on external finance (the difference between investments and cash generated from operations) experience higher growth. They also find that liberalizations have a larger impact on the growth of industries facing better growth opportunities (based on industry-level global demand indicators). When the liberalization decision is assumed to be endogenous, however, only the former result survives, suggesting that countries may time the liberalization decision to coincide with high growth in certain industries.

Evidence based on firm-level data confirms that equity market liberalizations give firms in emerging markets access to a new financing channel, thereby lowering the cost of capital and increasing opportunities for investment (Chari and Henry, 2004, 2005). Moreover, foreign investors tend to demand higher governance standards, which could have a positive impact on profitability, efficiency, and other measures of operating performance. Mitton (2006) finds that firms with stocks that are open to foreign investors register higher levels of sales growth, investment, and efficiency, and lower leverage ratios.

Although evidence of the positive effects of equity market liberalizations looks promising, it raises an interesting question. Why is it that, using similar de jure measures, the growth effects of broader capital account liberalization appear much weaker? As noted above, one possibility is that equity market reforms take place only when governments feel they have supportive conditions in place. Then again, analyses based on micro data uniformly indicate that the productivity-enhancing effects of equity market liberalizations are greater than those of full capital account liberalizations. Our conclusion is that equity market liberalizations do have an independent impact on growth, but we are skeptical that by themselves they can generate as large growth effects as has been reported by authors such as BHL.

[30]Recent research also provides some cross-country evidence about the empirical relevance of various channels linking equity market liberalization to economic growth. There is evidence, consistent with the predictions of international asset pricing models, that stock market liberalizations reduce the cost of capital and boost investment growth. For evidence on the first point, see Stulz (1999a, 1999b), Bekaert and Harvey (2000), Henry (2000a), and Kim and Singal (2000). On the latter, see Henry (2000b) and Alfaro and Hammel (2006).

Debt Flows

Debt flows, which include portfolio debt flows and bank loans, remain the dominant form of flows to developing economies, although their relative importance has declined over time. The procyclical and highly volatile nature of these flows, especially short-term bank loans, can magnify the adverse impact of negative shocks on economic growth.

Even at a conceptual level, debt flows lack the positive attributes of equity-like flows. They do not solve certain agency problems, can lead to inefficient capital allocation if domestic banks are poorly supervised, and generate moral hazard as debt is implicitly guaranteed by the government (in the case of corporate debt) and/or international financial institutions (both corporate and sovereign debt). Open capital accounts exacerbate the adverse effects of poor financial sector supervision by allowing banks to expose their balance sheets to currency risk and also by permitting them to take speculative open positions in foreign exchange.

The empirical literature on financial globalization is decisive that debt flows generate the greatest risks from financial openness. In particular, there is a systematic empirical link between exposure to short-term debt and the likelihood (and severity) of financial crises. One reason could be that countries with unfavorable conditions are forced to rely more on short-term external debt denominated in foreign currencies as their main source of foreign capital (Eichengreen, Hausmann, and Panizza, 2006). However, even if debt flows are more likely to be associated with less desirable outcomes, one cannot automatically infer that a ban on debt flows would be beneficial in all cases. A capital-poor country that has no access to equity or FDI inflows might still be able to benefit from debt inflows to finance illiquid investments, even though it could potentially face more risks. Similarly, short-term debt could serve as a useful commitment device to foster good macroeconomic policies, although debt would of course increase vulnerability to external shocks.[31]

Other Evidence on the Effects of Different Types of Flows and of Capital Controls

The literature that we have summarized thus far suggests that only equity market liberalizations clearly boost short- and medium-term growth. The evidence that FDI increases growth is less conclusive although recent work has begun to come up with more positive evidence. There are two related strands of literature that help round out the picture. The first looks jointly at the effects of different flows in a common framework. The second analyzes the costs of capital controls—this constitutes another approach to examining the costs/benefits of financial integration.

[31]See Diamond and Rajan (2001) and Jeanne (2003), respectively, on these two points about the potential benefits of debt flows. For a survey of the empirical literature on the risks associated with short-term debt, see Berg, Borenzstein, and Pattillo (2004).

A number of authors have attempted to disentangle the effects of different types of flows by looking at them in a unified empirical framework. The results are largely consistent with those from papers looking at each of these types of flows individually. For instance, Reisen and Soto (2001) conclude that FDI and portfolio equity flows increase growth, but portfolio bond flows and official flows do not. By contrast, Durham (2004) finds that both FDI and total portfolio flows (bond and equity) could have growth-enhancing effects, depending on the level of a country's financial and institutional development, as well as openness to trade.

