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INTRODUCTION

Frontiers of Research on Financial Globalization

M. AYHAN KOSE*
Guest Editor

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What do we know about the macroeconomic implications of financial globalization? And what policy measures can be employed to improve the benefits of financial opening? The papers presented in this special issue attempt to address these questions utilizing a wide array of results from the frontiers of research on financial globalization. In particular, the special issue includes seven papers focusing on various aspects of financial integration. The first four papers review the large literature on financial globalization. The first two of the four provide detailed surveys of recent research about the implications of financial integration for economic growth and macroeconomic stability. The next two analyze the implications of broad policy responses to financial integration. These are followed by a pair of papers on the implications of banking sector globalization and on the consequences of financial integration for monetary policy discipline, respectively. The final paper introduces a new data set on capital account restrictions.

After briefly documenting the rapid growth of international financial flows, the papers by M. Ayhan Kose, Eswar Prasad, Kenneth Rogoff, and Shang-Jin Wei (“Financial Globalization: A Reappraisal”) and Maurice Obstfeld (“International Finance and Growth in Developing Countries: What Have We Learned?”) survey a large sample of theoretical and empirical studies. The survey by Kose and others provides a unified conceptual framework for organizing the vast literature about the costs and benefits of financial globalization. The authors argue that their framework constitutes a fresh synthetic perspective on the macroeconomic effects of financial globalization, both in terms of growth and volatility. Although they document that most empirical studies are unable to find robust evidence in support of the growth benefits of capital account liberalization, they claim that studies that use measures of de facto integration or finer measures of de jure integration tend to find more positive results. Their survey also documents that studies using micro data are better able to detect the growth and productivity gains stemming from financial integration. Moreover, they conclude that 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 past three decades.

The conceptual framework they present suggests that in addition to the traditional channels (for example, capital accumulation), the growth and stability benefits of financial globalization are also realized through a broad set of “collateral benefits.” These benefits affect growth and stability dynamics indirectly, implying that the associated macroeconomic gains may not be fully evident in the short run and may be difficult to uncover in cross-country regressions. The potential indirect benefits of financial globalization are likely to be important in three key areas: financial sector development, institutional quality, and macroeconomic policies. Kose and others also argue that various threshold effects—financial sector development, institutional quality, governance, trade openness, and sound
monetary and fiscal policies—all play important roles in shaping the macroeconomic outcomes of financial globalization. They conclude that countries meeting these threshold conditions are better able to reap the growth and stability benefits of financial globalization.

Their framework also points to a fundamental tension between the costs and benefits of financial globalization that may be difficult to avoid. Financial globalization appears to have the potential to play a catalytic role in generating an array of collateral benefits that may help boost long-run growth. At the same time, premature opening of the capital account in the absence of some basic supporting conditions can delay the realization of these benefits, while making a country more vulnerable to sudden stops of capital flows.

The survey by Maurice Obstfeld also reports that, although there is a large amount of literature analyzing the benefits and costs of financial globalization, there is little convincing empirical evidence of its direct growth effects. He observes that the empirical literature on the effects of financial globalization has to cope with a multitude of challenges, including the measurement of integration, the coincidence of capital account liberalization with a number of other growth enhancing reforms, and the endogeneity of the liberalization decision itself. Although studies using microeconomic data may provide less ambiguous evidence, even in the micro context, identification problems can remain. After providing a discussion of various challenges associated with monetary policy formulation in emerging markets using several country cases, he concludes that managing flexible exchange rate regimes in financially integrated countries has been a particularly difficult task.

Obstfeld argues that, despite the ambiguous benefits of financial integration, policymakers in emerging markets have embraced financial openness and this trend is likely to continue in the future primarily because domestic financial development can promote economic growth and welfare. Deeper domestic financial systems and stronger trade linkages make it difficult to resist financial opening that can in turn accelerate the development of domestic financial system. Obstfeld claims that while potential adverse effects of financial integration can be mitigated by domestic financial sector development, other institutional reforms—relating to the rule of law, corruption, contract enforcement, corporate governance, reductions in liability dollarization, and stable macroeconomic policies—are also needed to maximize the growth and stability benefits of financial liberalization.

These two surveys clearly show that the relationship between financial integration and macroeconomic outcomes is complex, and that there are inescapable tensions inherent in evaluating the risks and benefits associated with financial globalization. Although there is evidence in support of the broad policy conclusions in these surveys, even these policies often need to be tailored to take into account country-specific circumstances in light of the tensions. Nevertheless, the surveys conclude that it is essential to see financial
integration not just as an isolated policy goal but as part of a broader package of reforms and supportive macroeconomic policies.

The next two papers reach somewhat opposite conclusions about the nature of policy responses to financial integration. Dani Rodrik and Arvind Subramanian (“Why Did Financial Globalization Disappoint?”) conclude that the benefits of financial globalization are hard to document and it would be useful to consider policies to restrict capital inflows, if country-specific conditions deserve such a response. In contrast, Frederic S. Mishkin (“Why We Shouldn’t Turn Our Backs on Financial Globalization”) argues that, in order to attain better standards of living, emerging market economies need to become more integrated with the global financial system while employing policies that can improve their institutional frameworks to facilitate the growth and stability enhancing effects of international financial flows. In other words, although Rodrik and Subramanian argue that it might be better to have less financial integration for some developing countries, Mishkin concludes that developing economies need more financial integration, not less.

Rodrik and Subramanian first present a critical review of the recent literature that provides arguments in support of financial globalization. They claim that the main assumptions of this literature are misplaced. First, the literature assumes that developing countries are saving constrained, but they argue that these economies are more likely to be investment constrained. In investment-constrained economies, financial flows can appreciate the real exchange rate and accentuate problems stemming from the investment constraint. This can reduce investment opportunities and can in turn have a negative impact on economic growth. In particular, they argue that there is strong and robust evidence suggesting that real exchange rate overvaluation hampers growth, but undervaluation improves it.

Second, they disagree with another premise of recent literature that the problems associated with financial globalization can be mitigated by undertaking institutional reforms. They claim that, in light of the obvious capacity constraints developing countries face, it is difficult for them to undertake all the necessary reforms to enjoy the benefits of integration. Moreover, if the binding constraint on growth is not access to international financial flows, it is not sensible to employ a wide range of reform programs to attract foreign capital to these countries, most of which are still coping with the challenges of underdevelopment.

Rodrik and Subramanian argue that there is a need for a new paradigm on financial globalization that acknowledges that more financial integration is not necessarily a better policy objective for developing countries. Crises stemming from vagaries of international capital flows are more likely to take place in a world of politically divided sovereign and regulatory bodies. They conclude that, depending on country-specific circumstances, it would be wise to employ policies to limit these flows.

Mishkin first provides a brief review of various stylized facts associated with the two eras of globalization: 1870–1914 and 1960—present. He notes
that international flows of capital grew annually at 4.8 percent and increased from 7 percent of GDP in 1870 to close to 20 percent in 1914 during the first era. He argues that the breakdown of this first era of globalization shows that the process of globalization can be reversed, which can lead to disastrous outcomes, as evidenced by the severe economic and political problems of the interwar period. These are particularly important observations as we evaluate the implications of the current financial crisis for the future of global financial architecture.

Mishkin claims that the new era of financial globalization is associated with rapid economic growth and poverty alleviation. Although the association does not necessarily imply causation, he argues that causality is likely to run from globalization to high economic growth and reduction in poverty. Drawing parallels between the current era of globalization and the first era, he concludes that it is possible to observe another episode of reversal that could curtail the process of trade and financial integration around the globe.

Mishkin argues that financial globalization can be a powerful force, through its positive impact on financial development in promoting economic growth and the reduction of poverty in emerging market countries. Financial globalization facilitates domestic financial sector development by weakening the power of groups such as government and entrenched private special interests. Moreover, it encourages support for institutional reforms to make the domestic financial system work more efficiently. He recognizes that it is not easy to undertake the necessary complementary reforms to utilize the benefits of financial integration. However, he concludes that financial globalization can lead to substantial growth and stability benefits when it is supplemented by good policies and strong institutional frameworks.

Linda Goldberg provides a survey (“Understanding Banking Sector Globalization”) of the evolution and implications of cross-border integration of banking sector, which has become an important conduit of financial globalization during the past two decades. After briefly reviewing various stylized facts about the rapid growth of banking sector globalization, Goldberg turns her attention to its three major implications. First, she examines the role of banks in the international transmission of shocks, synchronization of business cycles, financial crises, and economic growth. Depending on whether host markets are served through cross-border flows or in the host markets by branches and subsidiaries of the parent bank, she concludes that the globalized banks can affect how business cycles are transmitted across borders. She also documents that banking globalization may moderate the amplitude of host country cycles if the presence of foreign banks helps reduce the frequency of crises and dampens the output contractions that are often associated with such crises.

Second, she reviews the implications of foreign bank entry for host markets. She documents that financial sector foreign direct investment (FDI), like real-side FDI, can be instrumental in transferring new technologies and generating productivity benefits for host countries. She concludes that the
growth effects of financial sector FDI depend on whether the investment is
greenfield or merger and acquisition. In the latter case, the effects also depend
on whether the acquired institution is financially sound or in need of
restructuring. She concludes that, if financial intermediation improves,
financial sector FDI should support greater employment and growth
prospects.

In addition, Goldberg considers the implications of financial sector FDI
for institutional development and crisis avoidance. She argues that financial
sector FDI from well-regulated and well-supervised source countries can
support institutional development and governance and improve a host
country’s mix of financial services and risk management tools. These
potentially reduce the incidence of crises associated with financial
underdevelopment in emerging markets. However, she also recognizes
that this type of investment can initially pose problems to local
supervisors, who will need to develop expertise in the new practices and
products introduced into their economies.

Does financial globalization have a “disciplining effect” on monetary
policy? Although some recent papers argue that financial openness has
been associated with better monetary policy outcomes, the evidence for
such claims has been quite limited. Mark M. Spiegel (“Financial
Globalization and Monetary Policy Discipline: A Survey with New
Evidence from Financial Remoteness”) provides new empirical evidence on
this question. He first analyzes the normative implications of financial
globalization for monetary policy. He documents that financial globalization
has decreased the relative desirability of using monetary policy to stabilize
output in favor of increasing attention toward the pursuit of price
stability. In response, policymakers have shifted their emphasis toward
achieving price stability, with many formally adopting inflation targeting
regimes.

For his empirical analysis, Spiegel examines the relationship between
financial globalization and median inflation levels over an 11-year cross-
section from 1994 through 2004, as well as a panel of five-year median
inflation levels between 1980 and 2004. He uses financial remoteness as a
plausibly exogenous instrument for financial integration. His findings indeed
confirm a negative relationship between de facto financial openness and
inflation for a univariate specification with or without instrumenting.
However, these results do not appear to be robust to conditioning for
country wealth or simply for introducing country fixed effects. In particular,
both financial integration and monetary stability appear to be characteristics
of well-functioning economies, but so are a large set of other factors
examined in the literature, such as the level of development of the domestic
financial sector, the quality of institutions, and an economy’s level of GDP
per capita.

Finally, Martin Schindler (“Measuring Financial Integration: A New
Data Set”) introduces a new data set containing measures of de jure
restrictions on cross-border financial transactions. Although de facto
measures of financial globalization have been available for a large number of countries and years, there has been a lack of detailed and reliable measurement of countries’ de jure policies toward financial globalization. In particular, existing measures of capital account restrictions are often too coarse and have limited time and/or country coverage.

Schindler’s data add value to existing capital control indices by providing information at a more disaggregated level for 91 countries from 1995 to 2005. Like most of the earlier de jure capital control indices, the new database relies on information contained in the IMF’s *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER). Although the new indices strike a relatively favorable balance regarding country coverage and the level of detail, they are constrained by a somewhat short time series dimension due to the limited information provided by the AREAER prior to 1995.

The new database allows for the construction of various subindices, including those for individual asset categories, for inflows vs. outflows, and for residents vs. nonresidents. Disaggregations of this kind open up new ways to address questions of interest about financial integration. For example, a key strength of the new indices is their ability to provide information on a country’s composition of capital account restrictions in addition to simply measuring the country’s overall restrictiveness. Moreover, their relatively fine gradation allows researchers to identify large changes in de jure regimes, thus making it possible to date reform events.

Recent events in global financial markets have once again shown the critical importance of understanding the effects of financial globalization. Although there has been an intensive debate about the implications of financial globalization, the evidence on which the debate is based has not been uniform and unambiguous. The papers in this special issue provide a systematic and critical analysis of recent empirical and theoretical studies on this subject. They also show that the challenges financial globalization poses will continue to be fertile ground for future research.
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...
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. Although our overall take is that the literature is still inconclusive, we argue that newer approaches that attempt to

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1The 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.

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

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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.

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3We 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). 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. 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. 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.

4Indeed, 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.

5Henry (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.

6Among 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. 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. 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

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7See Kose, Prasad, and Terrones (2004) for a more detailed exposition.
8In 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

9Share 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 (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.  

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. Their data set contains...
information about the composition of international financial positions, including FDI, portfolio equity investment, external debt, and official reserves.\textsuperscript{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.\textsuperscript{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).\textsuperscript{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.\textsuperscript{15}

\textsuperscript{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.

\textsuperscript{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).

\textsuperscript{14}The sample of countries used in our analysis is listed in the Data Appendix.

\textsuperscript{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.
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,
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

<table>
<thead>
<tr>
<th>Table 1. International Financial Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Stocks of Foreign Assets and Liabilities</td>
</tr>
<tr>
<td>All countries (billions of dollars)</td>
</tr>
<tr>
<td>Share of foreign direct investment</td>
</tr>
<tr>
<td>Share of equity</td>
</tr>
<tr>
<td>Share of debt</td>
</tr>
<tr>
<td>Share of other</td>
</tr>
<tr>
<td>Advanced economies (billions of dollars)</td>
</tr>
<tr>
<td>Share of foreign direct investment</td>
</tr>
<tr>
<td>Share of equity</td>
</tr>
<tr>
<td>Share of debt</td>
</tr>
<tr>
<td>Share of other</td>
</tr>
<tr>
<td>Emerging markets (billions of dollars)</td>
</tr>
<tr>
<td>Share of foreign direct investment</td>
</tr>
<tr>
<td>Share of equity</td>
</tr>
<tr>
<td>Share of debt</td>
</tr>
<tr>
<td>Share of other</td>
</tr>
<tr>
<td>Other developing economies (billions of dollars)</td>
</tr>
<tr>
<td>Share of foreign direct investment</td>
</tr>
<tr>
<td>Share of equity</td>
</tr>
<tr>
<td>Share of debt</td>
</tr>
<tr>
<td>Share of other</td>
</tr>
</tbody>
</table>

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).
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

16Some 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.
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.

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.

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.

1Chile and Malaysia, while being open in de facto terms, had very restrictive controls of short-term inflows for parts of this period.
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.\footnote{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.} 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.\footnote{See Kraay (1998), O'Donnell (2001), and Edison and others (2002).}

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.
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

<table>
<thead>
<tr>
<th>Study</th>
<th>Number of Countries/Time Period</th>
<th>Dependent Variable/Regression Methodology</th>
<th>Financial Openness Measure</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alesina, Grilli, and Milesi-Ferretti (1994)</td>
<td>20 1950–89</td>
<td>ΔY and ΔY_c  Annual panel pooled OLS</td>
<td>Binary</td>
<td>NO EFFECT: No clear impact of capital controls on growth in the OECD countries.</td>
</tr>
<tr>
<td>Quinn (1997)</td>
<td>64 1960–89</td>
<td>ΔY_c  Cross-section OLS</td>
<td>ΔQuinn</td>
<td>POSITIVE: There is a robust positive association between capital account liberalization and growth.</td>
</tr>
<tr>
<td>Kraay (1998)</td>
<td>117 1985–97</td>
<td>ΔY_c  Cross-section OLS and IV</td>
<td>Share, Quinn, Volume</td>
<td>MIXED: Change in financial openness is not significantly related to growth (coefficient on Volume significantly positive but result not robust).</td>
</tr>
<tr>
<td>Bosworth and Collins (1999)</td>
<td>58 1978–95</td>
<td>I/Y, S/Y  Annual panel FE and IV</td>
<td>Volume</td>
<td>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.</td>
</tr>
<tr>
<td>Bailliu (2000)</td>
<td>40 1975–95</td>
<td>ΔY_c  Five-yearly panel dynamic GMM</td>
<td>Volume</td>
<td>MIXED: Capital inflows foster higher economic growth but only for economies where the banking sector has reached a certain level of development.</td>
</tr>
<tr>
<td>Year</td>
<td>Breakdown</td>
<td>Reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1973–92</td>
<td>Cross-section OLS and IV; sub-period panel pooled OLS</td>
<td>Arteta, Eichengreen, and Wyplosz (2003)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980–89</td>
<td>Cross-section WLS, IV WLS</td>
<td>Edwards (2001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960–89</td>
<td>Cross-sectional OLS; five-yearly panel dynamic GMM</td>
<td>McKenzie (2001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960–98</td>
<td>Five-yearly panel FE</td>
<td>Quinn, Inclan, and Toyoda (2001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986–97</td>
<td>Annual panel dynamic GMM</td>
<td>Reisen and Soto (2001)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

MIXED: Capital account openness positively affects growth only after a country has achieved a certain degree of economic development and financial development.

MIXED: No robust evidence of significant impact of capital controls on economic growth.

MIXED: No evidence of capital controls on growth, but volume is sometimes significant.

POSITIVE/MIXED: Capital account liberalization has a robust positive impact on growth in most countries.

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.

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.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year Range</th>
<th>N</th>
<th>Methodology</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edison and others (2002)</td>
<td>1980–2000</td>
<td>57</td>
<td>( \Delta Y_t ) ( \text{Cross-section OLS, IV; five-yearly panel dynamic GMM} )</td>
<td>( \text{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.} )</td>
</tr>
<tr>
<td>Eichengreen and Leblang (2003)</td>
<td>1975–95</td>
<td>47</td>
<td>( \Delta Y_t ) ( \text{Binary} ) ( \text{Five-yearly panel dynamic system GMM} )</td>
<td>( \text{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.} )</td>
</tr>
<tr>
<td>Bonfiglioli and Mendicino (2004)</td>
<td>1975–99</td>
<td>90</td>
<td>( \Delta Y_t ) ( \text{Binary} ) ( \text{Five-yearly panel dynamic system GMM} )</td>
<td>( \text{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).} )</td>
</tr>
<tr>
<td>Durham (2004)</td>
<td>1979–98</td>
<td>80</td>
<td>( \Delta Y_t ) ( \text{Cross-section OLS} ) ( \text{Volume} )</td>
<td>( \text{MIXED: Growth effects of FDI and portfolio flows depend on the absorptive capacity of host countries, especially financial or institutional development.} )</td>
</tr>
<tr>
<td>Edison and others (2004)</td>
<td>1976–95</td>
<td>73</td>
<td>( \Delta Y_t ) ( \text{Cross-section OLS} ) ( \text{Share, Quinn} )</td>
<td>( \text{MIXED: Capital account liberalization has positive growth effect in middle-income countries.} )</td>
</tr>
<tr>
<td>Bussiere and Fratzscher (2004)</td>
<td>1980–2002</td>
<td>45</td>
<td>( \Delta Y_t ) ( \text{KS, Volume} ) ( \text{Five-yearly panel dynamic GMM} )</td>
<td>( \text{MIXED: Positive short-run growth impact of capital account liberalization but longer term effect depends on institutional quality, FDI flows, and liberalization sequencing.} )</td>
</tr>
<tr>
<td>Vanasseche (2004)</td>
<td>1980–97</td>
<td>45</td>
<td>( \Delta IND ) ( \text{Share, Quinn} ) ( \text{Cross-section OLS, IV} )</td>
<td>( \text{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.} )</td>
</tr>
<tr>
<td>Chanda (2005)</td>
<td>1976–95</td>
<td>82</td>
<td>( \Delta Y_t ) ( \text{Share} ) ( \text{Cross-section OLS} )</td>
<td>( \text{MIXED: Capital account liberalization significantly raises growth in more ethnically homogeneous countries.} )</td>
</tr>
</tbody>
</table>
MIXED: Capital account openness has a statistically significant impact on growth in countries with better (not the best) institutions.

MIXED: FDI had strongest positive impact on domestic investment. Positive relationship between capital flows and investment growth is more emphasized with stronger policies.

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.

MIXED: Developed countries with open capital accounts enjoyed greater growth and financial deepening (with latter effect not present for developing economies).

Note: Dependent variable: \( \text{EBITDA} \): Earnings Before Interest, Taxes, Depreciation and Amortization; \( \Delta \text{GNP} \): Growth rate of real per-capita GNP; \( I \): Investment; \( I/Y \): Investment over GDP; \( \Delta I \): Growth rate in investment per capita; \( \Delta \text{IND} \): 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; \( \Delta \text{TFP} \): Growth rate of total factor productivity; \( \Delta Y \): Growth rate of real per-capita GDP; \( \Delta \): 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); \( \Delta \text{Quinn} \): 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.

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

20These 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.
21On the output costs of banking crises, see Hutchinson and Noy (2005) and Bonfiglioli and Mendicino (2004).
22The 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
decreases 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

---

23See Razin and Rose (1994), Easterly, Islam, and Stiglitz (2001), and Buch, Döpke, and

24A 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,

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25Recent surveys of this literature include Lipsey (2004) and Moran, Graham, and Blomström (2005).
<table>
<thead>
<tr>
<th>Study</th>
<th>Number of Countries/Time Period</th>
<th>Dependent Variable/Regression Methodology</th>
<th>Financial Openness Measure</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balasubramanyam, Salisu, and Sapsford (1996)</td>
<td>46 1970–85</td>
<td>$\Delta Y$ Cross-section OLS, IV</td>
<td>FDI/Y</td>
<td>MIXED: FDI has a positive impact on economic growth in countries which have export-oriented rather than import substituting trade policies.</td>
</tr>
<tr>
<td>De Mello (1999)</td>
<td>31 1970–90</td>
<td>$\Delta Y, I, ATFP VARs, cointegration; annual panel FE IV, pooled group</td>
<td>FDI</td>
<td>MIXED: Growth effects of FDI depend on the degree of complementarity and substitution between FDI and domestic investment.</td>
</tr>
<tr>
<td>Haveman, Lei, and Netz (2001)</td>
<td>74 1970–89</td>
<td>$\Delta Y_c$ Five-yearly panel FE</td>
<td>FDI/Y</td>
<td>POSITIVE: FDI leads to increased growth.</td>
</tr>
<tr>
<td>Lensink and Morrissey (2006)</td>
<td>88 1970–98</td>
<td>$\Delta Y_c$ Cross-section OLS, decade panel FE, IV</td>
<td>FDI/Y</td>
<td>MIXED: FDI has a positive impact on growth, but evidence is weak in developing countries. FDI volatility has a negative growth effect.</td>
</tr>
<tr>
<td>Hermes and Lensink (2003)</td>
<td>67 1970–95</td>
<td>$\Delta Y_c$ Cross-section OLS, five-yearly panel FE, RE</td>
<td>FDI/Y</td>
<td>MIXED: FDI has a positive growth impact if financial system sufficiently developed.</td>
</tr>
<tr>
<td>Author(s) and Year</td>
<td>Sample Period</td>
<td>Methodology</td>
<td>Model Type</td>
<td>FDI Granger Causes Economic Growth</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------</td>
<td>-------------</td>
<td>------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Choe (2003)</td>
<td>1971–95</td>
<td>ΔY_{t}</td>
<td>Five-yearly panel VAR</td>
<td>MIXED: FDI Granger-causes economic growth, and vice versa, but effects are more emphasized from growth to FDI than from FDI to growth.</td>
</tr>
<tr>
<td>Alfaro and others</td>
<td>1975–95</td>
<td>ΔY_{t}</td>
<td>Cross-section OLS, IV</td>
<td>MIXED: FDI has a significantly positive effect on growth in countries with well-developed financial markets.</td>
</tr>
<tr>
<td>Carkovic and Levine (2005)</td>
<td>1960–95</td>
<td>ΔY_{t}</td>
<td>Cross-section OLS, five-yearly panel dynamic system GMM</td>
<td>MIXED: FDI inflows do not exert an independent influence on economic growth.</td>
</tr>
<tr>
<td>Blonigen and Wang (2005)</td>
<td>1970–89</td>
<td>ΔY_{t}</td>
<td>10-yearly panel RE, pooled SUR</td>
<td>MIXED: FDI has a positive impact on growth in less developed countries provided education levels are high enough, but not in developed countries.</td>
</tr>
<tr>
<td>Aykut and Sayek (2005)</td>
<td>1990–2002</td>
<td>ΔY_{t}</td>
<td>Cross section OLS IV</td>
<td>MIXED: Although manufacturing sector FDI has a positive impact on growth, primary or service sector FDI has no significant impact.</td>
</tr>
</tbody>
</table>

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

26Along 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).

27Blonigen 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).

28Lipsy 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. 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.

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29Also 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

<table>
<thead>
<tr>
<th>Study</th>
<th>Number of Countries/Time Period</th>
<th>Dependent Variable/ Regression Methodology</th>
<th>Financial Openness Measure</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bekaert, Harvey, and Lundblad (2001)</td>
<td>30 1980–97</td>
<td>ΔYc Five-yearly panel GMM (overlapping periods)</td>
<td>SMLD</td>
<td>POSITIVE: Positive effect on growth following equity market liberalization which is greater for countries with above median education levels.</td>
</tr>
<tr>
<td>Li (2003)</td>
<td>95 1975–2000</td>
<td>ΔYc, I/Y, ΔYc/ΔL Annual panel FE, IV</td>
<td>SMLD</td>
<td>POSITIVE: Positive growth impact of opening equity markets due mainly to productivity channel (ΔYc/ΔL) in middle- and high-income countries and to capital accumulation (I/Y) in low-income.</td>
</tr>
<tr>
<td>Bekaert, Harvey, and Lundblad (2005)</td>
<td>95 1980–1997</td>
<td>ΔY, Five-yearly panel pooled OLS, five-yearly panel (overlapping periods) GMM, IV</td>
<td>SMLD</td>
<td>POSITIVE: Equity liberalizations increased growth (controlling for policy endogeneity) with stronger effects in better legal and investment environment and financial development.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Year</td>
<td>Sample Period</td>
<td>Methodology</td>
<td>Panel Type</td>
</tr>
<tr>
<td>-------------------</td>
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<td>---------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Gupta and Yuan</td>
<td>31</td>
<td>1981–98</td>
<td>ΔIND</td>
<td>Annual panel dynamic GMM, IV</td>
</tr>
<tr>
<td>Hammel (2006)</td>
<td>13</td>
<td>1982–95</td>
<td>ΔIND</td>
<td>Three-yearly panel FE</td>
</tr>
</tbody>
</table>

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.

30Recent 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.

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31See 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

32Johnson 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

33A 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).

34Recent 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.
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
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

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35As 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.
foreign bank presence raises competition and leads to a decline in both bank overhead costs and profits. 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.

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.

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.


37In 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. 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.

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38See 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. 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

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39See 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.

40Another 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.
41See Hermes and Lensink (2003), Alfaro and others (2004), and Durham (2004).
42See 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

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43Austria 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.


revenues than in a less open economy.\textsuperscript{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.\textsuperscript{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.

\textsuperscript{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.

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).

48For 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 (BDG), 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 (TOG), Trinidad and Tobago (TTO), Tunisia (TUN), Uruguay (URY), Zambia (ZMB), and Zimbabwe (ZWE).

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FINANCIAL GLOBALIZATION: A REAPPRAISAL


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International Finance and Growth in Developing Countries: What Have We Learned?

MAURICE OBSTFELD

Despite an abundance of cross-sectional, panel, and event studies, there is strikingly little convincing documentation of direct positive impacts of financial opening on the economic welfare levels or growth rates of developing countries. The econometric difficulties are similar to those that bedevil the literature on trade openness and growth though, if anything, they are more severe in the context of international finance. There is also little systematic evidence that financial opening raises welfare indirectly by promoting collateral reforms of economic institutions or policies. At the same time, opening the financial account does appear to raise the frequency and severity of economic crises. Nonetheless, developing countries continue to move in the direction of further financial openness. A plausible explanation is that financial development is a concomitant of successful economic growth, and a growing financial sector in an economy open to trade cannot long be insulated from cross-border financial flows. This survey discusses the policy framework in which financial globalization is most likely to prove beneficial for developing countries. The reforms developing countries need to carry out to make their economies safe for

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international asset trade are the same reforms they need to carry out to curtail the power of entrenched economic interests and liberate the economy’s productive potential. [JEL F36, F43, G15, O24]

The years after 2002 produced a surge in net capital flows from richer countries to the developing world. In 2008, the World Bank estimated 2007 net private capital flows into developing countries at nearly $1 trillion, up around 30 percent from only a year earlier.¹ In the early and mid-1990’s, a prior surge of private capital to developing countries preceded a period of extreme financial turbulence, starting in Asia but spreading out to Russia and Latin America. Until mid-2007 the recent experience had been more tranquil, playing out against a seemingly benign backdrop of strong economic growth, low world interest rates and inflation, and strong terms of trade. The subprime crisis that originated in the United States in August 2007 has, however, upset these favorable conditions. The expansionary monetary response by major central banks, coupled with sharply escalating prices for energy and foodstuffs, initially unleashed inflationary pressures as well as social unrest in poorer countries. As industrial countries plunged more deeply into recession over the course of 2008, however, commodity prices collapsed, inflationary fears gave way to the threat of deflation, and several countries turned to the International Monetary Fund (and other sources) for official financial support. Is the developing world as a whole about to enter an era of renewed crisis?

After the Asian debacle of 1997–98, prominent critics of financial globalization argued that its benefits were intangible and undocumented, whereas its risks were enormous and real. The years since the late 1990s, however, saw attempts, both at the national and supranational levels, to make the international financial environment more stable. Furthermore, the trend of financial evolution and opening in developing countries generally continued. Accompanying the latter trend were seemingly successful bids in many developing countries to achieve greater stability in prices and, to a degree, in the public finances. Once again, however, these achievements arguably were facilitated by a generally benign global macroeconomy, but now appear to be at risk as global growth falters and commodity prices fluctuate wildly.

This paper reviews the potential benefits and costs to developing countries of embracing financial globalization. Both theory and evidence are covered, with emphasis on the supporting institutional and policy reforms that seem most likely to result in net gains. I will argue that despite the meager direct evidence that developing countries gain from financial

¹See World Bank (2008, p. 2). The capital inflow figure that I cite refers to “net external financing,” or the net resources foreign investors provide in order to finance a country’s current account deficit, its net international reserve accumulation, and its residents’ own net purchases of assets located abroad. The measure includes errors and omissions.
globalization, they should nonetheless proceed, albeit cautiously—in an incremental and sequenced manner. There is evidence that domestic financial development spurs growth under the right conditions, and these conditions—plus domestic financial development itself—are likely to make capital inflows from abroad more productive. Furthermore, over the longer term, an internationally open financial system is likely to be more competitive, transparent, and efficient than a closed one. Finally, extensive domestic financial development makes it much harder to police and enforce binding financial account restrictions, especially as international trade in goods and services expands.

The current instability in the industrial world’s financial markets testifies, however, to the inherent fragility even of purely domestic finance in the presence of informational asymmetries and distorted incentives. That fragility becomes even more acute when finance is embedded in a globalized context, as I discuss below. Developing countries that suffer from relatively severe structural shortcomings must therefore be especially cautious in their approach to financial globalization. In addition, whereas fixed exchange rates have proved dangerous in a context of open capital markets, a regime of freely floating rates raises problems of exchange rate volatility that are particularly severe for emerging economies pending further evolution in their financial markets.

I begin by describing the trend of financial opening as well as recent capital flows to developing countries, comparing the circumstances of the recent surge with those of the one that ended a decade ago following the onset of the Asian crisis.

I. Trends in Financial Integration and Recent Inflows to Developing Countries

Researchers have devised both de jure and de facto quantitative measures of a country’s integration with global capital markets. The former types of measures often are based on information from the IMF’s Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), which in 1996 began to publish a highly disaggregated description of national restrictions on financial account transactions. The measure recently proposed by Edwards (2007) is shown in Figure 1 for the period ending in 2004. These data indicate a trend of de jure financial opening in developing economies beginning in the late 1980s, although all developing regions remain on average more closed than the high-income countries have become. On these numbers, sub-Saharan Africa and south Asia are less open than other developing regions, which appear to be at or (in the case of the western hemisphere) above the average financial openness level of the high-income countries around 1970.

Stulz (2005) discusses some of the measures described below, as well as others.

Figure 1. Edwards' (2007) De Jure Measure of Capital Account Openness
There are well-known problems with the de jure measures, however; see Kose and others (2006), for example, for a thorough discussion. Aggregative de jure measures are highly subjective in some respects. Moreover, capital controls that appear strict based on their statutory descriptions can, in reality, be quite porous. Countries typically apply different regulations to inflows as against outflows, or to resident as against nonresident transactions, making the impact of a single de jure openness number virtually impossible to interpret without further information. These limitations of the de jure measures motivate the consideration of various de facto measures of international financial integration. Although de facto measures may furnish more accurate descriptions of ex post financial openness than de jure ones, they likewise fail directly to gauge the incidence and severity of the actual regulations that limit various financial trades by various parties. In short, none of the available measures is even close to ideal for empirical work aiming to assess the linkage between financial openness and growth.

In deciding the weight to place on a given empirical study, the reader should always keep in mind how well the financial openness measure employed by the researcher applies to the question at hand.

One widely used de facto measure is based on the data on total foreign assets and liabilities assembled by Lane and Milesi-Ferretti (2007); see Figure 2. The data shown are disaggregated as characterizing four country groupings: high-income, industrialized countries; middle-income emerging markets; generally poorer developing countries; and Gulf oil exporters. In all country groups (other than the Gulf group, which is a special case), the trend of de facto financial integration since the early 1990s is upward, most sharply in the high-income group, followed by the emerging markets.

Recent years have seen a surge of net financial flows from richer countries into the developing world. Table 1 documents some characteristics, along with comparative data for the 1990s' surge that preceded the Asian crisis. Three contrasts stand out. In the recent period the developing world is in substantial current account surplus, whereas in the 1990s poorer countries borrowed from the rich. Second, in the recent period the rate of net external financing by richer countries has been nearly three times what it was then. Finally, one counterpart of the current account surplus cum financial inflow is a massive rate of average annual reserve accumulation in the past six years, as compared with the more moderate pace seen during 1992–97. As discussed below, this development may be viewed as an important, stabilizing adjunct of financial opening. Of course, there has also been an accelerated rate of acquisition of claims on the industrial countries by developing country private residents.\(^5\)

\(^4\)"Net external financing" is defined in footnote 1.

\(^5\)If errors and omissions are neglected, developing country private residents’ net acquisition of claims on industrial countries equals net external financing less reserve accumulation plus the current account surplus. Thus, on average over 2003–08, private residents of developing countries added a net sum of about $600 billion every year to their assets held abroad.
Recent data are dominated, however, by the substantial Chinese presence in international financial markets and by the commodity-price-driven surpluses of Russia and the Middle East. Stripping out those regions, we see that the average rate of financial inflow in recent years is still double the rate of the 1990s. The developing world, excluding China, Russia, and the Middle East, ran a current account deficit for 2003–08, but a smaller one than in 1992–97. Furthermore, even outside of China and the oil surplus regions, reserve accumulation has been much more rapid recently than in the 1990s—more than five times the earlier rate. There are two implications for financial stability. First, countries running current account surpluses or small deficits do not have a big external borrowing need that might suddenly be denied by a capital market reversal. Second, a high reserve level provides a cushion of ready liquidity in a crisis.

We may examine two other indicators of financial fragility. For developing countries, short-term debt as a share of total external debt rose prior to both the 1980s’ debt crisis and the Asian crisis according to World Bank data. In the aftermath of both crises, borrowing maturities lengthened temporarily (see Figure 3). Since the early 2000s, however, the share of short-term foreign borrowing has risen once again, most dramatically for the lower-middle-income countries. Taken alone, this
development reduces financial stability by raising the burden of a potential capital-flow reversal. Second, the overall average share of non-debt-creating inflows in net external financing (mostly portfolio equity plus foreign direct investment (FDI)) is little changed compared with the 1990s’ inflow experience, 62 percent in 2003–08 as against 61 percent in 1992–97. The nondebt share was only about 10 percent at the start of the

Table 1. Two Surges in Financial Inflows to Developing Countries

<table>
<thead>
<tr>
<th></th>
<th>1992–97 Average</th>
<th>2003–08 Average</th>
</tr>
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<tbody>
<tr>
<td>Current account balance (all developing countries)</td>
<td>−86.5</td>
<td>460.7</td>
</tr>
<tr>
<td>Net external financing (all developing countries)</td>
<td>289.5</td>
<td>837.9</td>
</tr>
<tr>
<td>Increase in reserves (all developing countries)</td>
<td>64.3</td>
<td>689.4</td>
</tr>
<tr>
<td>Current account balance (excluding China, Russia, Middle East)</td>
<td>−96.7</td>
<td>−38.9</td>
</tr>
<tr>
<td>Net external financing (excluding China, Russia, Middle East)</td>
<td>225.6</td>
<td>470.0</td>
</tr>
<tr>
<td>Increase in reserves (excluding China, Russia, Middle East)</td>
<td>39.7</td>
<td>218.6</td>
</tr>
</tbody>
</table>

Source: IMF, World Economic Outlook database (as of August 2008).
Note: Figures for 2008 are IMF projections.

Figure 3. Short-Term Debt as a Fraction of Total External Debt, by Income Class

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1980s, but since 1993 it has fluctuated between 56 and 94 percent. Although the secular rise in equity-like foreign finance adds to overall financial stability by reducing potential sudden repayment demands, the rising portfolio component also creates a conduit for foreign investor sentiment to buffet stock market prices and, through them, the domestic economy.

In both cases of capital inflow surge, low global interest rates have been an initial driving force. However, the level of nominal dollar interest rates (and real dollar rates) has generally been lower in the 2000s than in the 1990s, for reasons that remain under debate. Figure 4 shows average nominal dollar borrowing costs for different income classes within the developing world. Since the 1980s, sudden elevations in borrowing costs following a surge of lending have at times presaged emerging market crises (see Calvo, Leiderman, and Reinhart, 1996). Borrowing costs were on the rise prior to the emergence of the 2007 subprime crisis, and it remains to be seen how they evolve as the crisis unfolds and as countries deal with the economic pressures that emerged in 2008.

II. Fear of Financial Opening

Most economists would agree, despite some caveats, that protective measures discouraging trade in goods will ultimately harm the growth performance of developing countries. The case for financial openness is much more controversial. Jagdish Bhagwati’s much-cited 1998 article on “The Capital Myth” in Foreign Affairs demonstrated that even those committed to free
international trade in goods need not support unfettered international trade in assets, given that some dimensions of economic globalization hold potentially devastating perils. The analogy between trade in “widgets” and in “dollars” is specious, according to Bhagwati.6 At the time Bhagwati wrote, the recent Asian financial disaster, surely exacerbated by the crisis countries’ access to global capital, provided an immediate example of the risks inherent in financial trade. As discussed below, moreover, concrete evidence of gains from financial globalization—at least gains of the type traditionally claimed on the basis of simple economic theory—has proven hard to document in any definitive way. On these grounds, critics of financial globalization such as Bhagwati (1998), Rodrik (1998), Cooper (1999), Stiglitz (2003), and Rodrik and Subramanian (2008) have all made cases against broad, willy-nilly financial opening.7

Not only capital account skeptics, but also writers of a more conservative bent who generally favor financial opening have supported “market-based” deviations from laissez-faire. Feldstein (1999), for example, endorses Chilean-style deposit requirements designed to discourage short-term inflows. Just prior to the Asian crisis, the IMF was considering an amendment of its Articles of Agreement that would have updated the Article VIII focus on current account convertibility to comprise the financial account (see Fischer, 1998). The Asian crisis derailed that ill-timed initiative; and by 2002 the IMF’s director of research was arguing that “These days, everyone agrees

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6 Earlier this point was emphasized by Dı́az Alejandro (1985), whose account of the early 1980s Chilean crisis put at center stage the folly of believing “that financial markets, domestic and international, were no different from the markets for apples or meat” (p. 9). One is tempted to observe, however, that in many countries food production processes are heavily regulated by government due to the possibility of disease transmission through the supply chain. In the United States, Upton Sinclair’s indictment of laissez-faire in the meat-processing industry, The Jungle (1906), led to a partial “sudden stop” in U.S. meat exports—as has happened more recently to several countries in response to outbreaks of mad cow disease. Quickly the United States passed the legislation setting up the Food and Drug Administration. Issuers of subprime-related financial products in the United States during the mid-2000s certainly were not subject to oversight comparably stringent to that applied to American meat products.

7 Even the hypothesis that openness to trade promotes growth is supported by quite limited statistical evidence. Harrison and Rodriguez-Clare (2007) survey the econometric literature on trade and growth and conclude, contrary to the positive reading of Fischer (2003, p. 14), that “the empirical work on this question is surprisingly mixed.” The interpretive obstacles that Harrison and Rodriguez-Clare identify are exactly the same as those that bedevil studies of the effects of financial openness on growth. Although the obstacles are qualitatively the same, however, their resolution often seems more problematic in the financial sphere. One problem, already mentioned, is the absence of reliable measures of the height of barriers to financial trade. In the sphere of merchandise trade one can turn to data on statutory tariff rates and quotas and even shipping costs, but financial barriers are likely to be more exotic and difficult to quantify. To the extent that capital-flow barriers involve unobservable informational asymmetries that are less severe in nonfinancial markets, for example, they will be much harder to measure than are trade barriers. I discuss other problems of empirical interpretation below.
that a more eclectic approach to capital account liberalization is required" (Rogoff, 2002, p. 55).8

International trade, whether in widgets or in dollars, inevitably carries side effects that can reduce the theoretical mutual gains. The difference between trade in goods and assets is one of degree—in general a large difference in degree—though at the individual level the loss of a job due to import penetration can be as devastating as the loss of a job due to a financial meltdown. Theory teaches us that whereas in principle trade is Pareto improving, in practice it carries distributional effects that create losers as well as winners. To realize the potential Pareto improvement entailed by a move to freer trade, income must be redistributed domestically.

In practice, however, the lump-sum redistributions that would be necessary are never made. And it is easy to see why. In a dynamic market economy, change, and with it, shifts in economic fortunes, is constant. Government cannot possibly eliminate all the ex post losses—and if it did, the resulting adverse economic incentives would seriously impair economic efficiency and growth. Europe and the United States, for example, find themselves on different portions of the equity-efficiency spectrum as a result of Europe’s greater propensity to provide social insurance in various ways. Regarding trade, outside of a laboratory setting, it is difficult (indeed impossible) to isolate empirically the income redistributions attributable to international trade—and therefore impossible to calculate the appropriate compensation. The fact that trade patterns are in large part an endogenous product of deeper economic factors makes the task even more daunting. Witness the difficulty economists have had in determining the role of trade vs. technological change on the U.S. wage structure. And if we cannot somehow isolate the effects of trade, we are back, in effect, to a regime of continually making transfers to offset all kinds of market-induced redistributions.

Furthermore, in the real world of market rigidities and distortions, the dislocations caused by shifts in the international trading environment can of course go beyond pure redistributive effects. But to attribute these dislocations, like shifts in income shares, to trade, economists would need to know the counterfactual: how would economic history have played out under autarky?

So even international trade in goods is a two-edged sword. That is not to deny that the rapid and widespread devastation associated with financial

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8Of course, this rather mild indictment of capital-account fundamentalism is not inconsistent with Rogoff’s (2007) more recent comment that “Too many policymakers still believe that externally imposed opening to international capital flows was the main culprit behind the financial crises of the 1990s—a view that unfortunately is lent some intellectual respectability by a small number of left-leaning academics…. Pushing for greater capital market liberalization after the debacle of the 1990’s will be controversial. But the core of the idea was right then, and it is right now.” An interesting discussion of the IMF staff’s shifting attitudes toward capital account restrictions in the context of actual country advice is in Independent Evaluation Office (2005).
crises overshadows the more gradual effects of changes that originate in the trade accounts. The potential destructive power of financial meltdown is also present, however, in a purely domestic context—that is, even in an economy completely closed to trade and capital movements.

Financial collapse can propagate more quickly and destructively, even in autarky, than more run-of-the-mill shocks to goods markets that do not impact the financial system significantly. The interesting question is how these intrinsic problems of financial markets are exacerbated (if indeed they are) once those markets are opened to the outside world. An answer to this question, in turn, requires an explanation of precisely how dollar markets in general differ from widget markets.

The basic differences relate to the intertemporal nature of financial trades and to the potential for asymmetric information to eliminate trade gains. Asset trade inherently involves commitment—the commitment to pay on a later date. Payment in reality is therefore always contingent, and the circumstances of contingency can depend on information known to only one party to the deal. Thus, financial transactions inherently must allow for the asymmetric-information distortions that we call moral hazard and adverse selection. These distortions reduce the gains from asset trade that would otherwise be available—even with an efficient and impartial judicial enforcement system. As is well appreciated, government guarantees aimed at mitigating the redistributive effects of financial crises can, in fact, worsen moral hazard and raise the probability of eventual crises. Domestic financial systems evolve—and are regulated by governments—so as to contain the effects of these distortions.

Again, the difference compared with goods markets is a matter of degree. A consumer durable yields returns over time; it may be known to the seller to be a “lemon,” yet an unconditional service contract may leave the owner with insufficient incentives to operate the durable good appropriately. But there is no doubt that commitment and informational problems are by far most severe, and have the widest systemic ramifications, in the financial market setting.

Every country faces the challenge of coping with the potential distortions in financial markets, and they do so through some combination of insurance, prudential policy, transparency requirements, and market discipline. Even leaving aside the international aspects of financial transactions, the ramifications of home-grown crises can be severe in terms of forgone GDP, and they can be so even for richer countries—witness the Savings and Loan crisis in the United States, the Nordic banking problems of 1987–91 following deregulation there, the drawn-out post-bubble sclerosis of Japan’s banks, and the most recent credit event, the subprime crisis. Given the extent of financial globalization among industrial countries today, the days of purely domestic crises may well be over.

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9Fiscal cost estimates for past banking crises are tabulated by Ergungor and Thomson (2005). Fiscal costs are naturally far below total economic costs, including repercussions on the broader economy.
Often financial crises have arisen in the aftermath of deregulation—typically the removal of financial sector restrictions inherited from the Great Depression and World War II, or, in developing countries, a move from the centralized allocation of savings to a more market-oriented system. In many cases, the particular mode of deregulation, driven in general by political imperatives rather than by a sound vision of financial sector optimality, induced additional moral hazards and abuses. Rapid financial innovation has also led to problems. There has clearly been a learning process in coping with changing financial structures and products, yet new versions of the misuse of other people’s money (for example, Enron or subprime products) emerge, and most likely always will. Most countries reckon that the advantage of a market-oriented system, even when subject to some political pressures, outweighs the inefficiency and blatant abuses that characterized centralized systems of credit allocation. The hope is that the safeguards to the system can gradually be enhanced as result of experience, while one avoids systemic meltdowns. In general, in most of the industrial countries, this approach did tolerably well for decades—though there were clearly recent areas of financial excess, such as the home equity and mortgage markets in the United States in the 2000s, the background for the subprime crisis.¹⁰

So domestically, at least, financial markets raise perennial problems. Economists agree that to safeguard its own domestic health, every individual economy should do its best to make its own financial system immune to systemic crisis within a market framework. Of course, this approach might well entail allowing individual investors to lose and individual institutions to fail. But whereas modification of the financial regulatory framework is a perennial issue, there is little sentiment (as there was after the disruptions of the early 1930s) for an all-out assault on domestic finance. The moneylenders have returned to the temple.