Another theme that emerges from the evidence we have reviewed thus far is that many of the benefits of financial openness are masked in cross-country analysis using macroeconomic data but are more apparent in disaggregated analyses using micro data. The latter approach has the advantage of being able to better capture the channels through which capital flows affect the allocation of capital and overall efficiency. However, even using micro data it is difficult to separate the effects of capital account liberalization from those of other reforms. And, by construction, these studies tend to be partial equilibrium in nature.

A related strand of literature using micro data has tried to estimate the costs of capital controls, an enterprise that is complicated in aggregate data due to endogeneity, timing, and other problems. Forbes' (2005a) survey concludes that capital controls can cause distortions in the behavior of firms (and individuals) as they adjust their behavior to evade capital controls. By insulating an economy from competitive forces, they may also reduce market discipline. In short, the existence of capital controls appears to result in significant efficiency costs at the level of individual firms or sectors.[32] We find this evidence plausible although the fact that this strand of the literature largely uses de jure measures of integration gives one pause. A mitigating circumstance is that many of these papers are based on data from individual countries or small groups of countries where one has reason to believe that the capital controls really bite, although this might generate subtle sample selection problems.

V. Organizing Principles

To put together the disparate strands of evidence that we have assembled thus far, we now introduce a framework that could help reconcile some of the apparently inconsistent results in the literature and also shed light on why

[32]Johnson and Mitton (2002) argue that capital controls reduced market discipline among Malaysian firms and fostered cronyism. Desai, Foley, and Hines (2004) use firm-level data to argue that the cost of capital is higher for multinationals when capital controls are in place. Based on the cross-country investment patterns of multinationals, they conclude that the level of FDI inflows into a country is adversely affected by capital controls. Forbes (2005b) concurs that the costs of capital controls include not just efficiency losses and lower market discipline but also reduced inflows. Magud and Reinhart (2007) discuss the difficulty of using macro data to measure the costs of capital controls.

empirical evidence at different levels of disaggregation reaches different conclusions. This framework may provide some guidance on fruitful directions for future research on the macroeconomic effects of financial globalization.

Collateral Benefits

A key component of our argument is that it is not just the capital inflows themselves, but what comes along with the capital inflows, that drives the benefits of financial globalization for developing countries (see Figure 4). There is accumulating—although not yet definitive—evidence that financial integration serves as an important catalyst for a number of indirect benefits, which we term potential "collateral benefits." These collateral benefits could include development of the domestic financial sector, improvements in institutions (defined broadly to include governance, the rule of law, and so on), better macroeconomic policies, and so on. These collateral benefits then result in higher growth, usually through gains in allocative efficiency.

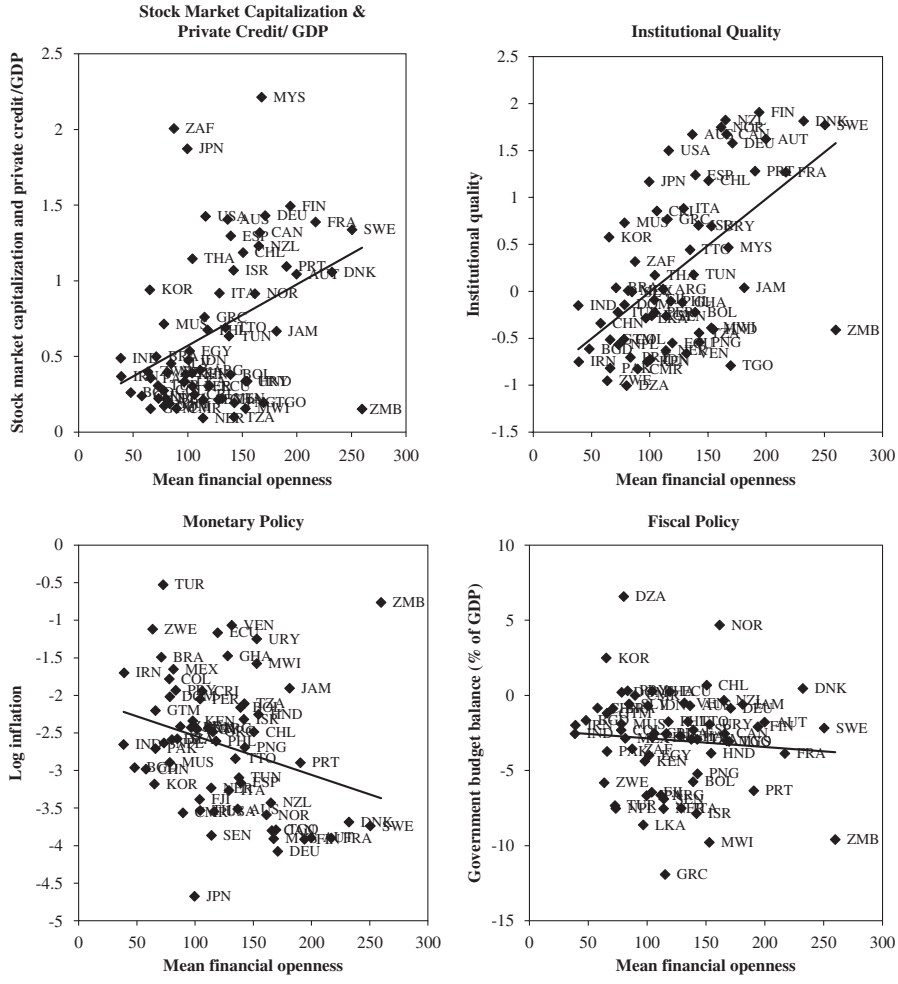
The empirical implications of this perspective are potentially far reaching. It suggests that the beneficial impact of financial integration on growth may take years to show up as policies and institutions adapt.[33] Even after the effects take hold, they may be difficult to document. Standard growth regressions nowadays already include measures of institutional quality, financial sector development, quality of macroeconomic policies, and so on. Yet, these may be the very channels through which financial integration generates growth benefits, making it difficult to disentangle the effects of financial integration.