What do international financial flows add to the mix? Here we see the second-best analysis of Lancaster and Lipsey (1956) in action. If the domestic financial system is distortion-ridden, then eliminating restrictions on foreign asset trade need not improve matters, and may well make them worse. This indeed was the case in Chile in the early 1980s, in Mexico in the mid-1990s, and in Asia later on in the same decade. There is no doubt that, given the existing distortions within the crisis countries’ financial sectors, the mode in which financial opening played out—driven in many cases by internal politics and vested interests—only enhanced vulnerability.

There are at least five basic ways in which the international margin raises potential new problems:

1. **Sovereignty**: The potential involvement of two (or more) governments as implicit parties to international contracts (Tirole, 2002).
2. **Regulatory end-run**: International transactions can sometimes be used to evade domestic supervision.

¹⁰For a recent general survey of financial stability issues, see Schinasi (2006).
3. **Competitive forbearance**: Domestic financial institutions can lobby politicians to loosen prudential restrictions that might reduce profitability compared with foreign institutions.

4. **Currency mismatch**: The potential for unbalanced currency positions—for example, dollar liabilities vs. domestic-currency assets—creates a significant additional systemic risk.

5. **Contagion**: With international trade in assets, financial fears can be spread throughout a wider range of national financial systems, leading to aggravated multiplier effects on real economic activity.

The realization of potential net gains from international financial trade relies on containing the risks posed by these five factors. If the domestic financial system is not fairly sound on a stand-alone basis, the further channels for malfeasance and transmission provided by financial-account opening can magnify the potential for instability. And these channels, if not mitigated by international regulatory cooperation and other measures (such as sufficient exchange rate flexibility), may pose new risks even for a sector that would be quite stable otherwise. Empirically, many crises have been provoked by the opening of unsound systems to capital flows—with the resulting levering-up of preexisting risks—although there are certainly cases (Japan is one example) in which financial problems have had little or no connection to international financial flows.¹¹

### III. Some Crisis Mechanisms

The literature has identified numerous mechanisms that can lead to currency and financial crisis. For emerging markets in particular, there is a potentially explosive multidirectional interaction among the currency market, the government finances, the banking sector, and the corporate sector—one that goes beyond, but is closely related to, the threat of “twin” (banking plus currency) crises documented by Kaminsky and Reinhart (1999). Figure 5 provides a schematic.

Shaky government finances—some give the example of Argentina, 2001—can lead to a widening of government borrowing spreads to an extent that default becomes inevitable. In that case, with central bank reserves drawn down through capital flight, the previously fixed currency is inevitably allowed to depreciate. Banks and corporates with foreign currency

¹¹Some studies suggest that in many cases it is domestic financial liberalization that has been the main driver of lending booms and subsequent crises, with capital inflows playing a secondary supporting role. This perspective suggests a primary policy focus on the oversight and stress-testing of domestic financial intermediation. See, for example, Gourinchas, Valdés, and Landerretche (2001).
liabilities then are squeezed—and banks are squeezed even if they have lent foreign currency to domestic corporates that are themselves forced into default due to mismatched assets and liabilities. At the same time, government finances may be strained further by explicit or implicit bailout promises, and by the ultimate need to restructure the financial system. When the financial system is at an early stage of development and firm borrowing is heavily constrained by balance sheet considerations, currency depreciation can cause investment to crash. The problem can, at some level, begin anywhere in the chain, with, for example, devaluation fears sparking bank withdrawals and financial distress as part of the stampede into the safety of foreign currency.

These mechanisms are distinct from the unique-equilibrium story proposed by Krugman (1979), where an unsustainable fiscal deficit leads to reserve loss, current account deficit, real appreciation, and inevitable collapse, as in the Southern Cone experiences of the 1970s. Yet even those episodes contained some of the financial elements that have been the hallmarks of the so-called 21st century crises.12

Regardless of the mechanism, crises have been very costly. In a study focused on emerging markets from the mid-1970s through 1997, Hutchison and Noy (2005) find that a typical currency crisis reduces output by a cumulative 5 to 8 percent, whereas a typical banking crisis reduces output by a cumulative 10 to 13 percent. Their analysis also suggests that the cost of a twin crisis—banking plus currency—is additive in the costs of its components. Even so, these are big losses.13

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12Former IMF Managing Director Michel Camdessus characterized the 1994 Mexican crisis as “the first financial crisis of the twenty-first century.” Boughton (2001) has suggested that the 1956 Suez crisis may really have been the first 21st century crisis. On different grounds one might well identify the 1890 Baring Crisis as the first 21st century crisis.

13Joyce and Nabar (2008) argue on empirical grounds that sudden stops affect investment only when they coincide with banking-system crises, and that openness to capital flows accentuates the negative investment effect of banking crises. Edwards (2007) finds no evidence that countries with higher capital mobility face an increased risk or incidence of crisis, but concludes that crises tend to reduce economic growth more in countries that are more open financially.
An alternative view, however, is that crisis-prone countries have, on average and including crisis periods, grown faster than countries in which credit growth is smoother due to an absence of crises (Tornell and Westermann, 2005). The argument, essentially, is based on a model incorporating a strong risk-return tradeoff, where the risks are due to various financial market imperfections, including structural currency mismatch.

This discussion highlights that, whereas crises may sometimes be driven by expectations, their possibility presupposes some weakness in various “fundamentals” of the economy. These may be institutional fundamentals, such as the quality of bank supervision, the quality and transparency of corporate governance, the state of domestic financial development, and the reliability of enforcement of domestic property rights. Or they may be more traditional macro fundamentals, such as a competitive real exchange rate and a sustainable trajectory for public debt, the level of liquid international reserves, and the term and currency composition of external debt. In principle, addressing these weaknesses can improve the economy’s risk-return tradeoff, allowing a combination of higher growth and lower volatility.

At a global level there has been an explosion in gross foreign asset positions in recent years. The averages, which are evident in the well-known data of Lane and Milesi-Ferretti (2007), conceal the fact that for some countries—smaller countries and major financial centers—gross foreign assets and liabilities now stand at three or four times GDP. The rapid expansion of gross asset positions, far beyond the minimum asset trade that would be needed to settle current account imbalances, is certainly driven in part by enhanced risk sharing between countries. But it certainly also reflects transactions that, while they do not create additional trade in underlying economic risks, do raise the risk of counterparty failure. Because leveraged international portfolios generally are not balanced in currency terms—for example, the United States borrows overwhelmingly in dollars, but balances its foreign assets more evenly among dollars and other currencies—exchange rate changes have the potential to redistribute large sums internationally in seconds.

Even among richer countries that have addressed some of the most serious domestic financial sector problems and have flexible exchange rates, private financial flows have led to instability. As always, the precise source of the next crisis is usually not evident except with hindsight. One ongoing cause for current concern has been the proliferation in international financial markets of unregulated nonbank actors managing huge portfolios. The turbulence surrounding the Long-Term Capital Management rescue late in 1998 is one example; a more recent one is the contagious spread of U.S. subprime mortgage lending concerns starting in the summer of 2007. The policy response has been to seek ways of addressing specific financial market distortions (such as the difficulty in pricing certain derivatives), rather than to shut down or tax cross-border financial flows. Notwithstanding recent events, most observers conclude from industrial-country experience that there is at least the potential for creating an
environment within which trade in financial assets can yield net welfare gains. Outside of a few exceptional cases, these generalizations do not yet apply, however, to a majority of developing countries, which have suffered quite harshly in financial crises.

External financial deepening does not yet extend to most of the developing world, with a few emerging exceptions, of which Chile is one of the most notable. Chile has, however, learned from its troubled past, and both institutional reform and a flexible exchange rate regime have contributed to its apparent ability to engage relatively safely in world capital markets (Cowan and De Gregorio, 2007). Other of the poorer countries have not yet reached this stage, and still face difficulties in finding a comfortable reconciliation of open capital markets with the exchange rate regime, as is discussed further below.

Institutional weakness not only can lead to crises in developing countries; even short of crises, such weakness may severely limit the gains from international asset trade. Stulz (2005) presents a clear account of one set of mechanisms, based on imperfect protection of equity investors, coupled with the possibility that the state expropriates firm profits. If corporate insiders can secretly appropriate benefits from running a firm, benefits that naturally reduce the dividends of outside shareholders, then insiders will have to put up a substantial equity stake in the firm to align their incentive to receive dividends with those of the outsiders. The result will be a concentration of firm ownership that limits the beneficial effects on the firm of financial globalization, and simultaneously limits the economy’s ability to benefit from international risk-sharing opportunities. For example, even if financial globalization brings a fall in the cost of capital, the agency problem may limit the firm’s investment response.

Stulz argues that if government predation is also a problem, fewer firms will be created and the concentration of ownership will be magnified. Because insiders have a greater incentive to adopt opaque practices and entrench themselves, they can appropriate private rents more easily, and will have to co-invest more in equilibrium. Firm managers may take on excessive short-term debt, hoping that government fear of financial crisis will deter over-zealous predation or other interference. Foreign shareholders may be especially vulnerable to expropriation by the government. So it is not surprising that a weak rule of law and unreliable protection of property rights can limit the gains from financial opening. Of course, some of the mechanisms discussed here—for example, any propensity to take on additional leverage, especially of short maturity—also accentuate the risk of crises.

IV. Empirical Evidence on the Effects of Financial Opening

What do the data tell us about the gains developing countries might reap from financial globalization? There is an extensive literature trying to assess the gains from financial globalization, both at the macro level and at the level of firms. Several comprehensive studies—among them Eichengreen (2001),
Prasad and others (2003), Collins (2004), Obstfeld and Taylor (2004), Bosworth (2005), Kose and others (2006), Henry (2007), and Prasad and Rajan (2008)—survey the empirical gains to emerging markets from financial liberalization. Theoretically, there are some major direct channels through which financial opening could benefit countries that pursue it. One theoretical channel of gain is improved risk sharing. In principle, countries can use equity or derivatives markets to trade the risks of income fluctuations with foreigners. This risk-sharing process, in principle, could reduce the level of consumption relative to output volatility.

There is no reliable evidence that such volatility reductions have occurred in developing countries as a result of external financial liberalization. Prasad and others (2003) examine the trends in income and consumption volatility for groups of industrial, more financially integrated (MFI), and less financially integrated (LFI) economies. For each group, they focus on median volatility. They find that between the 1980s and 1990s, when much liberalization occurred, consumption-growth volatility fell in the industrial and LFI economies, but actually rose in the MFI countries. Income-growth volatility fell in all three groups, though less noticeably for the MFI group. An implication is that for the MFI countries, consumption relative to income volatility rose—and it did so sharply. This outcome seems flatly to contradict the prediction that external financial opening should allow countries better to smooth consumption across states of nature. The end of the 1990s is responsible for higher consumption as well as income volatility for the MFI countries, suggesting that the crises of that period—as well as the consumption booms sometimes preceding them—play a role in explaining the findings.

A more formal econometric approach to assessing how liberalization affects volatility is taken by Bekaert, Harvey, and Lundblad (2006). Theirs is an exhaustive multicountry panel study of the effects of equity market liberalization and more general capital account opening on aggregate volatility, especially the volatility of consumption growth. In a very detailed paper, the authors link consumption-growth volatility over five-year windows to official liberalization indicators, a measure of liberalization intensity based on the ratio of investable to total equity market capitalization, and measures of capital account openness. The pervasive sense from the empirical estimates is that in a 90-country sample including industrial countries that were already liberalized throughout the entire 1980–2000 sample, equity market liberalization has a significantly negative relationship to volatility. In the restricted sample of 40 (mostly) developing countries that liberalized within the sample period, the apparent volatility-reduction effect of equity market liberalization, while often present, tends to be much smaller and statistically insignificant. The results generally are weaker for more general capital account opening measures. The authors’ estimating equations incorporate traditional control variables of the type typically included in the cross-country economic growth literature (such as human capital measures), as well as measures of macropolicy quality and institutional...
quality (which often themselves are estimated to reduce consumption growth volatility, or to enhance the beneficial effect of liberalization).

An obvious suspicion is that the results are driven by one basic empirical fact: consumption-growth volatility was much lower in the richer countries that have been mostly financially open over the entire sample period. Further, it is doubtful that the chosen regressors fully explain macro volatility. Thus, when one restricts the cross-sectional coverage to a sample of developing countries, the liberalization effect, which may simply reflect the lower volatility in richer countries, disappears. Bekaert, Harvey, and Lundblad (2006) try to address this critique by adding fixed effects to their specification, but it is unclear that this dispels the concerns about identification of the volatility-reducing role of liberalization.14 On the other hand, the study finds no evidence to support the contention that financial opening, on average, raises volatility, even for the emerging market sample.

A further difficulty in this work is the seeming use of consumption data that are not adjusted to reflect deviations from purchasing power parity. Because there have been huge real exchange rate fluctuations, particularly in crisis situations, the welfare significance of the results is open to question. However, the consumption-smoothing channel is only one of the theoretical mechanisms through which international asset trade could benefit developing countries.

A second major channel proposed for understanding developing countries’ benefits from capital inflow is the alleviation of capital scarcity. This effect may work by lowering the cost of capital and, perhaps transitionally, adding to the rate of economic growth. More generally, there could be other reasons for financial opening to enhance economic growth, and there is a substantial literature that searches for such effects.

One strand of empirical literature on trade gains is the study by Gourinchas and Jeanne (2006), who show that the gains to developing countries from borrowing abroad to attain their steady-state capital stocks are very low. The basic problem is that the polities of the poorer countries generally offer such low protection of property rights that steady-state capital stocks are themselves low. There is no great incentive to invest, and thus no great incentive for capital inflow from richer lenders. Caselli and Feyrer (2007) claim that once one accounts for factors besides capital and labor, as well as for the generally higher prices of capital goods in terms of consumption goods in poorer countries, marginal returns on physical investment do not diverge greatly as between rich and poor countries. They argue that the Lucas (1990) “paradox” of small capital flows to poor countries, notwithstanding apparently big differences in marginal products of capital, arises from goods-market rather than from financial market frictions. If so,

14 Consistent with these concerns is the finding of Kose, Prasad, and Terrones (2007) that emerging markets have not benefited much from enhanced opportunities to share consumption risks. Also consistent is the cross-sectional finding of Klein and Olivei (2008) that any positive effect of financial openness on financial depth and growth applies mainly to longstanding OECD countries.
further financial opening would have little impact on investment in poorer countries. Intriguingly, Estevadeordal and Taylor (2008) tie growth-enhancing effects of post-1970 trade liberalizations primarily to reductions in tariffs on imported capital goods. An interesting question is whether these tariff reductions have affected growth in part by attracting capital from abroad.\footnote{In evaluating cross-country differences in returns to capital, more work at the micro level, such as Minhas’ (1963) study, would be illuminating.}

Prasad, Rajan, and Subramanian (2006) emphasize that over the 2000s, capital has tended to flow from poor to rich countries, rather than from rich to poor as theory might lead one to expect. This compounds the Lucas (1990) puzzle. Only FDI seems to follow the conventional pattern of traveling from rich to poor countries (and there is more FDI these days from richer to poorer within the developing country group). Prasad, Rajan, and Subramanian show further that growth is significantly positively correlated with the net capital outflow (current account surplus) for nonindustrial countries, whereas the opposite correlation prevails for industrial countries—only for the richer group does greater net use of foreign capital appears to be associated with higher growth. Aizenman, Pinto, and Radziwill (2007) reach similar conclusions. Prasad, Rajan, and Subramanian (2007) argue that foreign capital inflows can lead to growth-reducing overvaluations, as well as to financial instability when an underdeveloped financial sector lacks the ability to safely funnel foreign capital to productive domestic uses. They put their basic finding as follows (Prasad, Rajan, and Subramanian, 2007, p. 205):

Our analysis makes it clear that nonindustrial countries that have relied on foreign capital have not grown faster than those that have not. Indeed, taken at face value, there is a growth premium associated with these countries not relying on foreign finance.

Indeed, in a recent study, Gourinchas and Jeanne (2007) point out that such capital that does flow to developing countries tends, on net, to flow perversely, to the relatively low-productivity locales. The general problem is that greater beneficial effects of inflows presuppose a level of domestic reform that, if it exists at all, is too recent to be reflected strongly in the historical record to date. Even in a framework like that of Gourinchas and Jeanne (2006), capital inflows will yield sizable benefits if preceded by reforms that raise the desired level of investment and capital (Obstfeld and Taylor, 2004). But financial opening, introduced without the requisite reforms, can be damaging, as we have seen.

Even though developing countries as a group have been in substantial current account surplus in recent years, it is still possible that there are gains from the swapping of different assets on a gross basis. For example, the benefits of inward FDI may spur growth through various spillovers, while the current account surplus allows the luxury of rapid reserve accumulation and the resulting liquidity insurance. But an evaluation of such possibilities requires a more formal, statistical approach to the data on developing-country performance.
What is the econometric evidence on financial opening, growth, and investment? Researchers have pursued a variety of empirical approaches.

One of the most popular has been the cross-sectional approach, which builds directly on the copious growth-regression literature. Typically studies investigate empirical regressions of long-period average growth on theoretical determinants, including variables measuring the extent of capital-account openness. From the many studies that have been conducted, one gleans the conclusion that there is no robust cross-sectional relationship between liberalization and growth; see Prasad and others (2003, Table 3.2) for a summary of extant research. A fairly typical cross-sectional study finding no effects is the widely cited one by Edison and others (2002).

A problem in interpreting the findings of this literature, however, is the absence of a clearly specified theoretical framework within which openness will affect growth. In a recent survey, Henry (2007) presents a persuasive critique of the cross-sectional approach. To take an example from his paper, assume a standard Solow growth model in which long-term growth is determined by an exogenous rate of total factor productivity (TFP) growth, whereas in the transition to a steady state, growth will also reflect capital deepening. Assume also that rich countries have fully open capital accounts over the sample period, while poorer countries have initially closed capital accounts but open up at some point in the period. One frequently used measure of financial openness is the variable SHARE, measuring the fraction of years in the period for which the capital account is open according to some dichotomization of the IMF’s AREAER measure. The assumptions in Henry’s example mean that \( \text{SHARE} < 1 \) for poor countries; \( \text{SHARE} = 1 \) for rich countries.

If all countries are initially in steady state, then the financial opening that the poorer countries carry out in the sample period induces a capital movement from rich to poor. Transitionally, this shift in capital will reduce growth in rich countries and raise it in poor countries. But notice the implication: cross-sectionally, growth is negatively correlated with \( \text{SHARE} \). This negative correlation is found despite the fact that, in the model, capital moves from rich to poor countries as a result of the poor countries’ opening, raising per capita output growth in the poor countries just as the neoclassical paradigm predicts. Examples such as this one call into question the usefulness of the cross-sectional approach to testing the growth effects of financial opening. It would make more sense to look econometrically for an effect of the change in \( \text{SHARE} \) on the change in per capita output growth.\(^{16}\) It is

\(^{16}\)For a discussion of similar issues in cross-sectional tests of the trade-growth link, and a proposed alternative approach, see Estevadeordal and Taylor (2008). The interpretation of pure cross-sectional tests becomes even murkier if the underlying growth regression specification includes the investment rate as a regressor, as often is the case, although Henry’s basic point still holds true. By controlling for the investment rate, the econometrician forecloses an estimated effect of financial opening on growth through the capital-deepening channel.
worth noting that Henry’s (2007) critique applies beyond the Solow model to at least some endogenous growth models, such as the one used in Obstfeld (1999) to analyze the growth effects of a foreign resource inflow.

Alternatively, one could reasonably investigate the effect of the level of financial openness on the level of per capita GDP, in line with the approach recommended by Hall and Jones (1999). The implied relationship between the change in per capita GDP and the change in financial openness—equivalently, between growth and the change in financial openness—would remove unobservable country fixed effects from the specification.

A different approach exploits more fully the temporal dimension in the data, linking financial opening to subsequent economic changes. Such approaches allow one to address the point made by both Hall and Jones (1999) and Henry (2007) that the growth effects of policy changes may be temporary. Henry has extensively explored the event-study approach to financial liberalization. In a series of papers, he finds that equity-market liberalization leads to substantial equity-market appreciation and an implied fall in the cost of capital (Henry, 2000a), to a large increase in the growth rate of private investment (Henry, 2000b), and to an increase in the growth rate of the capital stock (Henry, 2003). Other researchers have found similar effects, although there have also been challenges and refinements.

Regarding output growth, Bekaert, Harvey, and Lundblad (2005) estimate (using a 1980–97 data panel) that, post equity-market opening, the growth rate of real per capita output rises by 1 percent per year on average in the following five years. Once again, their methodology is to add liberalization indicators to a dynamic but otherwise standard growth-regression specification, though they perform substantial further robustness exercises. Importantly, Bekaert, Harvey, and Lundblad also find that the positive effect on growth is largest when the quality of institutions and the level of financial development are high. However, their benchmark country sample is a broad one, including industrial countries. When analysis is restricted to a sample of 40 (mostly) emerging markets, the effect of equity-market liberalization on growth proves robust, but the effect of Quinn’s (2003) measure of capital account openness, which is positive and significant in a broad sample of countries, becomes insignificant. An interesting question, returned to below, is the nature of the forces that might generate such a large estimated increment to GDP growth following equity market liberalization.

These results are striking, but there are a number of pitfalls in interpreting them. One is simply that the methodology often requires a precise stand on the date of liberalization. That decision may be tricky, in part due to the distinction between de facto and de jure situations. A second major issue is endogeneity. Countries may liberalize when growth prospects turn favorable, or when future macro volatility is expected to be low. In addition, liberalization may be spurred by political factors that simultaneously spur additional reforms, be they of policies or institutions. Thus, Henry (2007) suggests that the extremely large growth effect found by Bekaert, Harvey, and Lundblad (2005) cannot be accounted for quantitatively unless
equity market opening is accompanied by an increase in TFP growth. Various controls can be introduced in an attempt to correct for some of the policy reforms that might accompany opening, and in some instances these somewhat reduce the measured liberalization effect. However, it is always questionable whether the control variables adequately capture the nature of the economic reforms, so the endogeneity issue remains. This endogeneity critique is perhaps the major reason for being skeptical of all the econometric work suggesting that financial opening, in and of itself, spurs more rapid aggregate economic growth (or reduces macroeconomic volatility).

In some cases, microeconomic, firm-level data may be useful in circumventing some of the endogeneity problems that plague the more aggregative studies. For example, suppose the reforms that accompany liberalization affect all firms in a sample similarly, yet liberalization’s effects are concentrated in a subset of the firms. In that case, a comparison of firm performance across the treatment and control groups allows identification of the effect of liberalization. Of course, this conceptual identification framework is valid in theory, but the strong maintained assumptions it requires may make it difficult to implement in practice.

Henry (2007) and Kose and others (2006) survey the recent microlevel literature, but a discussion of two selected studies illustrates the flavor of the results that have been obtained.

Mitton (2006) draws on a sample of 1,141 firms from 28 countries to examine the effect of equity liberalization. The major innovation is to use firm-specific dates on which individual firms’ shares become eligible for purchase by foreign investors. This approach largely eliminates the concern that liberalization is jointly determined with aggregate economic reforms or with expectations of good aggregate economic performance—although the concern that expectations of strong future firm performance determine the firm-specific liberalization date remains. Mitton attempts to control for this problem in various ways. Even after doing so, he concludes that equity liberalization has a positive and large effect on firm performance across five dimensions: real sales growth, investment, profitability, efficiency (ratio of real sales to work force), and leverage.

Chari and Henry (2004) study a data sample of 430 firms from eight countries, finding an average 15 percent firm-level equity appreciation (in real dollar terms) following liberalization. They are able to tie about a third of this appreciation to a factor suggested by the capital asset pricing model (CAPM), the covariance of firm-level equity returns with those on a broader market portfolio. Before liberalization, a firm’s equity price depends on the covariance of its return with the local stock market. After, it depends on the lower covariance with the world stock market. Thus, it is possible to identify a firm-specific effect of equity-market liberalization on the cost of capital.

17Harrison and Rodriguez-Clare (2007) call for further micro studies to resolve questions about the effects of trade openness on growth.
V. The Key Importance of the Structural Setting

I noted above the finding of Bekaert, Harvey, and Lundblad (2005) that the positive effect of liberalization on growth is largest when the quality of institutions and the level of financial development are high. In another study, Alfaro and others (2004) find that FDI has a stronger growth-promoting effect when the local financial sector is better developed. The literature examining such hypotheses more generally is somewhat fragmentary, but it suggests the importance of certain structural preconditions in order that financial inflows have the maximal beneficial effect on an emerging market economy.  

This conclusion seems plausible in light of the anecdotal evidence on emerging market crises and the literature on institutions and growth. Indeed, there is some evidence that the institutional and regulatory setting is important even for reaping the benefits of opening to merchandise trade (Bolaky and Freund, 2004).  

Mishkin (2006) has provided an accessible overview and interpretation of recent emerging market crises that places at center-stage the way in which faulty institutional underpinnings have distorted the effects of capital inflows from abroad and led to economic instability. (Of course, some of these factors were present in much earlier crises, and were noted at the time by perceptive commentators such as Díaz Alejandro and McKinnon. The events of the 1990s should not have come as a surprise.)

In the Republic of Korea prior to its 1997–98 crises, the fundamental institutional distortion was the political power of financially shaky chaebols, which effectively manipulated the financial system to obtain access to cheap foreign funding. Moral hazard—a government bailout mentality—was pervasive. The financial fragility was compounded by the government’s decision, earlier in the 1990s, to open the economy to short-term but not long-term foreign borrowing.

In Argentina prior to its 2001–02 crisis, the structural economic problems included an inflexible labor market; fiscal imbalance (in part due to the spending autonomy of provincial governments); a regulatory structure for the banks that did not adequately account for the losses they would incur in the event that the peso’s fixed dollar exchange rate collapsed; and, eventually, changes in bank regulations designed to induce banks to hold more government debt. The Argentine “convertibility” scheme for anchoring the peso to parity with the dollar threw up an eventually damaging paradox: How can a government require institutions to avoid currency mismatches.
when it adheres to the position that its currency and the dollar are irrevocably linked as a matter of law? The refusal to think about the unthinkable eventually had severe consequences.

Kose and others (2006) usefully delineate four sets of structural features of an economy that can affect the level of benefits countries reap from financial inflows: financial sector development and regulation, general institutional quality, the macro policy setting, and the degree of openness to trade. They present a detailed discussion of the empirical evidence on each of these structural factors, both econometric and anecdotal.

We have already seen how distortions in the financial system have historically helped give rise to financial crises. Lax supervision of financial markets may allow currency, term, or risk-category mismatches that can render banks and other actors insolvent in the event of a crisis. Moreover, in an international environment, regulators should conduct a comprehensive “value at risk” analysis for all the economy’s interlinked sectors, as stressed by Dornbusch (2002). Consider an emerging market bank that notionally has matched currency positions on its books, because its dollar liabilities are matched by dollar lending to domestic corporates. If those corporates, however, have revenue streams denominated in won and that currency falls sharply against the dollar, the corporates’ loans from the banks may go into default, throwing the banks themselves into crisis. In this case, the currency risk taken on by the corporates—perhaps so they can enjoy lower dollar interest rates—is passed back to the banks in the form of credit risk. The regulatory framework must take a comprehensive view of the risks and ensure that moral hazard due to an expected bailout by the government does not give banks the wrong incentives when making loans.

Financial sector development matters in other ways. Resources borrowed from abroad may not be channeled to efficient uses if financial institutions are weak, and in this case the likelihood of eventual default will be higher. Illiquid domestic financial markets will also be less able to provide interim funding for investment projects that would be profitable long-term if credit were available. In principle, equity inflows to an emerging market are less likely to be destabilizing than debt inflows, because required payments to foreign shareholders are contingent on firm outcomes. The share of equity in total inflows, however, is likely to be higher if the degree of shareholder protection—which also encourages domestic equity holding—is high.

Various institutions also matter for the effects of financial inflows. These include institutions that guarantee protection of property rights, political stability, judicial effectiveness and impartiality, low corruption, and high corporate governance standards. A number of empirical studies indicate that better institutions lead to a higher proportion of equity investment relative to debt in financial inflows (especially of FDI, which may entail positive spillovers to the economy through technology transfer and learning-by-doing effects). Weak institutions also reduce the overall level of private financial inflows to an economy.
The framework for macroeconomic policy is also important, and I return to it later on. The case of Argentina indicates how fiscal imprudence can generate unstable government debt dynamics, in which government borrowing rates rise to reflect higher default probabilities, inducing further borrowing, further rate rises, and eventual crisis. Institutions to limit fiscal excess, including strictly circumscribed bailout promises, restrictions on subnational governments, and legislated fiscal limits and transparency (as in Brazil’s 2000 fiscal transparency law; see Singh and others, 2005) can all contribute to the stability of capital flows.

The exchange rate regime is a key aspect of the policy environment. Most emerging market financial crises have occurred in setting of fixed, or inflexibly managed, exchange rates. A key tenet of macroeconomic policy-making, the open-economy trilemma, holds that no country can simultaneously enjoy all three of the following: free capital mobility, a fixed exchange rate, and a monetary policy directed toward domestic goals (such as an inflation target). Countries that have attempted to maintain a rigidly fixed currency, such as Argentina in its 1991–2001 decade of legislated convertibility, have faced harsh tradeoffs in sacrificing a monetary policy that might help combat unemployment, external imbalances, and real appreciation of the currency due to internal inflation pressures. Even China, which maintains capital controls, faces such a situation now. Moreover, market participants may pay inadequate attention to the risks of an exchange rate collapse, relying on the government either to provide forward cover (as the Thai central bank did, at considerable fiscal cost, in 1997) or to mount a defense of the parity long enough that short-term funds can be withdrawn or repaid. Adjustment of a current account deficit is always more problematic under a fixed rate. For these reasons, it seems likely that a flexible exchange rate is more likely than a fixed one to enhance the benefits from financial globalization. Exchange rate volatility in itself could conceivably be costly to growth, but Aghion and others (2006) find that this effect seems to operate only for countries at low levels of financial development, which tend to have closed capital accounts. For more financially advanced developing countries, there is little obvious association between the flexibility of the exchange rate regime and growth (or standard measures of financial development), but exchange rate pegging does seem to raise the probability of a crisis; see, for example, Husain, Mody, and Rogoff (2004). Once the capital account is open and the exchange rate is flexible, though, countries face the problem of possibly unwelcome currency appreciations, and the associated external deficits and compression of exports. The real exchange rate movements pose less of a crisis threat than under a pegged nominal exchange rate, but, at the same time, may develop much more quickly. Ad hoc capital inflow controls, although possibly useful for prudential purposes if appropriately structured, may not help much in mitigating such currency pressures when they arise. A fiscal policy response can be more effective, albeit more cumbersome to enact in the short run.
Central bank independence may contribute to financial stability. Prohibitions on central bank financing of fiscal deficits can help to anchor inflation expectations. Moreover, a history of inflationary instability is a prime contributor to the dollarization of liabilities, a factor that makes it more difficult to operate a floating exchange rate, even a managed float. Thus, institutional changes that help stabilize inflation expectations (central bank independence, but also fiscal controls) can help make exchange rate flexibility feasible.

Policies that affect the maturity of external debt, if feasible and effective, can potentially reduce financial instability. With longer maturity borrowing, of course, repayment of principal is deferred, hopefully until after a crisis passes. A famous instance of a policy working in this direction was Chile’s *encaje*, the two-year unremunerated reserve requirement on financial inflows, which acted as a tax falling most heavily on short-term inflows. Its long-term efficacy has, however, been debated. It is certainly true that policies that promote short maturities (recall the South Korean example) can be disastrous.

The extent of rigidity in markets, especially in the labor market, can also be critical. An excessively high regulatory burden can hamper the movement of factors between sectors of the economy, in turn impeding the allocation of capital to its most productive uses. An inflexible labor market, in particular in the presence of a rigid nominal exchange rate, can make the economy especially vulnerable to volatile bidirectional capital flows.

Finally, consider trade openness. This structural feature of an economy may facilitate financial stability through diverse channels. For example, greater openness to trade might foster competition in product markets, reducing the political power of entrenched interests that were previously able to lobby successfully for policies favorable to themselves, but otherwise harmful to the economy. Greater openness also reduces the vulnerability to a “sudden stop” in foreign lending (Calvo, 1998), in the sense that the required real exchange rate adjustment will be smaller, as will be the knock-on financial effects of that relative price change on balance sheets and the income distribution. Frankel and Cavallo (2004) provide some empirical support. Martin and Rey (2006) provide a model in which, for given costs of international asset trade, higher barriers to merchandise trade make a financial-market crash more likely.

To the extent that trade openness itself promotes economic growth, a host of adjustment issues that might alarm the financial markets can be mitigated. Any necessary resource movement between sectors of the economy becomes less painful when growth is more rapid, because there is less need for absolute employment reductions in relatively shrinking sectors.

Often the four structural categories identified by Kose and others (2006) intersect. For example, bailout guarantees, while promoting moral hazard, also can reduce the credibility of commitments to maintain a prudent fiscal stance.

Of course, inferring causality from the empirical associations is perilous. For example, fiscal rectitude, labor market flexibility, and trade openness...
typically reflect endogenous government policies, which can be driven by “deeper” political factors that, in themselves, make the economy better able to live productively with an open financial account. It is hard to believe, however, that a favorable configuration of conventional fundamentals will not make an independent contribution to financial stability.

VI. Endogeneity of Institutions

Must external financial opening therefore await thoroughgoing structural reform? Kose and others (2006) present a detailed case that the answer is no, on the grounds that liberalization itself will promote a structural evolution that enhances the beneficial effects of liberalization while reducing the likelihood of negative effects. In their view, financial opening can lead to improvements in financial sector development, the quality of institutions, and in macro policies. These “collateral benefits,” at least over the longer term, enhance the net benefits that even an emerging country wins from financial opening. They will also, in and of themselves, promote investment and growth. The IMF’s Independent Evaluation Office (2005) seems also to lean toward this view.

The hard empirical evidence is, however, sketchy. Kose and others document a simple positive correlation between measures of financial development, measures of institutional quality, inflation control, and de facto financial openness. Unfortunately, as the authors acknowledge, these correlations leave open the possibility that it is high levels of structural quality that encourage de facto openness.

Attempts at structural estimation are, for the moment, few. One study is that of Chinn and Ito (2005), who present a panel analysis, 1980–2000, for 108 countries. They find that, once a critical threshold of “legal and institutional development” (measures taken from the International Country Risk Guide and other sources) has been reached, further progress in that dimension directly fosters the development of equity markets, and also interacts positively with financial openness to promote equity-market growth. Development of the banking sector, they find, is a precondition for equity market development. In another study, Tytell and Wei (2004) find a disciplining effect of financial openness on monetary policy (but not on fiscal policy). There is some supportive anecdotal evidence as well, Brazil’s experience under President Lula da Silva being a case in point.

Kose, Prasad, and Terrones (2008) look directly at the correlation between financial openness and the TFP growth rate using 1966–2005 data on a large panel of countries. Breaking the data up into nonoverlapping 10-year averages and using lagged regressors as instruments to address potential endogeneity concerns, they find that, even when the sample is restricted to nonindustrial countries, de jure financial openness has an economically and statistically significant positive impact on the growth rate of TFP. They also find a tendency for external FDI and portfolio equity liabilities to raise TFP growth, but for external debt liabilities to lower it. The
authors’ regression specifications relate TFP growth linearly to country fixed effects, initial TFP, trade openness, the terms of trade change, population growth, private sector credit growth, a measure of institutional quality, and de jure and de facto indicators of financial openness.

Because what Hall and Jones (1999) refer to as “social infrastructure” appears closely related to TFP, one could interpret these findings as indirect support for the theory that financial openness enhances the institutional environment. However, the results of the Kose-Prasad-Terrones study raise a number of questions. Why is the estimated positive effect of capital account openness on TFP growth apparently so strong when a positive effect on output growth has been found to be so elusive? What happens when some of the standard determinants of output growth such as human capital are added to the regression specifications? Why is the measured effect of de jure financial openness found to be so much larger (two to three times as big) in instrumental variable compared with OLS estimates? Aside from a convergence term, why does nothing but capital account openness seem to matter consistently for TFP growth in developing countries? Finally, through what channels is TFP affected by financial openness? The estimates are intriguing but, as Kose, Prasad, and Terrones (2008) observe, they raise a host of further research questions.

Even if direct empirical support for an effect of financial openness on institutions is scant, there are some plausible and even persuasive theoretical arguments. For example, the analysis of Rajan and Zingales (2003) suggests that financial opening may promote competition and thereby weaken the power of obstructive incumbents to block reforms that are counter to their interests. Emerging market firms that list on industrial country stock exchanges may be forced to import higher governance standards. Once a country or firm becomes dependent on international investors, it may be more amenable to their demands for better governance and transparency. Foreign financial actors (such as foreign banks) may, through a competitive effect, promote the spread of more efficient and prudent practices; see the studies surveyed by Mishkin (2008) and by Prasad and Rajan (2008). Governments that see themselves as dependent on foreign finance may hesitate before embarking on excessively expansionary or populist policies (at least when the next election is sufficiently distant).

Stulz (2005) suggests that the fall in the cost of capital and the expanded financial opportunities attendant upon financial opening make it more attractive for entrepreneurs to lobby the government for measures that increase shareholder protection. These measures, if implemented, can make it easier for firms to reap the gains from financial trade. He further argues that financial opening can restrain the predation of the state and hasten institutional reforms, because crises will be more probable otherwise:

Financial globalization reduces the ability of those in control of the state to extract rents. If they attempt to do so, resident investors can put their money elsewhere, foreign investors can go home, and local firms will

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become uncompetitive. From this perspective, it is not surprising that financial crises will sometimes occur in those countries in which investor protection is weak and respect for property rights suspect.

Rather than viewing financial crises as the downside of financial globalization, this view suggests that the possibility of such crises is intrinsic to the benefits from financial globalization. Free capital flows make it harder for the state to expropriate investors because it gives investors an exit. (Stulz, 2005, p. 1633)

Some potentially contrary evidence is beginning to emerge, however. For example, Gozzi, Levine, and Schmukler (2008) use a large multicountry, multifirm, time-series data set to study the behavior of Tobin’s $q$ before, during, and after years in which emerging market firms first “internationalize” by drawing on foreign equity. They find that, on average, $q$ rises in the year before and the year of internationalization, but returns to its prior level the year after as corporate assets and debt rise. The authors interpret the absence of a permanent increase in $q$ as evidence that firms do not “bond” themselves to a higher level of corporate governance simply by internationalizing. This result, they argue, is in line with other recent evidence throwing doubt on the “bonding” hypothesis.

In light of the meager empirical evidence, one must hesitate to jump to the tempting policy conclusion that, if only the capital account is opened, all will eventually work out for the best. Some sequencing clearly is called for (as indicated by a classic literature), with greater trade account openness, a reliably good degree of macro stability, an effective regulatory framework, and a viable and robust exchange rate arrangement (to be discussed in the next section) as minimal prerequisites for successful financial opening. For countries not already open, a phased approach is prudent. First the economy is opened to FDI. The available evidence suggests that FDI flows have the biggest positive effect on domestic investment and growth (for example, Borensztein, De Gregorio, and Lee, 1998; and Bosworth and Collins, 1999). Next come portfolio equity flows consistent with the development of local financial markets, and only later, longer-term debt-creating flows. The liberalization of short-maturity flows comes last. Steps that might promote the development of a market in local currency bonds (also to be discussed in the next section) should be taken in preparation for the later stages of opening. These precepts are generally consistent with the approach described by Ishii and others (2002).

VII. The Macro-Monetary Framework

I have alluded at a couple of points above to the importance of the exchange rate system. Indeed, a distinct argument in favor of capital controls is a pure “macro” argument not directly motivated by issues of financial stability. Through capital controls, a country can simultaneously attain exchange rate and domestic monetary policy targets. Thus, controls offer one way to address the open-economy monetary policy trilemma.
Clearly the revealed preference of the main industrial regions has been to embrace open capital markets along with whatever gains they bring, and to trade away exchange rate stability in favor of a monetary policy oriented toward domestic objectives. It is not clear that the alternative of capital controls would even be feasible for the industrial countries, given the extent of domestic financial development and the growth of world trade—even in the early 1970s industrial country capital controls were all but impossible to enforce. Interestingly, the preceding pattern seems to hold also in emerging markets—greater exchange rate flexibility, financial sector reform, fiscal and monetary frameworks conducive to moderate and stable inflation—but as Fischer (2003) observes, no generalized retreat from open capital markets (and this in the absence of the type of foreign pressures for financial opening seen in the 1990s). Some countries, such as Korea, have further liberalized their capital accounts since the Asian crisis, while also working hard to improve domestic financial stability (Noland, 2007).

The pattern is not universal, of course. As its convertibility plan was unraveling in December 2001, Argentina imposed temporary capital outflow controls (Dominguez and Tesar, 2007). In December 2006 Thailand imposed an unremunerated reserve requirement on capital inflows in order to limit baht appreciation. (The idea was similar to one that Chile had used earlier, as is discussed below.) The stock market immediately fell by 15 percent, and next day the government removed the reserve requirement as it applied to equity investments. Indonesia, Korea, and Malaysia, all previous users of controls, saw their own equity markets fall along with Bangkok’s, and chose publicly to rule out the use of restrictions similar to Thailand’s.21 The baht continued to appreciate against the U.S. dollar through early 2008. In May 2007 Colombia imposed a 40 percent, six-month, unremunerated reserve requirement on portfolio investment inflows. The effect, if any, in limiting the peso’s appreciation is unclear. Recent inflow controls such as those attempted by Thailand and Colombia do not reflect so much a retreat from financial integration or even an adjunct to prudential financial supervision, as an attempt to counteract capital-account-driven short-term exchange rate pressures that reduce competitiveness and therefore could slow growth. I return to this real appreciation problem in the penultimate section below.

For a number of countries, we also see increasing self-insurance through the acquisition of sizable foreign reserves. Feldstein (1999) recommended this measure in his “self-help” primer, and it has been implemented avidly. One benchmark frequently cited is the so-called Guidotti-Greenspan rule, according to which a country’s liquid foreign exchange reserves should at all times cover its foreign currency debt repayable within one year. Many emerging markets, however, hold reserves far in excess of this benchmark; see Jeanne (2007). Obstfeld, Shambaugh, and Taylor (2008) show empirically

that the level of financial development, as measured by the broad money supply M2, is a strong and robust correlate of reserve demand. They suggest that countries are trying to self-insure against the possibility of simultaneous banking and currency crises, in which domestic deposit withdrawals finance currency flight.

Emerging markets’ reactions to the subprime crisis that broke out in the United States in 2007 may be a stress test of the role of a healthy reserve cushion and a relatively strong current account position (outside of eastern Europe, Turkey, and some other countries) in preventing contagious market panic. If so, emerging markets appeared to do reasonably well until the eruption of worldwide panic in September 2008. Figure 6 shows that as of August 2008 (one year into the subprime crisis), the EMBI + spreads for key emerging areas had suffered a tremor but not a complete meltdown. Of course, commodity prices were elevated until mid-2008 and the crisis caused policy interest rates in the rich countries to be lower than they otherwise would have been.

Reform and restructuring efforts are driven in part by a belief among emerging market policymakers that integration with the world economy, in finance as well as in trade, is eventually a necessary concomitant of graduation to higher income status. Many researchers believe that domestic financial development is a prerequisite of economic growth—see, for example, Levine (2005) and the studies collected by Demirgüç-Kunt and Levine (2001). Levine (2005, p. 921) summarizes his view of the evidence as follows:

A growing body of empirical analyses, including firm-level studies, industry-level studies, individual country-studies, time-series studies, panel investigations, and broad cross-country comparisons, demonstrate a strong positive link between the functioning of the financial system and long-run economic growth. While subject to ample qualifications and countervailing views noted throughout this article, the preponderance of evidence suggests that both financial intermediaries and markets matter for growth even when controlling for potential simultaneity bias.

A sophisticated, deep financial system is, however, hard to insulate from the rest of the world, especially given the reality of growing merchandise trade. Furthermore, opening a closed financial system can, at least in principle, improve its performance. Improvements can come from importation of foreign best practice, from efficiency-enhancing competitive effects, from expanded diversification opportunities, and through undermining domestic vested interests (enhanced competition in the political arena).

One major ambiguity in the finance-growth literature is the question whether financial development causes or is caused by growth. Much of the literature, as noted by Levine (2005), for example, points toward a causal role for finance. Even if growth primarily leads finance, however, the implication is that countries that succeed in raising their per capita incomes will find it difficult to remain financially closed.
Apart from the useful precaution of reserve accumulation, what monetary framework is most suitable in a setting of substantial financial development and openness? The available choices are delimited by the trilemma. Given a degree of capital account openness, monetary policy can be deployed to set the exchange rate or to reach a domestic policy objective (such as inflation control), but not both. In order to credibly fix the exchange rate in a world of highly fluid capital, however, it is not enough to renounce domestically oriented monetary policy using words alone. The authorities’ hands must effectively be tied through far reaching institutional change. This is why the longevity of conventional “fixed” exchange rates has been so limited (Obstfeld and Rogoff, 1995). Even Argentina’s radical convertibility plan collapsed after a decade as the political pressures undermining it became irresistible. If the institutional scaffolding is weak, as in Argentina, then credibly fixed exchange rates will require forgoing a national currency altogether, as in dollarization or through joining a currency union such as the euro zone. Evidence seems to support the hypothesis of evolution toward a bipolar world in which governments eschew adjustable or heavily managed pegs (see Figure 7).

Adoption of even a fully credible exchange rate peg entails some disadvantages, especially for larger economies, notably, the sacrifice of the shock absorption capacity of exchange rate flexibility when nominal prices and wages are sticky. This capacity of a flexible rate can be an aid in inflation
control, in moderating unemployment, and in the adjustment of incipiently large external imbalances.

Developing countries, often characterized by an inability to borrow externally in their own currencies as well as extensive domestic liability dollarization, cannot weather large exchange rate movements as easily as industrial countries can. The reason is familiar from recent crises. A large depreciation of the domestic currency causes the value of debts relative to assets to balloon. If external liabilities are in foreign currency, the net wealth of the country can fall precipitously, and external debtors go bankrupt. But the potential problems are even more severe. If there are unmatched foreign currency liabilities in intranational positions, for example, dollar bank deposits held by domestic residents, debtor balance sheets deteriorate sharply when the home currency falls, possibly throwing many actors within the economy—and their creditors—into bankruptcy. Furthermore, the need to borrow abroad in foreign currencies imparts a structural disadvantage to their foreign exchange markets, making exchange rates more volatile. (Obstfeld, 2004, discusses one mechanism arising entirely from asset-market dynamics, while the next section of this paper describes a complementary mechanism that operates through goods-market channels.) A result is the Calvo and Reinhart (2002) “fear of floating” and, with it, reduced monetary autonomy: the apparent tendency of emerging market floaters to be guided more heavily by exchange-market developments than are industrial countries. But fixed exchange rates seem not to be an option—they have certainly contributed in several ways to the harsh character of emerging market crises. And there is no doubt that a regime with at least some day-to-day exchange rate uncertainty is a useful preventive measure against currency mismatch and crises.

An attractive conceptual framework for monetary policy is that of “managed floating plus,” proposed by Goldstein (2002). The framework

![Figure 7. Changes in Exchange Rate Flexibility](image)

Figure 7. Changes in Exchange Rate Flexibility

<table>
<thead>
<tr>
<th>Year</th>
<th>Hard Peg</th>
<th>Intermediate</th>
<th>Float</th>
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<tbody>
<tr>
<td>1991</td>
<td>21</td>
<td>67</td>
<td>64</td>
</tr>
<tr>
<td>1999</td>
<td>27</td>
<td>44</td>
<td>64</td>
</tr>
<tr>
<td>2004</td>
<td>27</td>
<td>36</td>
<td>73</td>
</tr>
</tbody>
</table>

combines substantial exchange rate flexibility, a credible inflation-targeting regime (preferably buttressed by genuine central bank instrument independence), and, crucially, measures to limit currency mismatch, both within the economy and with respect to the external investment position. Goldstein and Turner (2004) propose practical measures for monitoring and limiting currency mismatch.