A corollary of our argument is that the collateral benefits mainly affect growth through total factor productivity (TFP). Ultimately, if financial integration is to have a lasting effect on growth, it must be by moving economies closer to their production possibility frontiers by eliminating various distortions and creating efficiency gains, including in financial intermediation, technological adoption, and so on. But there is as yet little empirical work looking at whether financial integration boosts TFP growth. This seems to us an important dimension of the future research program on the macroeconomic effects of financial integration.[34]

[33]A number of papers have explicitly taken the tack that the costs of financial globalization—including crises—are in the nature of growing pains that will recede once globalizing economies achieve fuller integration (Krugman, 2002; Martinez, Tornell, and Westermann, 2004).

[34]Recent literature has emphasized the importance of TFP growth as the main driver of long-term GDP growth (see, for example, Hall and Jones, 1999; Jones and Olken, 2008; Gourinchas and Jeanne, 2006). Edwards (2001), Bonfiglioli (2006), and Kose, Prasad, and Terrones (2008) have assembled some preliminary evidence suggesting that financial integration raises TFP growth. Kose, Prasad, and Taylor (forthcoming) provide a detailed analysis of various threshold factors that help promote the growth benefits of financial integration.

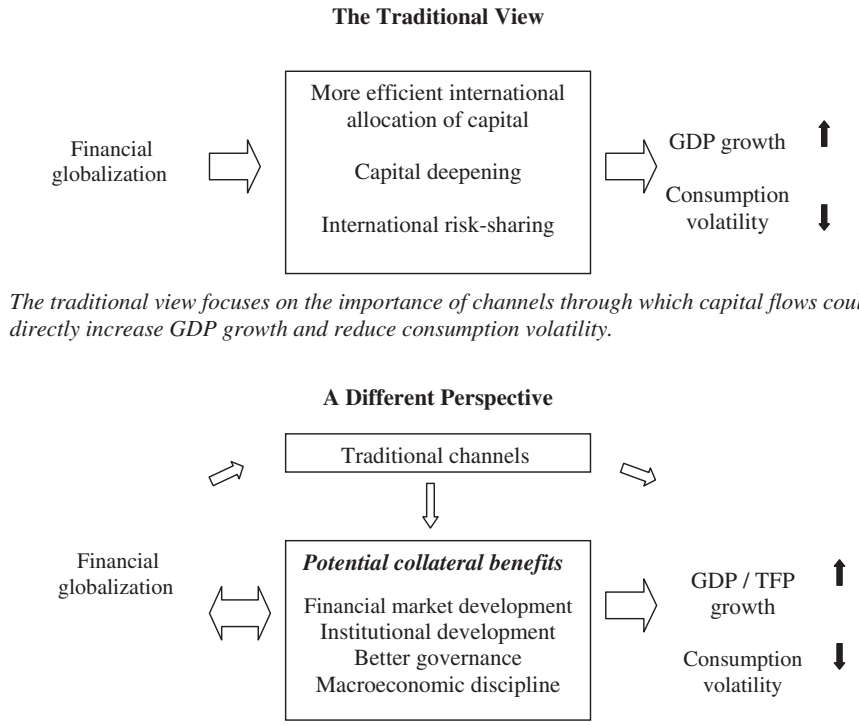
Figure 4. Potential Indirect Benefits of Financial Globalization