The limitation on currency mismatch is intended to reduce the balance sheet repercussions of exchange rate fluctuations, freeing the monetary authority to tolerate exchange rate movements that are a byproduct of inflation-oriented policies (and thereby reducing the fear of floating). It might be added that a healthy financial system is also a prerequisite, and for a similar reason: central bank credibility requires the ability to make significant and possibly abrupt interest rate changes in the face of an inflation scare.

Useful in implementing such a program is the development of a local-currency bond market. Such markets not only mitigate the problem of currency mismatch, they facilitate the conduct of monetary policy and enhance the economy’s ability efficiently to channel resources to investors. Not coincidentally, a major development of recent years has been the growth of local-currency bond markets in a number of emerging markets. There has also been increasing external placement of local-currency bonds in some cases. The World Bank (2008, p. 66) reports that east Asian bond markets grew from $400 billion in 1997 to $1.6 trillion by end-September 2005. This growth was partly a result of governments issuing local currency bonds in connection with financial and corporate restructuring after the Asian crisis. With the major exceptions of China and India, these bond markets are much more open than in 1997. This development has been supported by innovations in contingent contracting, notably, the increasing use of credit default swaps and nondeliverable forward transactions. In November 2007 the World Bank launched a Global Emerging Markets Local Currency Bond (GEMLOC) program to cultivate local currency bond markets and raise their attractiveness to foreign investors.

Latin American countries and Russia have been able to issue some local-currency bonds in world markets. This is not unprecedented: Argentina was able to borrow in pesos abroad during 1996–2001, under its convertibility plan. More recently, though, Brazil, Colombia, and Uruguay have tapped the international sovereign borrowing market with local-currency debt, payable in dollars, and, in Uruguay’s case, indexed to domestic inflation. Is this the wave of the future? This seems unlikely. International issuance of local-currency debt is second-best to a more vigorous development of a domestic bond market open to foreign lenders. Tovar (2005, p. 117) judiciously concludes, “[T]here is no guarantee that the recent increase in this sort of issuance by sovereigns in the region reflects a permanent trend. History provides many examples of rapidly shifting preferences on the part of international investors.” In general, Latin America has lagged in terms of domestic financial development (de la Torre and Schmukler, 2007).

The domestic bond market evolution that has occurred in emerging markets has been promoted by measures ranging from pension reform to
initiatives by international organizations (and, of course, by a lowering of formal inflow barriers). It is important to ask, however, whether institutional reforms of the type that are likely to enhance the benefits from financial inflows might play a catalytic role. According to the notion of “original sin” advanced by Eichengreen and Hausmann (1999), there might be little that developing countries themselves can do to gain access to domestic-currency loans from abroad.

Using a 2001 data set on domestic and foreign-currency bonds outstanding in the markets of 49 industrial and developing countries, however, Burger and Warnock (2006) conclude that the size of the bond market, and the currency composition of borrowing, are endogenous. The most robust positive predictor of both bond market size and the share of local-currency borrowing is a history of low inflation variance (consistent with the theoretical prediction of Jeanne, 2005). There thus may be a virtuous circle, in which low inflation promotes development of local currency bond markets, which in turn allow a more credible pursuit of low inflation by the authorities. For government bonds, Claessens, Klingebiel, and Schmukler (2003) find that greater exchange rate flexibility is associated with a bigger local-currency bond market.

Burger and Warnock (2006) also find that a high rating on a “rule of law” measure promotes the size of the local bond market relative to GDP, whereas strong creditor rights promote a high share of local currency bonds. Claessens and others likewise find a role for institutional variables. Further corroboration comes from two studies of emerging bond markets by Eichengreen and Luengnarumitchai (2004, 2008), who focus on Asia’s relative success. They find that bond-market capitalization (2004) and foreign participation in the domestic bond market (2008) both depend positively on aspects of institutional quality and domestic financial development. Burger and Warnock (2007) study the determinants of U.S. investor participation in local-currency bond markets and argue that foreign investors avoid high variance and negative skewness, even in diversifiable idiosyncratic returns. If so, enhanced macroeconomic stability (including a lower frequency of maxi-devaluations) could spur foreign demand for local-currency bonds.

These results are intriguing, but they must be interpreted with caution. There is the possibility of bidirectional causation, of course, which Burger and Warnock (2006) try to address through the timing of regressors and various instruments. At the conceptual level, however, the findings raise puzzles. Why should creditor rights influence local currency borrowing, but not the total extent of bond market development, as Burger and Warnock (2006) find? To what extent do the results simply capture that the industrial countries, being richer, have deeper bond markets and a more rigorous rule of law? The regressions show a strong negative effect of economic growth on bond market development, which surely captures the fact that Asian countries grew more rapidly than the industrial world over the 1990s, yet still had more limited bond markets in 2001. Hopefully future work will throw further light on policies and reforms that promote local bond market
development and the escape from original sin, both of which can greatly ease the implementation of a macro framework that includes extensive exchange rate flexibility and an open financial account.\textsuperscript{22}

A full managed float may be impractical at the early stages of financial opening and market liberalization, when capital controls still are in place and somewhat effective. China, for example, is in this position now, as is India. As a transitional measure, some system such as the “basket, band, and crawl” (BBC) suggested by Williamson (2001) can be very helpful. Roughly speaking, the basket peg helps maintain multilateral competitiveness, the crawl offsets differential inflationary trends, while the bands place limits on excessive volatility or misalignment. The bands, of course, would not be viable for long absent capital controls. But in the transition to fuller financial openness, such a system may effectively limit the overvaluations that have often helped generate crises.

Chile’s case shows, once again, that progress is possible.\textsuperscript{23} Chile had a disastrous early experience of financial opening culminating in a 1982 crisis involving a huge output loss, steep currency depreciation, and nationalization of much privately contracted financial sector external debt (Díaz Alejandro, 1985). This sobering history provides the background for the successful reforms undertaken there since the mid-1980s.

On the currency side, from the mid-1980s the Chilean peso’s U.S. dollar exchange rate was kept within a crawling band, the central parity of which was adjusted daily to reflect the inflation difference between Chile and its main trading partners. The goal of the crawl was to maintain competitiveness—though there is a danger in any such system that expectations feed into inflation, resulting in accommodation of the pervasive expectations via the exchange rate. Partly for this reason, no doubt, as well as due to indexation, inflation remained relatively high in Chile for a decade, dropping below double digits only in the mid-1990s. (In 1998 lagged domestic inflation was replaced by an inflation target in the definition of the crawl, a key reform in bringing inflation down further.) Although the top end of the band (weak peso) was tested frequently prior to 1991, 1991–97 was a period similar to the recent past in China, with the peso near the strong edge of the band and attempts by the authorities to resist capital inflows and to sterilize. (Estimates of the quasi-fiscal costs of sterilization run about 0.5 percent of GDP per year, a huge number. Net international reserves peaked at 2.5 percent of GDP.)

In 1992 Chile moved to a BBC when it redefined its central peso rate in terms of a basket including the deutsche mark and yen as well as the U.S. dollar. Variations in currency composition were made opportunistically. Starting in September 1998, in the wake of capital outflows associated with Asian-crisis spillovers, the currency-band width was set at ±4 percent and widened continuously until December 1999, when free floating of the peso was declared.

\textsuperscript{22}An interesting discussion of the Australian experience is in McCauley (2006).
\textsuperscript{23}Some of the following material draws on Obstfeld (2007).
On the financial account, prior to liberalization, Chile channeled transactions through a formal foreign exchange market consisting of the central bank, commercial banks, and specially authorized exchange trading houses. An informal (but fully legal) foreign exchange market existed for nonfinancial transactions; it had a floating exchange rate. Initially, exporters and importers of capital were obliged to sell foreign exchange proceeds in the formal market. The nonfinancial private sector was allowed to acquire foreign exchange informally. The strength of enforcement sometimes reflected balance of payments pressures. Only by the mid-1990s had the discrepancy between formal and informal exchange rates essentially disappeared. Chile still maintained, for some years afterward, its *encaje* or unremunerated reserve requirement on foreign capital inflows, but this was scrapped in the late 1990s. Prior to full financial liberalization and, shortly afterward, free floating, Chile restructured its domestic financial system and imposed extensive regulation and supervision, with special attention to currency mismatches on balance sheets. There was also a substantial development of domestic forward exchange trading after 1995, allowing a better allocation of exchange rate-related risks.

China and India, even though their economies have generated high economic growth rates in the presence of capital controls, show gradual movements toward external liberalization. China’s plans of the latter 1990s were slowed by the Asian crisis. More recently, external liberalization has been mostly of outflows, driven by the need to relieve the pressure of reserve inflows on the money supply and the price level (Obstfeld, 2007). The weak state of China’s banking system makes a thoroughgoing financial opening impracticable at the present time.

India’s public discussion has been much more deliberate than China’s. In 1997, India’s Committee on Capital Account Convertibility, chaired by S.S. Tarapore, sketched out preconditions for attaining complete convertibility over a three-year period (Tarapore, 1998). This thinking was derailed by the Asian crisis, but the preconditions that the report envisioned for safely opening the capital account are similar in many respects to those spelled out above. These include strengthening of the financial system (especially reducing the banking system’s burden of nonperforming loans), along with an array of complementary macrostabilization measures: fiscal consolidation, inflation control, limits on the current account deficit, and monitoring the real exchange rate for overvaluation. The report also suggests a healthy reserve cushion, managed from the Guidotti-Greenspan perspective of partially covering short-term foreign debts. Tarapore himself favored a tax on short-term capital inflows as a way of limiting the economy’s maturity mismatch.

The issue has been revisited in the Report of the Committee on Fuller Capital Account Convertibility, again chaired by Tarapore (Tarapore and others, 2006). The course recommended by the committee is quite incremental, and the broad supporting preconditions from the earlier capital-account convertibility report are reasserted. In a dissenting note, Bhalla
(2006) endorses the committee’s emphasis on limiting both rupee overvaluation and excessive short-term foreign debt. But he faults the report on its timidity in liberalization and on its recommendation of an explicit and relatively narrow real exchange rate band for the rupee. The latter, he argues, would simply be a target for speculators, even with many capital controls retained.

VIII. Capital Inflows, Real Appreciation, and Volatility

If a more flexible exchange rate is necessary for safely managing an open capital account, one collateral cost is that shifts in the world demand for domestic assets (as well as other shocks) can very rapidly translate into substantial real currency appreciation. In the presence of nominal price stickiness, the currency may overshoot. Particularly if credit markets are imperfect, the resulting relative price configuration can send faulty price signals that damage international competitiveness, inducing costly intersectoral resource reallocations and unemployment. With an open capital account, the possibility of undesired real currency appreciation—and indeed, depreciation—is inherent in the trilemma. Because appreciations are associated with distress in the manufacturing sector and with current account deficits, however, it is these rather than depreciations that generally worry policymakers the most outside of crisis periods.

The real appreciation problem drew professional attention roughly three decades ago in the dual contexts of disinflation and the so-called Dutch disease. In Argentina, Uruguay, and Chile, the adoption of exchange-rate-based stabilization programs in the late 1970s led to capital inflows, consumption booms, and real appreciation. All three Southern Cone stabilization programs ended in tears, for reasons that have been extensively analyzed. Liviatan (1980) suggested that under a floating exchange rate, a capital import tax might be useful in limiting the sharp real appreciation that would otherwise occur at the outset of a dramatic disinflation. The tax might prevent a collapse in exports and thereby deter the manufacturing sector from becoming a powerful lobby against the stabilization program.

If an emerging market facing an increase in asset or output demand prevents its currency from appreciating in nominal terms, its intervention operations will lead in the first instance to a rise in international reserves and the money supply. Higher inflation will result, bringing the economy, eventually, to the same long-run equilibrium position that would have been reached more quickly under a floating exchange rate. Under an open capital account, attempts to sterilize the resulting money supply increase through central bank domestic asset sales will only draw in offsetting capital flows and raise foreign reserves further (while at the same time raising the government’s quasi-fiscal expenses). In the hope of keeping inflation expectations anchored despite a positive demand shock (for assets or goods), many countries have responded to real exchange rate movements with a mixture of intervention and nominal appreciation. As noted above, some have also resorted to short-term capital-inflow controls of various kinds, typically
coupled with sterilization. The ultimate success of such measures in limiting
real exchange rate variability is unclear. Interventions in asset markets may
be more successful when shocks to the exchange rate originate in the asset
markets themselves rather than in output markets.

The underlying problem is likely to be much more severe for economies
that cannot borrow in domestic currency, and that feature extensive domestic
liability dollarization. Such currency mismatches create a transmission
mechanism that endogenously makes the real exchange rate more variable
with respect to underlying shocks than they would otherwise be. The
transmission mechanism operates through wealth effects.

A very simple small-country flexible-price model illustrates the basic
channels involved. Denote by \( p \) the relative price of nontradable goods in
terms of tradable goods, and assume that the prices of tradable goods are
equal to their prices in world markets, which are exogenously given. If \( \alpha \) is
the share of nontradables in consumption (generally in the ballpark of
\( \alpha = 0.75 \)), then \( p^\alpha \) can be identified with the real exchange rate as well as with
the consumer price index (CPI), a \textit{rise} in this price being a real currency
\textit{appreciation}.

The supply function for nontradables is \( g(p) \), with \( g'(p) > 0 \). Let \( W^C \) be the
real wealth of domestic creditors (in terms of the CPI), \( W^D \) the real wealth of
domestic debtors (in terms of the CPI), and \( z \) a demand shock. The demand
for nontradables is the sum of the demands of domestic creditors and
domestic debtors, written as \( e^C(p, W^C) + e^D(p, W^D) + z \). The shock \( z \)
could reflect, for example, a positive demand impulse due to an influx of
foreign loans. When \( p \) rises, the partial effects on the demands of creditors
and debtors alike are negative.

Total domestic real wealth is \( W^C + W^D = K - p^{-\alpha}F \), where \( K \) is the
aggregate capital stock (assumed to be indexed to the CPI) and \( F \) represents
the net foreign debt (assumed to be denominated in tradables, in accordance
with the "original sin" model).

Even though the capital stock is (for simplicity) assumed to be invariant
with respect to the CPI, there is domestic liability dollarization, meaning that
in general, entrepreneurs who operate capital have financed its acquisition
through borrowing that is indexed to tradables. As a result, real appreciation
transfers wealth from creditors to debtors within the economy, whereas real
depreciation does the reverse. In the absence of a net foreign debt (that is,
when \( F = 0 \)), these two effects would be exactly offsetting. But if, as I assume
instead, \( F > 0 \), then a real appreciation will raise aggregate real wealth and a
real depreciation will lower it. These assumptions are captured by the
inequalities:

\[
\frac{\partial W^C}{\partial p} < 0, \quad \frac{\partial W^D}{\partial p} > 0, \quad \frac{\partial(W^C + W^D)}{\partial p} = z p^{-\alpha} F > 0.
\]

A second empirically relevant assumption is that wealth redistributions
within the country are not neutral in their effects on aggregate demand.
It is debtors who have the higher marginal propensity to consume out of their current wealth—an effect exacerbated by various financial market imperfections, including agency constraints through which higher wealth allows more borrowing by the debtor class. In symbols, the assumption regarding marginal consumption propensities is that

\[
\frac{\partial e^D}{\partial W^D} - \frac{\partial e^C}{\partial W^C} > 0.
\]

One can now calculate how movements in the forcing variable \(z\) will affect the real exchange rate under the conditions of the model. Differentiation of the goods-market equilibrium condition \(y(p) = e^C(p, W^C) + e^D(p, W^D) + z\) shows that

\[
\frac{dp}{dz} = \left[ y'(p) - \frac{\partial e^C}{\partial p} - \frac{\partial e^D}{\partial p} - \left( \frac{\partial e^C}{\partial W^C} \frac{dW^C}{dp} - \frac{\partial e^D}{\partial W^D} \frac{dW^D}{dp} \right) \right]^{-1}. 
\]

(I assume this derivative is positive.) In the absence of any wealth effects due to a change in the real exchange rate, the denominator above would be simply \(y'(p) - (\partial e^C/\partial p) - (\partial e^D/\partial p) > 0\). As a result of the wealth effects, however, this positive number is reduced in the denominator by the positive quantity

\[
\left( \frac{\partial e^C}{\partial W^C} - \frac{\partial e^D}{\partial W^D} \right) \frac{dW^C}{dp} + \frac{\partial e^D}{\partial W^D} \frac{d(W^C + W^D)}{dp}. 
\]

The first summand here captures the redistribution of wealth from creditors to higher-consuming debtors when \(p\) rises; the second, the positive demand effect of the accompanying rise in aggregate wealth given a net foreign debt. Intuitively, through these two distinct wealth effects, real appreciation raises demand for nontradables, partially offsetting the primary partial price effects on supply and demand. Thus, in equilibrium, a given demand impulse \(z\) has a magnified effect on the real exchange rate. Of course, the implication is the same for negative demand shocks, which will cause disproportionate real depreciations in this model. The latter could be asymmetrically large if additional financial constraints begin to bind as the currency falls. In summary, with original sin and domestic liability dollarization, we should expect real exchange rate volatility to be sharply higher than it otherwise would be.

The analysis points to an important reason why developing economies find it hard to find a comfortable resolution of the trilemma, and often exhibit “fear of floating” as documented by Calvo and Reinhart (2002). An obvious way forward is to promote reforms that reduce dollarization, as

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24The emphases on both the balance sheet effects of currency movements and the differing marginal consumption propensities of different economic groups are salient in the classic literature on contractionary devaluations. For lucid discussions, see Díaz Alejandro (1963 and 1965, p. 31).
discussed above, but this is easier said than done. Fiscal responses to real appreciation might also be appropriate, but run into the obvious obstacle that as a political matter, fiscal retrenchment is always more problematic than expansion. Macropurpudential regulation of financial institutions, with the stringency of oversight tied to the strength of capital inflows, might also prove a useful device for deterring lending booms and the associated real appreciation (see Ocampo and Chiappe, 2003, for one proposal). Analogous regulatory regimes are currently under consideration for the industrial economies’ financial markets. Fixed exchange rates and capital mobility have proved to be an explosive mixture, but for the moment, significant market-driven changes in floating exchange rates will remain problematic for developing countries that embrace financial globalization.

IX. Conclusion

Particularly at the macro level, it is hard to find unambiguous evidence that financial opening yields a net improvement in economic performance for emerging countries. Major problems in empirical evaluation include the bundling of financial opening with a potential host of other growth-friendly reforms, and the endogeneity of the liberalization decision itself. Micro-economic data may provide less ambiguous evidence, but even in the micro context identification problems can remain. Managing flexible exchange rates in the context of an open capital account has been an especially thorny issue for developing economies.

Nonetheless, policymakers in emerging markets have displayed a remarkable revealed preference for financial openness, and the trend is likely to continue (perhaps with occasional seizures when global economic conditions sour). Why? Domestic financial development is attractive from several perspectives—it promotes growth, can enhance welfare more generally, allows easier government borrowing, and eases the conduct of a domestically oriented monetary policy. Such domestic financial deepening, along with merchandise trade expansion, makes capital controls ever costlier to enforce. Furthermore, financial opening is likely to promote, through several channels, a more competitive and resilient domestic financial system.

Domestic financial development itself is likely to make external financial liberalization easier to live with. But there are other institutional reforms that ultimately are also helpful—relating to the rule of law, corruption, contract enforcement, corporate governance, reductions in liability dollarization, and the like. These reforms cannot be accomplished overnight, and in the process, a phased and cautious piecemeal approach to liberalization is in order. It is important, though, that the piecemeal nature of the approach not exacerbate existing distortions or create new ones—for example, by liberalizing short-term debt flows ahead of long-term flows.

Distortions in industrial country financial markets—distortions of which we are acutely aware these days—are not irrelevant to the fate of developing economies that embark upon financial integration with richer countries.
(Dobson and Hufbauer, 2001). In the necessary process of international financial coordination, the emerging markets must increasingly become equal partners with their industrial counterparts, just as in the sphere of international trade.

Regarding the appropriate macromonetary framework, we have learned much from the vicissitudes of the post-debt-crisis years. The World Bank (2006, p. 140) puts it as follows:

As developing countries become more open to international financial markets, designing and building a sound regime of external financial policy making and regulation presents an urgent challenge. A consensus has formed around the three core components of such a regime—membership in a credible currency union, such as the [euro zone], or an exchange rate that reflects market forces; gradual opening of the capital account; and a monetary policy framework that favors price stability.

Conversely, a stable and sound macromonetary framework seems likely to promote complementary structural developments in the economy—structural developments that are essential to reduce the negative impacts of exchange rate volatility for countries that retain national currencies. One instance is the possibility, suggested by some evidence, that inflation stability promotes domestic-currency bond markets. In general, financial liberalization itself can yield “collateral” institutional benefits for the economy, benefits that both spur growth and make an open financial account less crisis-prone (Kose and others, 2006). Determining the extent to which this has been reliably true in practice is an urgent item on the research agenda for growth and development economists.

The conclusion that financial integration is inevitable, and eventually even helpful, is in line with a classic insight from the trade policy literature: the efficient way to correct a distortion is to attack it at its source. In the present setting, domestic financial market imperfection and institutional weakness, not financial openness, is the primary problem. The ideal response would be a correction of domestic imperfections plus intervention to address the specific additional issues raised by the international margin. Only if this approach is unworkable might a closed financial account be the answer. Unfortunately, as Rodrik and Subramanian (2008) point out, the political resources that can be devoted to reform efforts are limited, so not all distortions can be attacked within a short horizon. Until economists have a better handle on precisely which repairs are most critical for safe financial opening, the process of liberalization should be especially gradual and cautious.

A hopeful aspect in this picture is that the financial and institutional reforms developing countries need to carry out to make their economies safe for international asset trade are at the same time reforms they need to carry out anyway so as to curtail the power of entrenched economic interests and liberate the economy’s productive potential. Taken all alone, financial openness is not a panacea—and it could be poison. The empirical record
suggests that its benefits are most likely to be realized when implemented in a phased manner, when external balances and reserve positions are strong, and when complementing a range of domestic policies and reforms to enhance stability and growth.

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Why Did Financial Globalization Disappoint?

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The stylized fact that there is no correlation between long-run economic growth and financial globalization has spawned a recent literature that purports to provide newer evidence and arguments in favor of financial globalization. We review this literature and find it unconvincing. The underlying assumptions in this literature are that developing countries are savings-constrained; that access to foreign finance alleviates this to boost investment and long-run growth; and that insofar as there are problems with financial globalization, these can be remedied through deep institutional reforms. In contrast, we argue that developing economies are as or more likely to be investment- than savings-constrained and that the effect of foreign finance is often to aggravate this investment constraint by appreciating the real exchange rate and reducing profitability and investment opportunities in the traded goods sector, which have adverse long-run growth consequences. It is time for a new paradigm on financial globalization, and one that recognizes that more is not necessarily better. Depending on context and country, the appropriate role of policy will be as often to stem the tide of capital inflows as to encourage them. Policymakers who view their challenges exclusively from the latter perspective risk getting it badly wrong. [JEL F21, F41, O4]


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A little over a decade ago, just before the Asian financial crisis of 1997 hit the headlines, there was an emerging consensus among leading macroeconomists that it was time for developing countries to embrace the liberalization of their capital accounts. In a famous speech during the Annual Meetings of the International Monetary Fund (IMF) in 1997, Stanley Fischer put forth the case in favor of financial globalization and advocated an amendment to the IMF’s articles the purpose of which “would be to enable the Fund to promote the orderly liberalization of capital movements” (Fischer, 1997). Yes, there were risks associated with opening up to capital flows, but Fischer was convinced that these were more than offset by the potential benefits. Rudiger Dornbusch, having written so eloquently and convincingly on the usefulness of financial transactions taxes just a short while ago (Dornbusch, 1996), now declared capital controls “an idea whose time is past” (Dornbusch, 1998). He wrote: “The correct answer to the question of capital mobility is that it ought to be unrestricted” (Dornbusch, 1998, p. 20).

At the time that these ideas were being floated, there was little systematic evidence that the theoretical benefits of capital flows would in fact be realized. One could look at the reduction in financing costs that accessing international markets enabled, or the competitive gains from foreign bank presence—as Fischer (1997) did—and conclude that the gains were already visible. Or one could look at the still-fresh Mexican peso crisis of 1994–95 and the Asian financial crisis that was brewing to conclude that the risks were too big to take on. Nonetheless, so strong were the theoretical priors that one could presume, as did Fischer (2003, p. 14), that the evidence in favor of capital account would cumulate over time, just as with the evidence on the benefits of trade liberalization a couple of decades earlier.1

As Fischer had prophesied, there has been an explosion in empirical studies on the consequences of financial globalization. But far from clinching the case for capital-account liberalization, these studies paint quite a mixed and paradoxical picture.2 Kose and others (2006, hereafter KPRW), who provide perhaps the most detailed and careful review of the literature, conclude that the cross-country evidence on the growth benefits of capital-account openness is inconclusive and lacks robustness. They argue that one should look for the gains not in enhanced access to finance for domestic investment, but in indirect benefits that are hard to detect with macroeconomic data and techniques (an argument that we will evaluate

1Of course, the Asian financial crisis forced the IMF to abandon efforts to amend its Articles of Agreement to promote capital-account liberalization. But in some of its recent bilateral trade agreements, the United States did succeed in getting its trading partners (for example, Chile and Singapore) to commit irrevocably to it.

2We do not evaluate here the impact of financial globalization on financial crises, except to note the recent assessment by Reinhart and Rogoff (2008, p. 7): “Periods of high international capital mobility have repeatedly produced international banking crises, not only famously as they did in the 1990s, but historically.”
In another paper, Kose, Prasad, and Terrones (2005) find that consumption volatility actually rose (relative to output volatility) in emerging market economies during the current era of financial globalization—a finding that flatly contradicts theoretical expectations. Perhaps most paradoxical of all are the findings of Prasad, Rajan, and Subramanian (2007, hereafter PRS) and Gourinchas and Jeanne (2007), which throw cold water on the presumed complementarity between foreign capital and economic growth: it appears that countries that grow more rapidly are those that rely less and not more on foreign capital; and in turn foreign capital tends to go to countries that experience not high, but low productivity growth.

What these findings reveal are the shortcomings of the mental model that dominated thinking about capital flows a decade ago. This model had two key premises. First, it presumed that low savings and weak financial markets at home were first-order constraints on economic growth and development. Thus greater access to investable funds from abroad and improved financial intermediation would provide a powerful boost to domestic investment and growth along with better consumption smoothing. Second, although it recognized the potential of adverse interactions between lenders’ incentives abroad and borrowers’ incentives at home, it assumed that sufficiently vigilant prudential regulation and supervision could ameliorate the attendant risks sufficiently. Indeed, given the presumed importance of access to international finance, this model required that policymakers give very high priority to the implementation of appropriate regulatory structures.

In brief, the argument was this: developing nations need foreign capital to grow, but foreign capital can be risky if those nations do not pursue prudent macroeconomic policies and appropriate prudential regulation, so developing countries must become ever more vigilant on those fronts as they open themselves up to capital flows. This syllogism remains at the core of the case for financial globalization (for example, Mishkin, 2006), even though, as we shall see, some newer arguments have begun to take a different tack (for example, KPRW).

But the syllogism relies heavily on a premise that is by no means self-evident. Certainly the results of PRS (2007) and Gourinchas and Jeanne (2007) are at variance with the presupposition that poor nations need foreign finance in order to develop. To make sense of what is going on, we need a different mental model. We must begin by taking note of the fact that developing countries live in a second-best world, which means that they suffer from multiple distortions and constraints. Although some nations may be severely constrained by inadequate access to finance, others—and perhaps a majority—are constrained primarily by inadequate investment demand, due either to low social returns or to low private appropriability. As we shall argue below, targeting the external finance problem when the “binding constraint” lies with investment demand can be not only ineffective, it can actually backfire.

In particular, capital inflows exacerbate the investment constraint through their effect on the real exchange rate: the real appreciation of the...
home currency that accompanies capital inflows reduces the profitability of investment in tradables and lowers the private sector’s willingness to invest. The result is that although capital inflows definitely boost consumption, their effect on investment and growth is indeterminate, and could even be negative. The flat investment profile that most emerging market economies have seen since the early 1990s—compared with their experience prior to financial globalization—can be understood in these terms. The exceptions are countries such as China, India, or Chile that have managed to prevent real exchange rate appreciation for a sustained period of time, thanks in part to their reliance on capital controls.

Furthermore, government capacities are limited. Priorities have to be selected carefully because not all distortions can be removed simultaneously. The emphasis on strengthening financial regulation and governance, demanding as it is even in advanced economies, is particularly challenging in countries that are struggling with problems of underdevelopment. Confronting this challenge, and paying up the implied opportunity costs, makes a lot of sense if what one gets in exchange is a big boost in growth, as would be the case when the binding constraint on growth is access to external finance. But otherwise, exhortations on prudential regulation serve little purpose other than reveal the professional limitation of every specialist: insistence that the government undertake all the complementary reforms that would ensure the success of the specialist’s policy recommendation, and indifference to the trade-offs that might arise from the needs of more urgent reforms elsewhere.

The next section reviews some of the newer arguments in favor of financial globalization. First we look at the arguments of Henry (2007), who provides a critique of the existing literature and points to the research on stock-market liberalizations and to microstudies that purportedly provide much stronger and more robust evidence on the benefits of capital-account liberalization. We also examine the collateral-benefits argument due to KPRW. We next analyze the argument laid out in Mishkin’s (2006) recent book, The Next Great Globalization (which is also summarized in his article in this issue). Then we review briefly some of the micro-based research. Section II lays out a simple framework that distinguishes investment- and savings-constrained economies and explains how they respond differently to

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3See Bresser-Pereira and Gala (2007) for a similar argument.

4This point brings to mind the complaint that Larry Summers voiced while discussing a paper on China’s banking problems: “Like experts in many fields who give policy advice, the authors show a preference for first-best, textbook approaches to the problems in their field, while leaving other messy objectives acknowledged but assigned to others. In this way, they are much like those public finance economists who oppose tax expenditures on principle, because they prefer direct expenditure programs, but do not really analyze the various difficulties with such programs; or like trade economists who know that the losers from trade surges need to be protected but regard this as not a problem for trade policy” (Summers, 2006).
capital-account liberalization. Finally, some concluding thoughts are offered in the final section.

I. The New Arguments

Figures 1 and 2 present the simple correlation between economic growth and financial globalization (measured in de facto terms, that is, as the sum of gross foreign assets and liabilities as a share of GDP). In Figure 1, the period covered is 1970–2004, with panel (a) showing the relationship in terms of the level of financial globalization and panel (b) showing it in terms of the change in the level of financial globalization. Figure 2 repeats this exercise for the period 1985–2004. The absence of any apparent relationship between financial globalization and growth is, of course, the key piece of evidence that has elicited a lot of analysis and that is the focus of the reevaluation in KPRW.

But the cause of financial globalization has been taken up recently by a number of newer studies. These studies offer a range of responses to the earlier, and generally unfavorable (for financial globalization) evidence. Some say we have been looking at the wrong places; others say we have not looked hard enough; and yet others say that we should just do our homework and be patient. We now offer some comments on each of these arguments, focusing on the work of Henry (2007), KPRW (2006), and Mishkin (2006), and on recent microevidence.

Looking in the Wrong Places, Version I

Henry (2007) argues that the failure of existing studies to detect a positive impact of financial globalization on growth stems from three factors: first, the studies look for permanent growth effects whereas in the basic Solow growth model permanent decreases in the cost of capital and hence increases in the ratio of investment to GDP only have a temporary effect on growth. Second, much of the empirical work does not distinguish between effects of financial globalization on developing and developed countries. And third, financial globalization indicators are measured with considerable error. He then suggests that studies that address these deficiencies provide a little more favorable evidence for the positive effects of financial globalization.

How persuasive are these reservations and arguments? It is not clear to us that Henry’s criticism has much bite. Consider Henry’s first objection, namely that cross-country regressions cannot pick up the positive effects of

5Before we review these new arguments, it should be noted that at least two additional papers that have appeared since PBH’s survey—Gourinchas and Jeanne (2007) and PRS (2007)—come closer to the conclusion that foreign capital has a negative effect on long-run growth. So, if anything, the weight of at least the macroeconomic evidence has shifted toward a less favorable view of financial globalization.

6Gourinchas and Jeanne (2007) focus only on developing countries, but PRS (2007) distinguish between developed and developing countries.
capital-account liberalization because the neoclassical growth model predicts that a reduction in the interest rate faced by investors produces only temporary growth effects. For one thing, the neoclassical growth model is hardly the only framework that motivates growth regressions. Endogenous growth models enable policies to have long-run growth effects, which is why running growth regressions with measures of different kinds of policies (trade policies, fiscal policies, and so on) on the right-hand side has been such a popular research strategy during the last couple of decades. Moreover, if KPRW are right in suggesting that the most important effects of financial globalization are the indirect or collateral effects, then the standard cross-country framework is exactly the right framework to use because these indirect effects (institutional and financial development, and so on) are permanent, not transitory, ones.

Perhaps more importantly, even though the neoclassical growth model predicts only temporary growth effects, it does predict a permanent rise in the investment share of GDP. Consider the shock analyzed by Henry, in which capital-account liberalization induces a fall in the interest rate facing investors. This results in a higher capital-output ratio in the steady state,
to support a higher GDP per (effective) worker. Although the growth rate of capital returns to its original level (given by the sum of labor-force growth and technological progress), the investment-GDP ratio becomes permanently higher.\footnote{This point is obscured in Henry’s (2007) account because Henry focuses on the growth rate of the capital stock ($I/K$, assuming no depreciation), which is of course different from the investment rate ($I/Y$). In the neoclassical growth model, capital-account liberalization has long-run effects on the latter, but not the former. This can be seen by writing $I/Y = (I/K)(K/Y)$ and noting that in the post-liberalization steady state $I/K$ is constant while $K/Y$ is higher.} This is important because it gives us a clear strategy to address the Henry critique: check directly to see whether capital-account liberalization results in higher investment ratios. We are not aware of studies that have systematically demonstrated any such link. In fact, the evidence available either suggests no relationship between financial integration and investment...
rates (Schularick and Steger, 2007) or a negative relationship (Gourinchas and Jeanne, 2007). 8

Moreover, even if one accepts Henry’s contention that “the statistically significant portion of that impact occurs in the immediate-to-near aftermath of liberalization,” which he calculates as typically less than five years, it is not clear why we should not (and he does not) look at the available panel evidence on growth over five-year horizons (or less). Indeed, in the summary of the evidence presented in Table 4A in KPRW, there are 13 studies that have tested the effects of financial globalization over the shorter horizons that PBH favors: of the 13 studies, 9 are in the “mixed evidence” category, 1 each in the “no effect/mixed evidence” and “no effect” categories, and 2 in the “no effects category.” Moreover, the five-year panel estimations in PRS suggest a mildly negative (although statistically insignificant) effect of financial globalization on growth.

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8Schularick and Steger (2007) find a positive relationship between financial integration and investment rates during the earlier era of globalization (1880–1913), but no such relationship in the data for 1980–2002. They interpret this as being the result of much larger net capital flows under the classical gold standard.
With respect to Henry’s (2007) claim that financial globalization indicators used in the literature are afflicted by measurement error, we would point out that many of the variables in the cross-country literature mentioned above are also measured with error. But not all have suffered the same fate as the financial globalization indicator. Clearly, cross-country growth regressions have many problems, and this is not the place to discuss their relative merits. But the cross-country framework has generated reasonable evidence of economically and statistically significant effects with respect to human capital, macroeconomic stability, and exchange rate undervaluation, even though all of these areas are also subject to measurement error. Moreover, although it is true that de jure measures of financial globalization are likely to be prone to measurement error, this is less likely of the de facto measures based on actual inflows and outflows of capital (KPRW). However, even de facto measures do not evidence in favor of positive effects from financial globalization (see Figures 1 and 2).

Note: The relationship shown above is conditioned on size (measured as the log of population). Change in financial globalization is measured as the difference between the average level of financial globalization for 2000–04 (or for the 5 years closest to these dates) and the average level of financial globalization for 1985–89 (or for the 5 years closest to these dates). The sample of 110 countries excludes countries in the Organization for Economic Cooperation and Development and, for presentational reasons, nine developing countries that have very high changes in the levels of financial globalization. Including these countries, and not conditioning on size, does not affect the relationship shown above. Growth rate is from the Penn World Tables, version 6.2, and the financial globalization measure is from Lane and Milesi-Ferretti (2006).
Although the macro-based literature on financial globalization provides little support for the benign view, the evidence on opening domestic equity markets to foreign participation has been invoked as being more positive. The evidence takes the form of comparing the variable of interest—stock prices, cost of capital, investment, and growth—before and after equity market reforms within a country, which are dated by the first clear policy attempt at allowing foreign equity participation. This framework has the advantage of focusing on short-term effects and on within-country-over-time variation in the data, and of exploiting the potentially large shocks that could more easily allow some of the effects to be detected in the data. Here Henry provides a good summary of the evidence, as well as a discussion that highlights its limitations.

These limitations include the conflation of equity market reforms with a host of other ones (trade reforms, privatization, macrostabilization, and so on), many of which coincided with the former; the problem of reverse causality because reforms could have been easier to carry out precisely because of the favorable overall environment; the relatively small sample size due to the fact that equity market reforms were enacted in few emerging market countries (less than 20); the discrepancy between the relatively small impact on the cost of capital and the substantial impact on private investment and especially economic growth—of about 1 percent a year or more, which is inconsistent with the theoretical predictions from a simple growth model that caps the effect at no more than one-third of 1 percent.

Looking in the Wrong Places, Version II

KPRW (2006) accept the weakness of the macroevidence in favor of financial globalization, but they surmise that this is due to the fact that researchers have been looking in the wrong places. They argue that the effects of financial globalization operate not so much through the cost of capital and investment, but indirectly through macroeconomic discipline, and financial and institutional development. This is the “collateral-benefits” argument. Moreover, their claim is that there are threshold effects, with financial globalization more likely to have positive effects the higher the level of financial and institutional development and the greater the macroeconomic discipline. As KPRW acknowledge, this argument is largely speculative at this point, as the evidence is largely suggestive and preliminary.

The KPRW argument is not self-evident to us. One can just as easily come up with arguments where financial globalization weakens macroeconomic and financial discipline and undermines institutional development. For example, access to international finance often enables profligate governments to operate on soft budget constraints for longer periods of time than they would have been able to do otherwise. Turkey during the 1990s presents a case in point. Having opened up to financial globalization in the late 1980s, the Turkish government found a ready source of cheap finance (external borrowing intermediated through domestic
commercial banks) with which to sustain a growing fiscal imbalance. Without financial globalization, Turkey would have been forced to put its fiscal house in order a lot sooner than in 2001, and in a much less costly manner. Another counterargument, pertaining to institutional development, is that financial globalization enables important domestic stakeholders to favor “exit” over “voice.” Why demand and invest in domestic institutional reforms if you can shift your wealth abroad?

We make two further points about the KPRW, one empirical and the other normative. The empirical point is that if the collateral-benefits argument were valid, it would be relatively easy to pick it up in the data. As KPRW argue, their view of financial globalization implies that a conditional correlation framework will typically fail to detect the influence of financial globalization because the indirect effects will be soaked up or captured by the other channels through which financial globalization works. But then this implies that the right approach—or at least first step—is to look for evidence of an unconditional kind. If financial globalization provides important spillovers in terms of macroeconomic and other aspects of governance, then there should be an unconditional positive correlation between financial globalization and growth. But as Figures 1 and 2 clearly show, the evidence is not kind to this view. To brush this evidence aside, while holding on to the collateral-benefits view, would require that we assume growth prospects were far worse in those countries that chose to embrace financial globalization (for reasons unrelated to financial globalization and its effects).

The claim that the effects of financial globalization are gradual and felt over long periods and hence difficult to detect in the cross-country framework is also problematic. The same is also true of the effects of education (educational capability in the population takes a long time to accumulate), macroeconomic stability (a government’s reputation for macrostability is hard-earned and over long periods), or undervalued exchange rates (a sufficient period of time is required for resources to get allocated toward tradable sectors). But, as we mentioned above, in all these cases cross-country growth regressions have generated significant correlations. We doubt that there is anything specific to financial globalization that makes it inherently harder to detect its long-run effects.

The normative point is that even if we grant the collateral-benefits argument, the policy implications would be far from clear. The best way to achieve a particular policy objective—whether it is macroeconomic stability or institutional development—is to do so directly, not through reforms in other areas that may also incidentally serve that objective. In order to make an argument in favor of financial globalization on account of its collateral benefits, one needs not only to demonstrate the presence of those benefits, but also to demonstrate that financial globalization is a particularly effective way—among all possible reform strategies—of achieving those benefits. This in turn requires that financial globalization has sufficiently strong first-order effects on the channels in question and that its administrative and other costs be small (compared with other reforms in the feasible set). KPRW do not
present an argument along those lines, and we doubt that it could be constructed in sufficiently general terms to yield a presumption in favor of financial globalization.

The Check Is in the Mail

Mishkin’s (2006) book *The Next Great Globalization* presents an exceptionally well-written and clearly argued case in favor of the benefits of financial globalization (see also Mishkin, 2008, in this issue). We scrutinize it here because it is the best example of a certain type of argument in the literature: the gains from financial globalization are huge, and if we have not reaped them yet, it is only because we have not undertaken the complementary reforms yet; do those reforms, and there will be big benefits around the corner. We can call this the “check is in the mail” argument after Ricardo Hausmann (Hausmann, Rodríguez-Clare, and Rodrik, 2005).

Mishkin views a sound financial system as the *sine qua non* of economic growth. Without appropriate financial intermediation, savers cannot channel their resources to investors and capital does not get allocated efficiently. Hence the potential gains of financial globalization are too large to pass up. Mishkin does recognize that international financial integration is incomplete; that international financial markets work imperfectly; that capital flows can create all sorts of mischief when financial institutions take excessive risks; that capital-account liberalization can misfire when done badly; and that there are no one-size-fits-all policies when it comes to prudential regulation. In fact, much of his book is about financial globalization gone bad. He devotes considerable space to the financial crises in Mexico, South Korea, and Argentina, and to the difficulties of undertaking financial reform. Nonetheless, the appropriate reaction to these complications is not to delay liberalization or throw sand in the wheels of international finance, but to ensure that the requisite complementary reforms are also undertaken. Essentially Mishkin presents a more recent version of Fischer’s argument that we summarized in the introduction, updated in light of the intervening financial crises in East Asia and elsewhere.

The case for financial globalization as laid out in this book relies critically on three premises. First, improved finance is key to unleashing economic growth in developing economies. Second, integration with *international* financial markets (financial globalization) is especially effective and potent in making finance work for development. And third, the complementary reforms required to make financial globalization work are not just worth it (the first two premises), but they are doable in the relevant context of developing economies. We have our doubts on all three fronts.

With respect to the first premise, although finance may be the binding constraint in some settings, we are not sure that it represents the sole or most important constraint in many others, as we shall argue further below. Interestingly, in presenting his case Mishkin draws largely on a priori reasoning, rather than actual historical evidence. It would be hard to argue...
that improved finance was among the key drivers of economic growth in Britain or other early industrializers. It would be even harder to argue that the takeoff of countries like South Korea (in the early 1960s) or China (since the later 1970s) was due to financial liberalization and improved financial intermediation. Mishkin’s (2006, pp. 41–42) discussion on China acknowledges as much, pointing out that at some point China’s institutional shortcomings will indeed become a binding constraint—which is hard to disagree with. It is also true that the cross-country evidence shows a strong association between economic growth and measures of financial depth (Demirgüç-Kunt and Levine, 2008). But this literature has been less successful in sorting out the causality issues convincingly, nor has it demonstrated a direct link between policy reforms in the financial sector and overall growth (see also below).9

On the second premise, Mishkin (2006) argues that financial globalization could raise total factor productivity in countries in a number of very broad ways by imposing capital market discipline on governments, breaking up local monopolies, and broadly promoting a whole range of institutional improvements that KPRW refer to as the “collateral benefits” of financial globalization. For example, if foreign investors can take controlling stakes in domestic financial firms and bring in state-of-the-art financial intermediation practices, domestic financial efficiency would be improved across the board.

We would argue that international finance not only greatly extends and complicates the range of institutional reforms needed, but it also works differently with respect to a crucial variable: the real exchange rate. Improved domestic financial intermediation, which helps mobilize domestic savings for investment purposes, tends to depreciate the real exchange rate, as it closes the ex ante gap between desired investment and savings. That is good for investment in tradables and for economic growth. But improved access to foreign finance has the opposite effect on the real exchange rate—it appreciates it—with adverse effects on growth. Once again, we will return to this issue below, because it is critical to our understanding of how financial globalization works (or does not work).

Finally, we have doubts with respect to the theoretical consistency and practical feasibility of the regulatory and other reforms needed to support financial globalization in the kinds of environments faced by developing nations. Mishkin (2006) acknowledges that there are prerequisites—akin to the threshold effects suggested by KPRW—to reaping the benefits of financial globalization. These prerequisites include developing strong property rights, strengthening the legal system, reducing corruption, improving the quality of financial information, improving corporate

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9One of the more persuasive papers in this literature is by Rajan and Zingales (1998). But this paper establishes an effect on relative growth (finance-intensive sectors grow more rapidly than other sectors in countries where there is greater financial depth) and not on the average level of growth.
governance, and getting the government out of the business of directing credit! Mishkin’s and KPRW’s premise is that financial globalization will deliver these threshold benefits. But there is, of course, a tension, even contradiction, in implicitly calling for greater financial globalization to deliver the broader collateral benefits that are in turn prerequisites for financial globalization reform to be successful in the first place.

Leave aside this tension and consider the feasibility of implementing the supporting reforms. Even advanced economies have a hard time putting in place the kind of finely tuned and calibrated prudential regulations that would rein in excessive risk-taking by financial intermediaries that have been set free—a point that needs no belaboring in the current subprime mortgage crisis. The challenge for developing countries, with weak administrative capacities and low human capital, is many times larger. Meeting these prerequisites is of course the heart of the challenge of development. If poor countries could develop strong property rights, strengthen the legal system, reduce corruption, improve the quality of financial information, improve corporate governance, and get the government out of the business of directing credit, they would no longer be poor, and financial globalization would certainly be a clearly dispensable side-show. So, financial globalization is either ineffective or irrelevant.

Indeed, Mishkin’s book makes for very sobering reading on this score. During the 1990s, Argentine economic policy was driven by the single-minded goal of achieving complete financial globalization. The convertibility law, which pegged the peso to the dollar, was intended both as a restraint on monetary policy and as a strategy for reducing transaction costs in international finance. Most importantly, Argentina put in place “one of the most innovative bank regulation and supervisory regimes in the world” (Mishkin, 2006, p. 109), going further than advanced economies in a number of respects. Prior to 2000, some 20 troubled banks were closed. Entry of foreign banks was encouraged. Capital requirements were stricter than those in the Basel Accord. By 1998, the World Bank ranked Argentina second only to Singapore among emerging markets in terms of the quality of its regulatory environment (Mishkin, 2006, p. 112). None of this prevented the currency crisis and spectacular crash of 2001–02.

The lesson from the Argentine crisis? No matter how much you do, there is still more left to do—and then there is always bad luck. This bottom line lays bare the fatal flaw of those arguments that stress the importance of undertaking complementary reforms in support of financial globalization: in practice, the list turns out to be an open list, typically ending with “so on.” It does not leave much room for optimism with regard to the likelihood that countries will be able to complete their (as yet not fully specified) homework.

What Do the Microstudies Really Show?

In the face of disappointing and mixed evidence from macro studies, proponents of financial globalization have also increasingly turned to
exploring microeconomic data. One key advantage, of course, is degrees of freedom; another is the ability to exploit the variation within countries across sectors or firms, thereby controlling for shocks or reforms that are common to sectors and firms (see Desai, Foley, and Hines, 2004; Forbes, 2007a, 2007b).