Thresholds

A large related literature has tried to tackle the question of what initial conditions are needed to prepare the ground for financial openness to generate growth benefits and lower the risks (see Figure 5). There is plenty of evidence that opening of the capital account without having in place well-developed and well-supervised financial sectors, good institutions, and sound macro policies can hurt a country by making the structure of inflows unfavorable and by making the country vulnerable to sudden stops or reversals of flows. Furthermore, the process of globalization seems to proceed more smoothly when trade liberalization precedes financial

Figure 5. Two Views of Financial Globalization and Macroeconomic Outcomes



integration. Thus, it is the interaction between financial globalization and this set of initial conditions that determines growth and volatility outcomes. This literature could be important for understanding why the macroeconomic evidence on the growth effects of financial integration is rather mixed, but the microeconomic evidence finds more positive effects.

Comparing Figures 4 and 5 highlights a deep tension between the potential risks and benefits of financial globalization. Financial globalization can catalyze a number of important collateral benefits but can also greatly elevate the risks to benefits ratio if the initial conditions in these dimensions are inadequate. This is not to say that the risks are entirely eliminated beyond the thresholds or that financial integration is doomed to failure before the thresholds are reached. But the process of financial integration clearly needs to be managed more carefully if the threshold conditions are not met. Unfortunately, existing papers have identified only the importance of threshold effects in specific dimensions. There is as yet little work on the relative importance of different thresholds and the tradeoffs among them.

Does this mean that there is no alternative for a country desirous of benefiting from the collateral benefits of financial globalization but to expose itself to substantial risks of crises if it has not already attained the threshold conditions? Our view is that, although the risks can never be totally avoided, there are ways to improve the benefit-risk calculus. There is, however, unlikely to be a uniform approach to opening the capital account that will work well for all countries. Indeed, the collateral benefits perspective may provide a way for moving forward on capital account liberalization that takes into account individual country circumstances (initial conditions) as well as the relative priorities of different collateral benefits for that country.

We now turn to examining the evidence that financial globalization indeed has significant collateral benefits. Although the majority of studies are largely theoretical, a small but growing empirical literature has already obtained some early results that are encouraging.

VI. Collateral Benefits of Financial Globalization

We review the evidence for three key areas in which the indirect benefits ought to be important—financial sector development, institutional quality, and macroeconomic policies.

Figure 6 presents some simple unconditional correlations. During the recent period of financial globalization (1985–2004), financial openness is positively correlated with measures of financial development and institutional quality, and negatively correlated with log inflation. Its correlation with the government budget deficit is, however, essentially zero.[35]

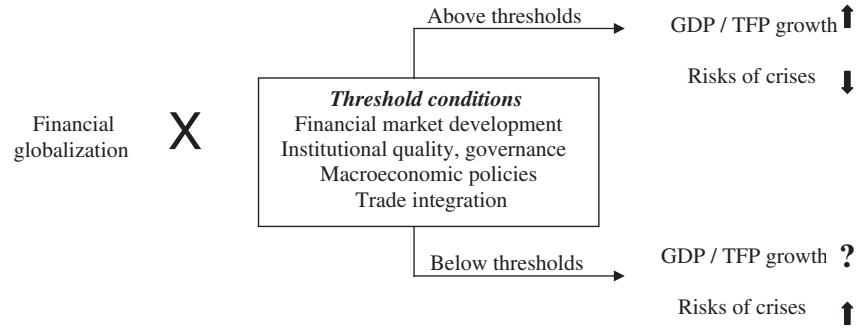
Financial Sector Development

International financial flows seem to serve as an important catalyst for domestic financial market development, as reflected in both straightforward measures of the size of the banking sector and equity markets as well as broader concepts of financial market development, including supervision and regulation. There is also a large body of theory suggesting that foreign ownership of banks can, in principle, generate a variety of benefits (for example, Levine, 2005; Mishkin, 2008). First, foreign bank participation can make a country's access to international financial markets easier. Second, it can help improve domestic regulatory and supervisory frameworks. Third, foreign banks may introduce new financial instruments and technologies, which can increase competition and improve the quality of financial services.

What does the empirical evidence show? Work based on a variety of techniques, including country case studies, supports the notion that increased

[35]As with Figure 3a, we excluded a few countries that were outliers. Inclusion of all the countries in our sample strengthened the unconditional cross-sectional correlations shown here.