The theory is that if “financial globalization enhances efficiency, then imposing capital controls should diminish efficiency in at least two important ways. First, capital controls may reduce the supply of capital, thereby raising the cost of borrowing and tightening the financing constraints faced by domestic firms. Second, by reducing the supply of capital, capital controls can decrease competition and market discipline, permitting firms that might not survive if their competitors had access to credit to flourish behind closed borders.” The key finding of Forbes (2007a) is that in Chile small publicly traded firms did better than larger firms before 1991 and after 1998, which is the case for developed countries that have liberal capital flows. However, during El Encaje, the period of capital account controls, this behavior is reversed with the investment growth of small firms dropping below that of large firms.

At first sight, these studies seem to suggest that capital controls must have adverse effects on overall investment through the cost-of-finance channel—and that is how they are often interpreted. Our skepticism about this firm-level evidence is both empirical and conceptual. First, we would note that the evidence is itself mixed, as Henry (2007) makes clear. Moreover, other microevidence on the impact of capital flows that use data on many more countries (and not just on one country as in the case of Forbes, 2007a, 2007b) goes the other way. For example, in PRS (2007), the question posed was whether greater capital flows do in fact relieve financing constraints. The evidence strongly suggested that in countries that were more open to various forms of capital flows, sectors that were more dependent on finance (defined as in Rajan and Zingales, 1998) actually grew slower in countries with less-than-average level of financial development. Thus, foreign financing seemed to worsen rather than improve access to finance.

But the more important limitation of the microapproach is that in some ways it cannot capture a fundamental aspect of capital flows. The microapproach attempts to measure the effect of a treatment (foreign financing) by comparing the treated group (say, small publicly traded firms in Forbes, 2007a) with a control group (large firms). Even if there were significant effects of the treatment, the experiment is not designed to capture a key externality associated with capital flows, namely that firms in traded good sectors (both actual and potential) will be worse off as a result of the treatment. In other words, what the cross-section (across firms) evidence cannot address is the counterfactual question of what would have happened to aggregate investment in the absence of the controls, especially once the induced real exchange rate changes are factored in. It is entirely possible for aggregate investment to be higher in the equilibrium with restricted
capital mobility (and therefore a more competitive real exchange rate) than in the equilibrium with full capital mobility, even though some firms are in effect facing higher costs of finance in the latter equilibrium. Our argument (see below) is that this is especially likely in investment-constrained economies.

Indeed, there is evidence to suggest (within a microapproach) that foreign capital has just this effect. In Rajan and Subramanian (2006), there is strong evidence that in countries that receive more aid, sectors that are more exportable grow slower. This finding is extended to private flows in PRS. If the key characteristic of developing countries is that they are investment-constrained, then checking for the effect of capital flows on investment opportunities is essential before assessing the overall impact of financial globalization.

II. Investment-Constrained vs. Savings-Constrained Economies

Poor economies are poor because there are many things that are wrong with them. Addressing underdevelopment by trying to fix all market and government failures simultaneously—in effect wishing that we can turn, say, Ethiopia, into the Netherlands through coordinated policy reforms across the board—is a fool’s errand. The lesson of economic history is that development happens differently: through a sequence of relatively small-scale changes or reforms that tackle the most binding constraints to growth over time (Rodrik 2005). The policy implication in turn is that successful reform depends on the correct diagnosis of the binding constraints of the moment. How this can be done is discussed in Hausmann, Rodrik, and Velasco (2007) using the heuristic device of a decision tree.

At the very top of the decision tree is the following question: is private investment in the economy held back primarily by lack of access to finance or by low perceived returns? In other words, is investment low despite the existence of many privately profitable projects because entrepreneurs cannot finance these projects at reasonable cost? Or is it low because there is plenty of credit but entrepreneurs do not see many profitable investment opportunities?

One might think that this would be a distinction that is hard to make in practice for real-world economies. But economies that suffer from these two sets of constraints exhibit distinct symptoms and different co-movements in macro variables. Regardless of whether an economy is savings- or investment-constrained, the private investment rate will be low. But in a savings-constrained economy, real interest rates will be high, borrowers will be chasing after lenders, and any (exogenous) increase in resource transfers from abroad will finance mainly investment rather than consumption. If you ask entrepreneurs what they would invest in if you gave them $50 million, you would hear in response a long list of projects. In economies constrained by investment demand, by contrast, real interest rates will be low, banks will be sitting on top of mountains of liquidity, and it will be
lenders who are running after borrowers. When you query entrepreneurs about investment ideas in such economies, your question will be met by a long silence, followed by the riposte: “do I have to invest the $50 million here?” Any resource windfall will be eaten up by consumption rather than investment.

To see that this is not just a theoretical possibility, consider the case of El Salvador. In 1994, El Salvador held its first democratic elections after a long period of civil var. At the time, investment stood at 18 percent (of GDP). Over the following decade (1994–2004), remittances from abroad increased by 4 percent of GDP, from 12 to 16 percent. Investment meanwhile fell to 16 percent. Where did the increase in remittances go? Into consumption, as savings fell one-for-one, from 16 to 12 percent of GDP. In view of the large increase in remittances, El Salvador clearly was not a savings-constrained economy. Indeed, banks were flush with liquidity and had to expand internationally in order to find clients to lend to. By all indications, the problem was that the perceived return to domestic investment was very low (Hausmann and Rodrik, 2005).

El Salvador is a straightforward case where it is easy to diagnose that the binding constraint lies with investment demand rather than savings. What about elsewhere? In principle, we would need an in-depth diagnostic exercise to determine the nature of the constraint in different national settings, but we offer here a simple test that we think is quite suggestive. As we indicated above, domestic investment should be highly sensitive to the availability of resource inflows only when an economy is savings-constrained. If we can isolate a reasonably exogenous determinant of such inflows, we could then check whether domestic investment moves alongside changes in this measure in the direction suggested by the savings constraint. As capital inflows to emerging markets respond to monetary conditions in the United States, and as those are plausibly exogenous to developing countries, we could use U.S. interest rates as our proxy for the strength of resource inflows to such countries. The higher U.S. interest rates, the smaller the volume of capital inflows; and if the savings constraint binds, domestic investment in emerging market economies ought to be correspondingly lower.

Table 1 shows the correlation between U.S. real interest rates and investment rates for a sample of emerging markets. Two sets of correlation are presented, one for the 1985–2006 period and the other for the 1990–2006 period, to allow readers to pick their own preferred date for the onset of financial globalization (1985 or 1990). But either way, the numbers tell a striking story. The vast majority of countries exhibit positive correlations, some of which are quite large, indicating that their investment rates tend to fall when U.S. interest rates are low and external liquidity is plentiful. This is the exact opposite of what one would expect to find in the presence of a

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10See for example Calvo, Lederman, and Reinhart (1996) on the role of U.S. interest rates as a determinant of capital flows to developing countries.
savings constraint.\textsuperscript{11} And interestingly, the only two countries for which the correlation is negative and sizable are China and India, countries that have shielded themselves from financial globalization.\textsuperscript{12} We will offer further interpretation for these findings below.

That countries might be predominantly constrained by investment demand, as suggested by these results, should not come as a big surprise to anyone who has followed the recent literature on economic growth and development. The heavy focus on institutions as a determinant of long-run development patterns (as in North, 1990; Acemoglu, Johnson, and

\begin{table}[h]
\centering
\caption{Correlation between U.S. Real Interest Rates and Domestic Investment (As a percent of GDP)}
\begin{tabular}{lcc}
\hline
\hline
Indonesia & 0.48 & 0.43 \\
Philippines & 0.60 & 0.22 \\
Thailand & 0.16 & 0.03 \\
Turkey & 0.64 & 0.26 \\
Argentina (1993--2006) & 0.23 & — \\
Bolivia & 0.67 & 0.28 \\
Brazil & 0.28 & 0.40 \\
Chile (2005) & 0.59 & 0.04 \\
Colombia & 0.10 & 0.03 \\
Mexico & 0.05 & −0.08 \\
Peru & 0.69 & 0.43 \\
Malaysia & 0.43 & 0.22 \\
South Korea & 0.33 & 0.00 \\
Uruguay & 0.58 & 0.10 \\
India (2005) & −0.56 & −0.67 \\
China & −0.57 & −0.66 \\
\hline
\end{tabular}
\end{table}

Sources: U.S. real interest rates are treasury bill rates adjusted by Consumer Price Index inflation (both from IMF, International Financial Statistics database). Investment figures come from the World Bank, World Development Indicators database.

\textsuperscript{11}These results do not seem to be due to changes in relative prices: the pattern of correlation we get is quite similar when we compute the investment effort by taking the ratio of investment to GDP at constant local currency units. Nor can we explain it easily through other channels by which U.S. real interest rates affect economic activity in emerging markets. When U.S. interest rates are high, the demand effect is negative, and that should exert a depressing effect on investment in developing countries.

\textsuperscript{12}In principle, the fact of being more closed to capital means that interest rate changes in the United States should have little impact on the availability of savings in these countries, leading to a weak or no correlation. One interpretation of the strong negative correlation would then be that it reflects the more traditional demand channel of higher interest rates in the United States reducing the demand for exports and hence leading to lower investment.
Robinson, 2001; Rodrik, Subramanian, and Trebbi, 2004) is grounded in the view that investment and entrepreneurship are severely hampered in low-income environments by the imperfect appropriability of the social returns to investment. From this perspective, poor property-rights protection, weak contract enforcement, and fear of expropriation are the root causes of underdevelopment. Each one of these keeps investment demand lower than what would have been the case under better institutions. The results of Caselli and Feyrer (2007) that the returns to capital are no higher in developing countries than developed ones are consistent with the view that the constraints are more likely on the investment than savings side. Of course, a poor contracting environment affects adversely also the functioning of credit markets and financial intermediation, but the literature on institutions has tended to emphasize the investment-demand channel rather than the finance/savings channel. One can interpret Acemoglu and Johnson (2005), who find that the protection of property rights is significantly more important to growth than the quality of contracting, as directly reinforcing this emphasis.

 Appropriability of investment returns is hampered not just by poor institutions, but also by market imperfections. Here too there is a long tradition in development economics that emphasizes the learning and other externalities associated with investments in nontraditional, tradable industries. In the presence of such externalities, investment in tradables is too low and the pace of structural transformation too slow. Recent papers have refined these views, linking the pace of economic growth to the capacity to produce new goods through “cost-discovery” (Hausmann and Rodrik, 2005; Hausmann and Klinger, 2007; Hausmann, Rodrik, and Velasco, 2007). In common with the institutionalist perspective, these models identify inadequate investment demand as the relevant binding constraint. But they focus on investment demand for a specific type of economic activity, namely nontraditional tradables, which are presumed to be particularly important in driving economic growth.

A Stylized Framework

We now sketch a very stylized framework to illustrate more clearly the difference between investment- and savings-constrained economies and to analyze the manner in which each of them responds to openness to capital inflows.

Consider a world in which agency problems render external finance more expensive than internal cash flow as a source of investment funds. In such a world, firms will not resort to external finance as long as they have adequate cash flow or internal funds in relation to their investment needs. Indeed, the bulk of investment in developing countries is self-financed, through retained earnings or the family savings of owners/partners (see Beck, Demirgüç-Kunt, and Maksimovic, forthcoming). In such a setting, firms will
be of two types:

- **Type I:** Profitability of investment projects is high relative to current cash flow, leaving firms in need of external finance for the undertaking of incremental investments.
- **Type II:** Profitability of investment projects is low relative to cash flow, leaving firms not in need of external finance.

We call economies in which firms are preponderantly of Type I as “savings-constrained” and economies characterized by Type II firms as “investment-constrained.” The key difference is that financial conditions, and in particular market interest rates, will not be a major determinant of the volume of aggregate investment in the second case. The investment demand schedule will be virtually vertical in investment-constrained economies.

Now consider opening an economy where interest rates are high relative to the rest of the world to capital flows. In a savings-constrained economy, capital-account liberalization works in the conventional fashion (Figure 3a): a reduction in domestic interest rates and the increase in the availability of external finance spurs domestic investment, as firms travel down their investment demand schedule. Consumers meanwhile face a change in intertemporal relative prices, inducing them to consume more and save less. The increase in domestic investment and reduction in savings are financed by capital inflows. The economy grows more rapidly as a consequence of the boost to investment. This is the standard textbook story on capital-account liberalization.

But in an investment-constrained economy, the investment demand schedule is vertical, so the effect of liberalization is purely to boost consumption (Figure 3b). Investment is unaffected because the equilibrium level of investment is determined primarily by the perceived returns that are presumed to be low. Foreign savings simply substitute for domestic savings, with no net effect on investment or growth (remember the El Salvador story).

But there is more to the story because capital inflows also appreciate the real exchange rate (see PRS and Figure 4 for evidence).

In theory, the impact of real exchange rate appreciation on aggregate investment is ambiguous. Appreciation is good news for producers of nontradables, especially if capital goods are mostly imported. But it is bad news for producers of tradables. But from a growth standpoint, the second effect clearly dominates. This is shown in Figure 3b, where the inflows of foreign savings shift the investment demand schedule for tradables leftwards because of the appreciation associated with the inflows. The new equilibrium (at C) is to the left of the old (autarky) one (at B), implying that investment declines consequential upon opening up to foreign capital.

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13 The investment demand schedule here is strictly speaking that for tradables because that is key for long-run growth.
There is strong and robust evidence indicating that real exchange rate overvaluation is bad for growth but undervaluation is good (see Johnson, Ostry, and Subramanian, 2007; Rodrik, 2007; and Figure 5).\textsuperscript{14}

This evidence indicates that the operative channel is the size of the traded sector, and of industry in particular. Real exchange rate appreciation reduces the relative profitability of industry and slows down its rate of growth. That this is associated with adverse effects on aggregate economic growth indicates that tradables are in some sense “special” in developing countries.

\textsuperscript{14}Johnson, Ostry, and Subramanian (2007) show that not only is the average level of overvaluation significantly greater for slow-growing sub-Saharan African countries relative to the sustained growth performers but that consecutive spells of overvaluation are longer in duration and the degree of overvaluation during these spells significantly greater.

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Rodrik (2007) presents two arguments for this. One is that tradables (and industry in particular) are much more demanding than nontradables of the institutional environment. A barber needs little more than a few implements and a stool to operate. But a garment firm depends on the reliable delivery of a whole range of public inputs and services (licenses, certification, transport links, public safety, enforcement of contracts with suppliers, and so on). Therefore, weak institutions impose a larger “tax” on tradables than they do on nontradables. The effect of appreciation is to exacerbate this distortion and—in a model of endogenous growth—reduce growth further. The second argument is that tradables are subject to a much greater extent to the learning and other externalities that prevail in low-income environments. This creates a similar second-best role for the real exchange rate. For either or both of these reasons, a real appreciation of the currency is bad news for those components of investment that matter most to economic growth (see Rodrik, 2007, for an explicit model). Note that this reasoning may also shed light on the pattern of correlations displayed in Table 1.

A final point bears emphasis. How does our distinction between savings- and investment-constrained economies fit with the macro literature on finance and growth, which has argued that financial depth and the quality of...
the financial system have important effects on economic growth (see Demirgüç-Kunt and Levine, 2008, for a recent review of this literature). One of the key benefits of financial development is to augment domestic savings (although one cannot dismiss the argument that financial development reduces savings by making it easier for households to borrow against future income; see Gourinchas and Jeanne, 2007). Does this evidence then not indicate that developing economies are, to use our terminology, predominantly savings-constrained rather than investment-constrained?

Leaving aside questions about causality and endogeneity, which we do not believe this literature has fully resolved, it is not entirely clear that these results can clearly distinguish between these two regimes. To see why, consider an improvement in financial intermediation, which would tend to raise domestic savings and to enhance access of firms to domestic finance. In investment-constrained economies, the direct effect of this on aggregate investment will be nil or small. But an increase in economy-wide savings does have an effect on the real exchange rate, which is the crucial intermediating variable in our account: it leads to a depreciation of the home currency in real terms. (A rise in domestic savings relative to investment reduces net capital

Figure 5. Economic Growth and Undervaluation of the Real Exchange Rate

Source: Based on Rodrik (2007).
Note: Partial relationship between a measure of undervaluation of the real exchange rate and growth rate of per capita GDP (controlling for initial income and country and period fixed effects). Data are for developing countries and cover a panel of 5-year averages from 1980–84 through 2000–04.
Therefore, improved financial intermediation will in fact boost domestic investment and growth—not necessarily through the cost-of-finance channel, but through the profitability channel.

This is shown in Figure 6 (building upon Figures 3a and 3b). An increase in savings (rightward shift of the supply of investable resources schedule) in an investment-constrained economy will not lead to an increase in investment, merely to a reduction in foreign savings (that is, the equilibrium will remain at B but inflows will be lower by the amount AC). However, the reduction in foreign savings will induce a real depreciation (shown as a rightward shift of the investment demand schedule) so that in the new equilibrium investment is greater (the equilibrium shifts from B to D) despite an unchanged cost of finance (which continues to be the world real interest rate).

The key point is that there is a crucial difference between domestic and foreign finance: improvements in the former depreciate the real exchange rate, but improvements in the latter appreciate it. Indeed, the evidence in PRS suggests that for any given level of investment, the more that is financed by domestic savings, the greater the long-run growth.

We have one final remark on the composition of capital flows. A lot of the literature makes a distinction between the effects of foreign direct investment (FDI) and other flows on growth, as well as between the effects of debt-related flows and others, on the likelihood and severity of financial crises. These distinctions are important and need to be made depending on context. On crises, which we have not explored in this paper, debt instruments may well be more risky than other flows. On growth, the distinction to make is between the real transaction and its financing counterpart. FDI is first and foremost a real transaction, involving the

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transfer of technology and skills, and we would agree that this is highly desirable for developing countries. But this real transfer may or may not be accompanied by a capital inflow. Our macroeconomic concern becomes relevant when, in fact, there is an inflow, especially a large one; in such an event, distinctions between types of inflows become less important as long as they have similar effects on the exchange rate.

III. Concluding Remarks
In the wake of the subprime financial crisis, the claims that recent financial engineering has generated large gains are sounding less plausible, and it is becoming clear that domestic finance will come under closer scrutiny. On the international front, even leaving financial crises aside, it seems increasingly clear that the benefits of financial globalization are hard to find. Financial globalization has not generated increased investment or higher growth in emerging markets. Countries that have grown most rapidly have been those that rely less on capital inflows. Financial globalization has not led to better smoothing of consumption or reduced volatility. If you want to make an evidence-based case for financial globalization today, you are forced to resort to fairly indirect, speculative, and, in our view, ultimately unpersuasive, arguments.

It is time for a new paradigm on financial globalization, and one that recognizes that more is not necessarily better. As long as the world economy remains politically divided among different sovereign and regulatory authorities, global finance is condemned to suffer from deformations far worse than those of domestic finance. Depending on context and country, the appropriate role of policy will be as often to stem the tide of capital inflows as to encourage them.15 Policymakers who view their challenges exclusively from the latter perspective will get it badly wrong.

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15The recent paper by Prasad and Rajan (2008) outlines a “pragmatic” approach to capital-account liberalization which recognizes that most countries are unlikely to be savings-constrained, but also that capital controls are ineffective in many settings. An imbalance in much of the commentary on these issues is the tendency to take the difficulties of administering capital controls as an immutable fact while evincing great enthusiasm for the complementary institutional reforms that will render capital flows safe.


Why We Shouldn’t Turn Our Backs on Financial Globalization

FREDERIC S. MISHKIN*

This essay argues that financial globalization can be a powerful force in promoting economic growth and the reduction of poverty in emerging market countries. Financial development enables the financial system to allocate capital to its most productive uses and is crucial to the success of an economy. Financial globalization encourages financial development by weakening the power of groups such as government and entrenched private special interests, which have much to lose from an efficient financial system, and by encouraging support for institutional reforms to make the financial system work better. On the other hand, financial globalization, if it is not managed properly, has a dark side and can lead to financial crises that cause much economic hardship. Getting financial globalization to work well is no easy task and requires policies that promote property rights and good-quality financial information that encourage effective prudential supervision, and that promote a stable macroeconomic environment. Although these policies need to be home-grown, international financial institutions like the International Monetary Fund and the World Bank can create incentives to promote these policies in emerging market countries. Citizens in advanced countries can also help by supporting the opening up of their markets to goods and services from poorer countries, and thereby encourage expansion of their export sectors, which creates increased support for financial development and less vulnerability to financial crises. [JEL F02, F21, F36, F4]


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Many prominent economists, financiers, politicians, and other seeming authorities regard globalization, and, in particular, financial globalization, as a potential danger to the world’s poor. For example, Joseph Stiglitz has been very critical of globalization in his best-selling book, *Globalization and Its Discontents* (2002), because he sees the opening up of financial markets in emerging market economies to foreign capital as leading to economic collapse. Even Jagdish Bhagwati, one of the most prominent economists defending globalization (with a book titled *In Defense of Globalization*, 2004), is highly skeptical of financial globalization, stating: “The claims of enormous benefits from free capital mobility are not persuasive.” George Soros (2002), one of the world’s most prominent financiers, opens his book, *On Globalization*, with an introductory chapter titled “The Deficiencies of Global Capitalism.”

Instead of a danger, globalization is an opportunity. The globalization of trade and information during the past century has lifted vast numbers of the world’s people out of extreme poverty. In emerging market countries, financial globalization can help transform the labors of disadvantaged people into greater wealth for them and create greater prosperity and stability for the world at large.

In this essay, I will argue that for emerging countries to reach the next stage of development and get rich, financial globalization must go much further than it already has. In particular, the financial systems in emerging economies must be more tightly integrated with those in the developed countries in order to partake in the benefits of financial flows, the lifeblood of the industrialized world.

Without financial globalization, developing countries will not be able to realize their potential, and their continued poverty will engender further instability and breakdowns in political relations with other nations. Although financial globalization is vital in promoting economic growth and reducing poverty, it is not a panacea. It can lead to economic crises that are destructive to a country and its citizens. Recent crises in emerging countries illustrate the costs and benefits of financial globalization and present some cautionary lessons for countries hoping to globalize successfully. Only by taking financial globalization seriously can we learn to reduce its destructive downside while promoting its remarkably productive upside.

Given how much globalization has progressed in recent years, it might seem that globalization, in this day and age, will move inevitably forward.

1 Dani Rodrik is another prominent academic economist who is very skeptical of financial globalization. For example, see Rodrik (1998) and the essay in this volume, Rodrik and Subramanian (2008).


3 An exception to popular books that criticize financial globalization is Wolf (2004). See also Calomiris (2002).
But this forward march is not inevitable. To show why, I would like to first put the current Age of Globalization into perspective by discussing the first Age of Globalization, from 1870 to 1914.

I. The First Age of Globalization: 1870–1914

The current Age of Globalization is actually the second great wave of globalization of international trade and capital flows. The first occurred from 1870 to 1914, when international trade grew at a 4 percent rate annually, rising from 10 percent of global output (GDP) in 1870 to over 20 percent in 1914, but international flows of capital grew annually at 4.8 percent and increased from 7 percent of GDP in 1870 to close to 20 percent in 1914. John Maynard Keynes captured the feel of this era with the following famous passage from his The Economic Consequences of the Peace, which was published in 1919:

> What an extraordinary episode in the economic progress of man that age was which came to an end in August 1914! The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole earth, in such quantity as he might see fit, and reasonably expect their delivery upon his doorstep; he could at the same moment and by the same means adventure his wealth in the natural resources and new enterprises of any quarter of the world, and share, without exertion or even trouble, in their prospective fruits and advantages; or he could decide to couple the security of his fortunes with the good faith of the townspeople of any substantial municipality in any continent that fancy or information might recommend.

This first wave of globalization was accompanied by unprecedented prosperity. Economic growth was high: from 1870 to 1914, world GDP per capita grew at an annual rate of 1.3 percent, whereas in the period from 1820 to 1870, it grew at a much smaller rate of 0.53 percent (Maddison, 2001, p. 94). But did this higher economic growth translate into a better deal for the poor of the world? If economic growth during this Age of Globalization had been associated with growing income inequality, then the poor might not have benefited. However, that is not what happened for countries involved in the globalization process. The income gap narrowed between wealthy and poor nations that actively participated in global markets (although there was little effect on income distribution within these countries) (Lindert and

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4There is some arbitrariness as to when to date the start of the first Age of Globalization. The rapid drop of transportation costs starting in the 1820s is often cited as starting the first Age (Baldwin and Martin, 1999). The 1870 date is the most commonly used starting date, however.