Figure 6. Threshold Conditions: A Complication



Financial globalization leads to better macroeconomic outcomes when certain threshold conditions are met. This generates a deep tension as many of the threshold conditions are also on the list of collateral benefits.

Note: The financial integration data are based on a data set constructed by Lane and Milesi-Ferretti (2006). Financial Development data are taken from Beck and Al-Hussainy (2006). Private Credit refers to credit given to the private sector by deposit money banks and Stock Market Capitalization is defined as the value of listed shares. Institutional quality data are from Kaufmann, Kraay, and Mastruzzi (2006) and cover the period 1996–2004. Institutional Quality is the average of the following indicators: Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Monetary and fiscal data are from the World Bank's World Development Indicators and the IMF's International Financial Statistics and World Economic Outlook databases. Inflation is defined as the annual change in CPI. Government Budget Balance is the difference between government revenues and government expenditures.

foreign bank presence raises competition and leads to a decline in both bank overhead costs and profits.[36] As for equity markets, the overwhelming theoretical presumption is that foreign entry increases efficiency and the evidence seems to support this channel. For example, applying an event study approach to data from 16 emerging markets, Levine and Zervos (1998) report that stock markets become larger and more liquid after equity market liberalizations.[37]

A number of studies also find that financial integration helps overall financial sector development. For instance, Klein and Olivei (2006) find that, in financially integrated economies, the degree of domestic financial sector development is higher than in countries that maintain capital controls.

[36]See Claessens, Demirguç-Kunt, and Huizinga (2001), Levine (2001), Claessens and Laeven (2004), Clarke and others (2003), and Schmukler (2004).

[37]In a cross-county regression framework, Chinn and Ito (2006), however, identify one possible caveat. Financial openness contributes to equity market development only once at least a moderate level of legal and institutional development has been attained (a hurdle cleared by most emerging markets); less developed countries do not necessarily gain this benefit.

Financial-sector FDI from well-regulated and well-supervised source countries can support institutional development and governance that are essential for financial market deepening in emerging markets (Goldberg, 2004).

Institutional Quality and Governance

Again, in theory, there are a number of potential channels through which financial globalization improves corporate governance and thereby reduces the cost of capital (Stulz, 2005). Foreign investors may have skills and information technologies that allow them to monitor management better than local investors. Globalization also weakens certain agency problems by reducing the cost of outside finance, thereby creating incentives for firms that use more external finance to improve their governance.

The empirical evidence on financial globalization and corporate governance, while still sparse, does seem to indicate that financial globalization has induced some countries to adjust their corporate governance structures in response to demands from international investors (Cornelius and Kogut, 2003). Morck, Wolfenzon, and Yeung (2004) note that corporate governance problems associated with concentration of ownership can be mitigated by financial globalization, in part by raising expectations and demands among local investors through exposure to better standards of governance.

More recent work has started to examine the implications of financial globalization for broader public governance.[38] There is evidence that poor public governance (as measured by severity of bureaucratic corruption or lack of government transparency) discourages inward FDI and portfolio equity inflows. But whether the prospect of more inflows has actually led to improvements in public governance remains an open question. There is some evidence that firms in countries with weak governance undertake listing on stock exchanges in countries with a substantially better court system, less corruption, and stricter disclosure requirements as one approach to ''renting'' good public governance in order to improve corporate governance. This form of financial integration may also have spillover effects on domestic firms that see the benefits of better corporate governance.

Political economy considerations enter into the picture as well, with financial integration helping to shake loose power structures that allow certain groups to thwart reforms. Rajan and Zingales (2003), for instance, propose an interest group theory wherein cross-border trade and financial flows weaken incumbents' opposition to reforms and facilitate financial sector development. These authors find some support in the cross-sectional and time-series dimensions of historical data to support this theory.

[38]See Gelos and Wei (2005), and Doidge, Karolyi, and Stulz (2005).

Macroeconomic Policies

We have already discussed how capital account liberalization might impose discipline on macroeconomic policies because it increases the potential costs associated with weak policies and enhances the benefits of good ones. Precisely because capital account liberalization makes a country more vulnerable to sudden shifts in global investor sentiment, it can serve as a signal of commitment to better macroeconomic policies.[39] Indeed, even skeptics of the benefits of financial integration such as Stiglitz (2000) have accepted that this is likely to be one of the most important potential benefits of capital account liberalization. Unfortunately, although the empirical evidence is suggestive, it remains limited.

Tytell and Wei (2004) review the existing evidence and also systematically examine the disciplining effect of capital flows on monetary and fiscal policies in a unified empirical framework. They note that previous studies have not tackled the potential problem of endogeneity—countries with better policies may receive more flows. Tytell and Wei adopt an instrumental variables strategy wherein they instrument capital flows to each country using a measure of flows to neighboring countries that rely on similar source countries but whose capital inflows are independent from the macro policies of the country in question. They conclude that countries with higher levels of financial openness are more likely to generate better monetary policy outcomes in terms of lower inflation. Interestingly, they find no evidence of a corresponding disciplining effect of financial globalization on fiscal policy.

Implications

Although we can hardly argue that the evidence that we have surveyed in this section is decisive, it consistently points to a role for international financial integration as a catalyst for financial and institutional development, in line with our schematic view about the channels through which financial globalization affects growth. Given the difficulties that we have noted in interpreting the cross-country growth evidence, it is useful to see that financial integration does seem to be operating through some of the indirect channels, especially given that we are only about two decades into the most recent wave of financial globalization. Before turning to the implications of this line of reasoning, we review the literature on a closely related matter: Is there a threshold level of institutional and financial development beyond which the various benefits we have been cataloging start to definitively outweigh the risks?

VII. Threshold Effects in the Outcomes of Financial Globalization

There are four factors that interact with financial globalization in important ways to determine the eventual macroeconomic outcomes and also influence

[39]See Bartolini and Drazen (1997) and Gourinchas and Jeanne (forthcoming).

the short-run tradeoffs. Each of these has in its own right been shown to influence growth, but our interest here is in the narrower question of how they affect the outcomes (in terms of growth and volatility) of financial integration.[40]

Influence of Financial, Institutional Development on Benefits of Financial Integration

Financial sector development not only enhances the growth benefits associated with financial globalization but also reduces vulnerability to crises. Well-developed domestic financial markets are instrumental in efficiently allocating foreign financial flows to competing investment projects. Recent empirical research supports the view that financial sector development amplifies the growth benefits associated with FDI flows, with some authors finding that a threshold level of financial sector development is necessary for a country to realize any growth benefits from FDI.[41] In a similar vein, BHL find that deep financial markets enhance the growth benefits of equity market liberalizations.

Financial development also has a positive impact on macroeconomic stability. Sudden changes in the direction of capital flows tend to induce or exacerbate boom-bust cycles in developing countries that lack deep and well-functioning financial sectors (Caballero and Krishnamurthy, 2001; Aghion and Banerjee, 2005). Moreover, inadequate or mismanaged domestic financial sector liberalizations have been a major contributor to crises that may be associated with financial integration (Mishkin, 2008). After capital account liberalization, excessive risk taking by poorly supervised domestic banks played a major role in triggering the financial crises in Mexico in 1994 and many East Asian countries in 1997.

Institutional quality affects not just the outcomes of financial integration but also the level of de facto integration itself. Better institutions enhance the responsiveness of growth to capital account liberalization (Klein, 2005). Furthermore, better institutional quality increases the level of inflows and also helps tilt the structure of inflows toward FDI and portfolio equity which, as noted earlier, are more stable and tend to bring more of the collateral benefits of financial integration.[42] This has important consequences for volatility as the composition of inflows has strong predictive power for currency crashes. In particular, the share of FDI in a country's capital inflows is negatively associated with the probability of a currency crisis.

[40]Another threshold effect, on which the literature is still rather limited, is related to human capital. Borensztein, De Gregorio, and Lee (1998) and Blonigen and Wang (2005) find that countries that have more human capital get larger growth benefits from FDI.

[41]See Hermes and Lensink (2003), Alfaro and others (2004), and Durham (2004).

[42]See Hines (1995), Faria and Mauro (2005), and Alfaro and others (2006).

Why Do Macroeconomic Policies Affect the Outcomes of Financial Integration?

Capital account liberalization is more likely to be successful if it is supported by sound fiscal, monetary, and exchange rate policies. Arteta, Eichengreen, and Wyplosz (2003) report evidence of such threshold effects in generating *positive* growth effects of financial openness. Ishii and others' (2002) case study analysis underscores the importance of stable macro policies for averting crises in countries with open capital accounts.[43]

There is a compelling case to be made that rigid exchange rate regimes can make a country more vulnerable to crises when it opens its capital markets. It can be argued that, in the absence of fixed rates (de facto or de jure), most of the crises of the 1990s—including Mexico, East Asia, Russia, and Brazil—might have been less virulent, or might even have been avoided entirely. However, the literature does not imply that fixed exchange rates are necessarily a problem for countries that are at early stages of financial development or that they are inappropriate prior to capital account liberalization.[44] What is clear is that an open capital account puts a greater burden on other policies and structural features of the economy (for example, product and labor market flexibility) to support a fixed exchange rate.

Does the Level of Trade Openness Matter for the Effects of Financial Openness?

Trade integration reduces the probability of crises associated with sudden stops and current account reversals. Economies that are less open to trade have to undergo larger real exchange rate depreciations for a given current account adjustment, face more severe balance sheet effects stemming from depreciations, and, as a result, are more likely to default on their debt. This creates a link between the probability of sudden stops and the likelihood of default, implying that more open economies are less vulnerable to financial crises.[45]

Trade integration should also mitigate the adverse growth effects of financial crises and facilitate recoveries from crises. It could help an economy to continue servicing its debt and export its way out of a recession because a given exchange rate depreciation would have a larger impact on its export

[43]Austria and Hungary, for example, were able to avoid crises after they liberalized their capital accounts since they had relatively stable macroeconomic policies. Mexico and Turkey ran into difficulties in the mid-1990s after liberalizing their capital accounts because they had tightly managed exchange rates for a prolonged period, along with uncertain policy settings and growing imbalances.

[44]See Husain, Mody, and Rogoff (2004) and Aghion and others (2006). For a discussion of how fixed exchange rate regimes and open capital accounts can together spell disaster, see Obstfeld and Rogoff (1995) and Wyplosz (2004).

[45]See Calvo, Izquierdo, and Mejia (2004) and Frankel and Cavallo (2004).

revenues than in a less open economy.[46] Recent research confirms that, among countries that have experienced sudden stops and current account reversals, those that are more open to trade suffer smaller growth declines.[47] Trade integration in general has a better cost-benefit tradeoff than financial integration (Martin and Rey, forthcoming). Thus, the recent literature has a clear implication—consistent with the received wisdom—that developing countries should liberalize trade in goods before trade in financial assets.

Does the Degree of Financial Integration Matter?

A different threshold is related to the level of financial integration itself, because many of the presumed benefits start to become apparent only when economies achieve a high level of integration. In particular, industrial economies, which are far more integrated into global financial markets, are able to use international capital flows to generate TFP gains and share income risk. Does this mean that the only hope for developing countries to realize these benefits is to attain similar levels of financial integration and that the risks en route are unavoidable? After all, if the short-term costs take the form of crises, they could have persistent negative effects that detract from the long-term growth benefits.

Some comfort may still be provided by a newly developing literature on how globalization affects the relationship between growth and volatility. Although macroeconomic volatility does have a negative effect on growth, this relationship is attenuated for more open economies (Kose, Prasad, and Terrones, 2005, 2006). That is, economies that are more open to trade and financial flows are able to tolerate higher levels of volatility—other things being equal—than less open economies, without this volatility having an adverse effect on growth. Furthermore, some of the collateral benefits generated by financial integration, including macroeconomic discipline and financial market development, could also reduce volatility.

VIII. Concluding Remarks

Our synthesis of the literature on financial globalization, while offering a guardedly positive overall assessment, points to some major complications during the transition from low to high levels of financial integration. For developing countries, financial globalization can play a catalytic role in generating an array of collateral benefits that boost long-run growth and welfare.

[46]Calvo and Talvi (2005) claim that this is why the collapse of capital flows to Argentina and Chile in the 1990s had a smaller impact on Chile. Kose, Meredith, and Towe (2005) argue that trade integration has made the Mexican economy more resilient to shocks and contributed to its faster recovery from the 1994–95 peso crisis than from the 1982 debt crisis.

[47]See Edwards (2004, 2005), Desai and Mitra (2004), and Guidotti, Sturzenegger, and Villar (2004).

But the picture is complicated by the existence of threshold conditions. Full-fledged opening of the capital account in the absence of essential supporting conditions can vitiate the realization of any benefits, while making a country more vulnerable to sudden stops of capital flows. These supporting conditions include stable macroeconomic policies as well as sufficiently strong financial and other institutions, regulation and governance. Thus, it is not surprising that evidence on the effects of financial globalization is so mixed.

Nevertheless, it is also wrong to conclude that the literature offers no guidance for developing countries that aspire to accrue greater benefits from financial globalization. Countries across all parts of the spectrum of institutional quality can be successful in maintaining sound fiscal policy and low inflation, as the experience of the current decade has shown. A more flexible exchange rate system also greatly reduces the risks. At the same time, the relatively positive experiences that many countries have had with stock market liberalizations suggest that efforts to enhance financial globalization are more likely to be successful when accompanied by supporting reforms in other areas.

Where can research help sharpen such policy conclusions? First, it is imperative to extend the research program on measuring financial openness. Although it is clear that different countries have adopted widely differing approaches to financial globalization, existing measures of cross-country differences are so crude as to be highly misleading in many cases, often leading to incorrect conclusions. Thus, additional work on constructing measures that line up better with theoretical notions of integration would be extremely useful. In addition, understanding the specific channels through which different types of inflows affect growth dynamics would also be an important step in evaluating their relative benefits.

We have emphasized that future research should focus on the indirect benefits of financial globalization that ultimately express themselves in TFP growth and macroeconomic stability. Early research that emphasized how financial globalization can help enhance physical capital accumulation in developing countries was clearly misplaced. Thus, more work needs to be done on how countries can best exploit the "potential collateral benefits" of globalization.

Research on these potential collateral benefits is still in its infancy, but is growing rapidly. The links between certain aspects of open capital accounts (for example, unrestricted foreign bank entry) and domestic financial sector development have been analyzed extensively, but evidence on other indirect benefits is limited. In particular, despite the existence of a theoretical literature positing a link between financial globalization, on the one hand, and governance (both public and corporate) and macroeconomic policies on the other, the empirical literature remains sparse.

It is clear from the discussion here that the benefits of financial openness should be more apparent in terms of the effects on TFP growth rather than per capita income growth, because the latter depends also on physical and

human capital accumulation. Empirical evidence on how different types of flows affect productivity growth should be an integral part of the research agenda on financial openness. It is highly misleading to lump together equity market liberalization, direct foreign investment, and short-term capital flows, as each of these can have very different effects on productivity. Another promising research avenue is a more detailed analysis of threshold effects—especially the relative importance of different threshold conditions and the tradeoffs among them for a country that wishes to open up its capital account.

We caution, however, that existing macro-level approaches to testing the effects of financial globalization do not, and perhaps cannot, offer definitive answers. In particular, it is very difficult to make strong statements about casual links between financial integration and growth using macroeconomic data. Further research based on industry- and firm-level data as well as event and case studies may provide useful corroborative evidence and, possibly, more informative insights about the channels through which these effects operate.

In the meantime, we should recognize that some of the more extreme polemic claims made about the effects of financial globalization on developing countries, both pro and con, are far less easy to substantiate than either side generally cares to admit.

DATA APPENDIX

This appendix lists the countries included in the analysis and also indicates the acronyms used for each country. The full sample of 71 countries is divided into three groups.[48]

Advanced Economies

The 21 advanced industrial economies in our sample are Australia (AUS), Austria (AUT), Belgium (BEL), Canada (CAN), Denmark (DNK), Finland (FIN), France (FRA), Germany (DEU), Greece (GRC), Ireland (IRL), Italy (ITA), Japan (JPN), Netherlands (NLD), New Zealand (NZL), Norway (NOR), Portugal (PRT), Spain (ESP), Sweden (SWE), Switzerland (CHE), United Kingdom (GBR), and the United States (U.S.A.).

Emerging Market Economies

This group includes 20 countries—Argentina (ARG), Brazil (BRA), Chile (CHL), China (CHN), Colombia (COL), Egypt (EGY), India (IND), Indonesia (IDN), Israel (ISR), Korea (KOR), Malaysia (MYS), Mexico (MEX), Pakistan (PAK), Peru (PER), Philippines (PHL), Singapore (SGP), South Africa (ZAF), Thailand (THA), Turkey (TUR), and Venezuela (VEN).

[48]For presentational reasons, in Figures 3a and 6 we excluded the following countries that were outliers: United Kingdom (GBR), Netherlands (NLD), Belgium (BEL), Singapore (SGP), Switzerland (CHE), Ireland (IRL), Zambia (ZMB), and China (CHN). Inclusion of outliers did not change our qualitative findings.

Other Developing Economies

This group has 30 countries—Algeria (DZA), Bangladesh (BGD), Bolivia (BOL), Cameroon (CMR), Costa Rica (CRI), Dominican Republic (DOM), Ecuador (ECU), El Salvador (SLV), Fiji (FJI), Ghana (GHA), Guatemala (GTM), Honduras (HND), Iran (IRN), Jamaica (JAM), Kenya (KEN), Malawi (MWI), Mauritius (MUS), Nepal (NPL), Niger (NER), Papua New Guinea (PNG), Paraguay (PRY), Senegal (SEN), Sri Lanka (LKA), Tanzania (TZA), Togo (TGO), Trinidad and Tobago (TTO), Tunisia (TUN), Uruguay (URY), Zambia (ZMB), and Zimbabwe (ZWE).

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