5The international trade data are from Taylor (2003), the GDP data are from Maddison (2001), and the capital flow data are from Obstfeld and Taylor (2003).

6Keynes (1920, pp. 11–12). Note that this citation is to the 1920 edition, even though the book was first published in 1919.
Williamson, 2003). Japan provides an extraordinary example. Starting in the 17th century, Japan completely cut itself off from the rest of the world, allowing only one Dutch ship per year to land in Nagasaki to engage in a small amount of trading. When Commodore Matthew Perry and his black ships arrived on Japanese shores in 1853 to force Japan to trade with the United States, Japan began to open up to the rest of the world. The resulting shakeup of Japanese society eventually led to the Meiji restoration in 1868, and Japan became fully engaged in the global economic system. In 1870, at the start of this period, Japan was an underdeveloped country with an average income per person that was less than a quarter of that in the United Kingdom. From 1870 to 1913, Japan was able to increase its per capita income at a rate of 1.5 percent annually in comparison with a growth rate of 1.0 percent for the United Kingdom, thereby narrowing the gap. Argentina’s growth experience during this period was even more extraordinary. From 1870, when its per capita income was a little over 40 percent of that in the United Kingdom, it grew at a 2.5 percent rate through 1913, raising its per capita income to over 75 percent of that in the United Kingdom. The Japanese and Argentine examples illustrate how poverty was reduced in the countries that were active in the globalization process.

However, not all countries engaged in the globalization process. Globalizers did well, but as critics of globalization point out, some countries were unable to take advantage of globalization. For example, countries like India and China actually deindustrialized during this period (Braudel, 1984; Bairoch, 1993; Baldwin and Martin, 1999), with China’s per capita income falling from 24 percent of the United Kingdom’s in 1870 to 13 percent in 1914 (Maddison, 2001). However, this increase in income inequality occurred not as the result of any adverse effects of globalization but because nonglobalizers did so badly relative to globalizers. Among countries that were able to take advantage of the globalization process, income inequality actually fell because globalizers that were initially very poor did so well relative to globalizers that started out rich. Increasing income inequality between countries during that period was clearly not the fault of globalization, but it was, rather, a consequence of the inability or unwillingness of some countries to enter the global economic system.

II. The End of the First Age of Globalization: The Great Reversal, 1914–39

The first Age of Globalization came to an end with the advent of World War I. The war caused a disruption of capital flows and international trade between nations that continued even after the war ended. From 1914 to 1929, the average level of international trade fell from 22 percent of world GDP to 16 percent, capital flows dried up, falling from close to 20 to 8 percent of world GDP (Obstfeld and Taylor, 2003), and worse was yet to come. In 1929, the Great Depression started in the United States, and it quickly spread to the rest of the world. The economic devastation was immense. Unemployment reached a peak of 25 percent in the United States, and the
income of the average person fell by 30 percent by 1933 and was only slightly above 1929 levels by 1939. However, the consequences of the Depression were far worse elsewhere. The economic collapse in Germany and Italy helped bring the fascists and Nazis into power, after which the world entered the worst nightmare imaginable: a Second World War. From 1939 to 1945, over 50 million people died, over half of whom were innocent civilians, and the inhumanity of the Holocaust resulted in the slaughter of 6 million Jews and 5 million people of other religious and ethnic backgrounds in concentration camps (Lukas, 1986).

The collapse of this first Age of Globalization, which has been given the name the “Great Reversal” by Rajan and Zingales (2003a), provides two important lessons: first, globalization is not an immutable economic force—it can be reversed; and second, the economic and political nightmares of the interwar period should warn us that a backlash against globalization can be disastrous.

### III. The Second Age of Globalization: 1960–Present

The aftermath of World War II has been an extraordinary period. Even before the war ended, the soon-to-be-victorious allies saw that the mistakes of the interwar period should not be repeated. They met in Bretton Woods, New Hampshire, in 1944 to develop a new international system to promote world trade and prosperity after the war. They created two new international financial institutions, both of which were headquartered in Washington, just across the street from each other: the International Monetary Fund (IMF), whose job was to oversee the international financial system and ensure that it would facilitate trade among countries, and the International Bank for Reconstruction and Development, which became known as the World Bank, whose job was to provide long-term loans to war-torn Europe and to developing countries to aid in their economic development. An additional organization arising out of the Bretton Woods meeting, but not established until 1947, was the General Agreement on Tariffs and Trade, headquartered in Geneva; it was created to regulate the rules for the conduct of trade between countries. This organization evolved into the World Trade Organization.

These new institutions were created to promote globalization, and in this undertaking they were extremely successful. Once the world economy returned to normal by the end of the 1950s, globalization advanced at a rapid pace. Since 1973, world trade grew at pace of 11 percent annually, rising from just over 22 percent of world GDP to 42 percent currently (Estevadeordal, Frantz, and Taylor, 2003). Since 1975, the flows of capital between countries have also exploded, rising from 5 to 32 percent of world GDP in 2005 (World Bank, 2007). We are clearly in the second wave of globalization.

Have the participants in this new Age of Globalization had the good economic outcomes and a reduction of poverty associated with the previous
Age of Globalization? Data suggest that they have. World economic growth from 1960 to today has been at the highest pace in the history of the world: world income per person has been rising at a 2 percent annual rate. Yet, critics of globalization point out that world income inequality has grown, and so they argue that globalization has not been good for the poor.

But these critics have not looked carefully enough at the data. Income inequality across countries has indeed risen. However, this is only because, just as occurred before World War I, those countries that have been able to be active in global markets have grown very rapidly, but those that have not, such as most countries in sub-Saharan Africa, have seen their position relative to globalizers fall and also have experienced absolute drops in per capita income. Again, the globalizers have gained, and the nonglobalizers have lost. In 1960, the income of the average person in Somalia was 10 percent higher than his South Korean counterpart. Over the next 45 years, Somalians experienced a drop in their income so that now Somalia’s per capita income is less than one-tenth that of South Korea’s: Somalia’s income decreased by 33 percent while South Korea’s increased by more than 1,000 percent (Maddison, 2001).

What we have seen in this new Age of Globalization is a convergence of income per capita in countries that have been able to take advantage of globalization by becoming export-oriented; among this set of countries, income inequality has decreased; among the nonglobalizers, it has not (Dollar, 2003). Furthermore, there is little evidence that globalization has increased income inequality within countries (Dollar and Kraay, 2002; Winters, McCulloch, and McKay, 2004).\textsuperscript{7} Thus, we are led to the same conclusion that we reached for the pre–World War I era: this new Age of Globalization has seen a reduction of poverty in countries that have been willing and able to globalize.

Another way of looking at the data also suggests that globalization has been associated with reductions in poverty. If, instead of looking at inequality across countries, where all countries are weighted equally and inequality has risen, we look at inequality across the world population, where each person is weighted equally, we get a very different picture. The great success stories in recent years have been in Asia, which includes the two most populous countries in the world, India and China. Both came to globalization late and have sometimes used unorthodox methods to develop their economies, but their embrace of globalization has had high payoffs. Rapid growth in China and India has sharply reduced the percentage of people living in extreme poverty. This reduction translates to

\textsuperscript{7}However, wage inequality may have increased because there has been a fall in the wages of unskilled workers relative to skilled workers throughout the world, including in developing countries that have actively entered global markets. The leading explanation for this phenomenon is that trade-induced technical change has been biased against wages of unskilled labor. Thus, the jury is still out on whether trade liberalization has increased income inequality within developing countries.
over 500 million people, nearly 8 percent of the world’s population (World Bank, 2007). Thus, it becomes obvious why research that weights every human being equally in computing inequality finds that income inequality has actually fallen, not risen, in recent years (Pritchett, 1997; Bourguignon and Morrisson, 2002; Sala-i-Martin, 2002; Lindert and Williamson, 2003). The great success story of India and China in reducing poverty is not just reflected in economic data, but also in life expectancy. In 1960, life expectancy in India and China was 44 and 36 years, respectively; by 2005, life expectancy had risen to 64 in India and 72 in China (World Bank, 2007).

Of course, these success stories do not minimize the terrible plight of the parts of the world such as sub-Saharan Africa, poverty has remained stubbornly high, but life expectancy has actually fallen to disastrously low levels in recent years because of the AIDS epidemic. Poverty, defined as income of less than $2 per day, was 75 percent of the population in 1981 and 72 percent in 2004, but life expectancy has dropped from 49 years in 1990 to 47 years in 2005 (World Bank, 2007). The plight of these countries, however, is due not to globalization but rather, to the failure to globalize. This has been put very nicely by economists Peter Lindert and Jeffrey Williamson (2003): “As far as we can tell, there are no anti-global victories to report for the postwar Third World.”

A word of caution: the association of the reduction in poverty with countries that have globalized could be the result of reverse causality—that is, countries that had the capability of growing fast were also the ones that could take advantage of globalization. Other evidence, however, suggests that causality is likely to run from globalization to high economic growth and reductions in poverty.8

IV. Another Great Reversal?

The second Age of Globalization, which we are in now, as we have seen, has many similarities to the first Age, which occurred in the late 19th and early 20th centuries. Could there be another Great Reversal, in which globalization retreats again and the world suffers great political, social, and economic upheaval and destruction? Could we experience déjà vu all over again?9

Unfortunately, the answer is yes. The backlash against globalization in Latin America is very strong. Many of the residents in Latin America have turned against globalization because they have been disappointed in the amount of economic growth since 1990, when they opened up their economies, particularly to foreign capital flows. Some countries (such as Mexico, Ecuador, and Argentina) have also experienced recent disastrous crises that have led their countries into sharp recessions. In the immediate aftermath of its economic crisis in 2001–02, for example, Argentina

8See the survey in Chapter 3 of Mishkin (2006).
9This wonderful phrase was coined by the great American philosopher, Yogi Berra, a catcher for the New York Yankees.
experienced an unemployment rate of nearly 20 percent and a per capita income that was 22 percent below the level it had reached in 1998 (World Bank, 2007).

Similarly, the public in many of the transition countries, former communist countries that are a subcategory of emerging market economies, also have doubts about the benefits of globalization. This is less of a problem for the transition countries in eastern Europe that are entering or are likely to enter the European Union soon; by doing so, they will automatically become a part of a globalized economy. However, there is a danger that Russia and many of the other countries that were part of the former Soviet Union may turn inward and reject globalization and economic freedom in general.

The Asian public seems to be far more supportive of globalization because they have experienced rapid growth, but the backlash against globalization has reached them too. It would be premature to assume that they will continue down the globalization path.

The possibility of another Great Reversal is very real. It happened before, and it could happen again. I will argue below that turning back on globalization would be disastrous for both emerging market and rich countries and that globalization must go much further in the financial direction and be embraced by more developing countries so that they can reach their full potential and get rich.

V. Financial Globalization in Emerging Market Economies

Although economic globalization has come a long way in recent years, in one particular dimension, it is very far from complete. As documented by Obstfeld and Taylor (2004), financial globalization is primarily confined to rich countries. Despite the huge increase in international capital flows in recent years, they primarily flow North-North—that is, from rich countries to other rich countries, which are mostly in the northern hemisphere, rather than from North to South, from rich to poor countries (Obstfeld and Taylor, 2004; Alfaro, Kalemli-Ozcan, and Volosovych, 2008). Most international capital flows are exchanges of assets between rich countries and are undertaken primarily for diversification. The flows enable people in rich countries to put all their eggs in different baskets by holding assets from other rich countries. International capital is generally not flowing to poor countries to enhance their development in magnitudes that we might expect.

As Lucas (1990) has pointed out, this feature of international capital flows is a paradox: Why doesn’t capital flow from rich to poor countries? We know that labor is incredibly cheap in poor countries, and so we might think that capital would be especially productive there. Just think of how hugely profitable a factory might be in a poor country, where wages are one-tenth of what they are in the United States. Capital should, therefore, have extremely high returns in poor countries, and we should expect massive flows of capital.
from rich countries (where the returns on capital should be far lower) to poor
countries (where it should be higher). Although there has been a big increase
in the amount of capital moving to emerging market countries in recent
years, capital primarily still flows from one rich country to another, where the
returns on capital are similar.\textsuperscript{10}

The amount of private capital flowing to emerging market countries,
which increased dramatically in the 1990s and is now over $300 billion at an
annual rate, may sound like a lot, but it is only one-fifth of total international
capital flows from private sources (Institute for International Finance, 2005).
When governments are added into the picture, recent developments are even
more surprising. Emerging market countries have actually been sending
capital to rich countries. The United States is currently running enormous
trade and current account deficits of over $700 billion because Americans are
buying more goods and services from abroad than they are selling overseas.
These deficits are being financed by loans from foreigners, with emerging
market countries providing the United States with about $200 billion per
year. The Chinese government, for example, has accumulated over $1 trillion
in foreign assets and is now one of the largest holders of U.S. Treasury
securities in the world.

Also remarkable is that capital flows from North to South relative to
total capital are far smaller than they were in the first Age of Globalization in
the late 19th and early 20th centuries. By 1914, around half of the stock of
capital in Argentina was supplied by rich foreign countries, particularly
Great Britain (Taylor, 1992; Obstfeld and Taylor, 2004.) Today, less than 6
percent of Argentine capital has been supplied by foreigners. This change in
the pattern of capital flows has not been confined to Argentina.\textsuperscript{11} In 1913,
over 25 percent of the world stock of foreign capital went to countries that
had a per capita income of less than one-fifth of the United States; by 1997,
this figure had fallen to around 5 percent (Obstfeld and Taylor, 2004,
Figure 7.5, p. 242).

As these figures show, financial globalization is far from complete. Will
financial systems in emerging market economies become more integrated
with the rest of the world? Will the backlash against globalization mean that
we will turn our back on financial globalization? If financial globalization
spreads to developing countries, will it be beneficial?

\section*{VI. How Financial Globalization Can Be Beneficial}

The benefits of globalization of trade in goods and services are not
controversial among economists. Polls of economists indicate that one of

\textsuperscript{10}As we will see, the main reason why capital does not flow from rich to poor countries is
because of the weaker institutional environment in poor countries. Empirical evidence
supports this view—see Alfaro, Kalemli-Ozcan, and Volosovych (2007) and Prasad, Rajan,
and Subramanian (2007).

\textsuperscript{11}The figure is the percent of gross capital formation supplied by foreigners for 2002 from
World Bank (2007).
few things they do agree on is that the globalization of international trade, in
which markets are opened to flows of foreign goods and service, is
desirable.12 Financial globalization, opening up to flows of foreign capital,
however, is highly controversial, even among economists.

Financial Development and Economic Growth
To understand the possible benefits of financial globalization, it is first
important to recognize that getting the financial system to work well is
critical to the success of an economy.

When you ask average laymen what it will take for poor countries to get
rich, they often will answer that these countries must make sure their citizens
get a good education and are healthy, and so it is not surprising that so much
charitable aid goes into improving health and education. Health and
education are important to economic growth, but increasing public spending
on health and education does not always produce higher growth.13 I will
argue that for poor countries to get rich, there must be incentives for capital
(including capital devoted to health and education) to be supplied to where it
will do the most good—to its most productive uses. This can only happen
with a well-functioning financial system.

To understand why such a system is needed, we need to recognize that the
financial system is like the brain of the economy: it is a coordinating
mechanism that allocates capital to building factories, houses, and roads. If
capital goes to the wrong uses or does not flow at all, the economy will
operate inefficiently, and economic growth will be low. No work ethic can
compensate for a misallocation of capital. By itself, working hard will not
make a country rich because hard-working laborers will not be productive
unless they work with the right amount and kinds of capital. Brain is as
important as brawn, and similarly an efficient financial system is as important
as hard work to an economy’s success. Indeed, workers in poor countries
often work longer hours than their counterparts in rich countries, and yet
they remain poor. When they emigrate to countries with a superior
financial system, they often become very rich. For example, look at how
successful immigrants from India have been in the United States: their
average income now makes them one of the richest groups in the United
States.14

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12For example, in Kearl and others (1979), 97 percent of economists agreed (generally or
with some provisions) with the following statement: “Tariffs and import quotas reduce general
economic welfare.”

13For research showing that health is extremely important to economic growth, see Weil
(2005). However, see Easterly (2001) for a skeptical view that spending on health and
education promote economic growth. Dollar and Kraay (2002) also find that public spending
on health and education are not positively associated with declines in poverty.

14U.S. Census Bureau, 2000 Census discussed in Project IMPACT (www.project-
impact.org).
The evidence that financial development and economic growth are linked is quite strong.\textsuperscript{15} A pioneering study by King and Levine (1993) using a sample of 80 countries found that the greater the financial development back in 1960, as represented by a larger financial sector (known as \textit{financial deepening}),\textsuperscript{16} the larger the economic growth over the subsequent 30 years.\textsuperscript{17} Later studies using more sophisticated techniques have confirmed this finding and indicate that a doubling of the size of private credit in an average less-developed country is associated with a 2 percentage point annual increase in economic growth (for example, Levine, Loayza, and Beck, 2000). Furthermore, industries and firms that are more dependent on external sources of funds, and so would benefit more from financial deepening, are found to grow faster in countries that are more financially developed (Demirgüç-Kunt and Maksimovich, 1998; Rajan and Zingales, 1998). Similarly, more new firms are created in countries with developed financial systems.\textsuperscript{18} The evidence also suggests that the way financial development raises growth is more through improvements in the allocation of capital that produces higher total factor productivity than through higher investment (Beck, Levine, and Loayza, 2000; Levine, 2005b). As stated by Honohan (2004, p. 2), “The causal link between finance and growth is one of the most striking empirical macroeconomic relationships uncovered in the last decade.”\textsuperscript{19}

Although financial deepening improves an economy’s rate of economic growth, it is possible that poverty will remain the same or increase because the resulting growth could lead to greater income inequality. However, this is

\textsuperscript{15}An excellent survey of the extensive empirical evidence on this topic can be found in World Bank (2001). See also Levine (2005a) and Schmukler (2004). For a recent paper that also finds that financial deepening is crucial to economic growth for developing countries, see Aghion, Howitt, and Mayer-Foulkes (2005).

\textsuperscript{16}In some research, financial deepening is characterized as an expansion of the financial sector. Here, I am using the term financial deepening more generally to refer to financial development which includes not only an expansion in the financial sector but an improvement in its institutions so that it can allocate capital to its more productive uses more efficiently. Abiad, Oomes, and Ueda (2005) find that financial liberalization, which improves the institutional framework of the financial sector, does lead to higher economic growth and is far more important to economic growth than just expansion of the financial sector.

\textsuperscript{17}One concern with this result is that high economic growth before 1960 could have led to high financial development and to further high economic growth, so that causality might not run from financial development to growth. To rule this out, later papers have used instrumental variables techniques in which the origin of the legal system (English, French, German, or Scandinavian), which was determined typically hundreds of years ago, well before recent growth, is used as an instrument for financial development at the beginning of the period. The result is the same: economic growth is positively related to financial development. For example, see Levine, Loayza, and Beck (2000); Levine and Zervos (1998a, b); and Beck, Levine, and Loayza (2000).

\textsuperscript{18}And this is particularly true in industries that depend more on external finance. See Rajan and Zingales (1998).

\textsuperscript{19}Case studies such as Jeong and Townsend (2007) also support the importance of financial deepening to economic growth.
not what research has found. In countries with better financial development, the income of the poorest fifth of the population actually grows faster than average GDP per capita (Hongyi, Squire, and Zou, 1998; Beck, Demirgüç-Kunt, and Levine, 2004; Honohan, 2004), indicating that financial development is associated with reductions in poverty and even with reductions in the use of child labor (Dehejia and Gatti, 2005). This finding is exactly what economic theory suggests because financial development increases the access of the poor to credit, and they have the disadvantage of having less access to credit than the rich (Banerjee and Newman, 1993; Galor and Zeira, 1993; Aghion and Bolton, 1997).

Getting Financial Development to Happen

If getting the financial system to allocate capital to productive uses is needed to promote economic growth and development, how do you get it to happen? The short answer is: develop good institutions that enable the financial system to allocate capital efficiently. But what are these institutions?

The most basic set of growth-promoting institutions are ones that promote property rights (such as the rule of law, constraints on government expropriation, and absence of corruption). If you live in a country where it is easy for others to take your property away, either by the gun or by a corrupt government, you would be crazy to make investments there. Without these investments, workers in your country would be unable to earn high wages because they would not have sufficient capital to work with in the form of machines, buildings, and computers to make them highly productive. Poverty will be severe.

Even if investments are made, if they go to the wrong place, they will be inefficient. Thus, the second, but related, institutions are ones that make sure that those with the best investment opportunities are the ones that can actually get external funds to make investments—and this is the crucial role of the financial system. This second set of institutions are those that promote an efficient financial system (financial regulation to encourage transparency, good corporate governance, prudential supervision to limit excessive risk taking, and good enforcement of financial contracts).

The problem for many poor countries is not that they cannot get money for investment but that the investment is counterproductive. In the 1970s, for example, the World Bank provided lending to finance a huge shoe factory in Tanzania that was to produce 4 million shoes, three-quarters of which were to be exported to Europe. However, the factory, with its aluminum walls and no ventilation system, was ill-suited for Tanzania’s climate, with the result that it never produced more than 4 percent of its installed capacity and never exported a single shoe (Easterly, 2001).

20These growth-promoting institutions are discussed more extensively in Chapter 2 of Mishkin (2006).
When we think of why nations are poor, the answer is that they are disadvantaged: they have weak institutions of the type mentioned above and are “institutionally challenged.” We can classify poor countries into two types. The poorest are those that do not even have basic property rights, either because they are subject to civil strife or because they are run by rapacious governments. Many countries in sub-Saharan Africa, whose average income per person is less than one-twentieth of what the average American gets, immediately come to mind (World Bank, 2007). The second group of poor countries has basic property rights and is far better off and are far less poor. These emerging market countries are opening up their markets to the flows of goods, services, and capital from other nations, but they do not have institutions that support a well-functioning financial system.

Who Impedes Financial Development?

If financial development is so beneficial to poor countries, why doesn’t every country have its financial house in order and jump on the path to growth and prosperity? The answer is that there are powerful forces that work to keep the financial system underdeveloped, a condition referred to as financial repression.

Developing good institutions to support an efficient financial system is hard: it takes much time and effort for a country to plan, establish, experiment, evolve, and adapt its institutions to its historical, cultural, and political circumstances. It takes a long time for any nation to achieve strong property rights and an effective financial system; indeed, this took hundreds of years in the advanced countries of the West.21

Although this answer provides part of the story, it is not very satisfactory. Because successful legal and regulatory institutions have already been developed in the advanced countries, why can’t a country just borrow them? Indeed, this was what the Japanese did after the Meiji Restoration in the late 19th century, and it has also been a feature of the development path in countries in East Asia such as Taiwan, Singapore, and Hong Kong. Technical assistance in establishing these institutions is also available from the developed countries and from institutions like the World Bank and the IMF.

One explanation is that the benefits of financial development are dispersed over a wide range of the population, whereas the costs are focused on narrow groups. These groups, which are quite powerful, will suffer losses from financial development and thus have incentives to try to impede its progress.

One such group is the government, often the primary source of financial repression. Although strong property rights are a crucial element in financial

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development, they severely constrain a government’s ability to expropriate property and ideas whenever it wants to profit from them. Rapacious governments whose rulers treat their countries as personal fiefdoms are not uncommon: from Saddam Hussein’s Iraq, to Robert Mugabe’s Zimbabwe, to Suharto’s Indonesia. Government officials, even in more democratic governments, often use the power of the state to get rich. Not surprisingly, then, many governments pay lip service to property rights but do not encourage a rule of law to protect them.

Although state ownership of financial institutions results in a less-efficient financial system, it enables politicians and government officials to channel funds, either to their families, to their cronies, or to business interests that support their political campaigns. They, therefore, have strong incentives to establish and support state-owned banks. Politicians often couch their support for state-owned banks by saying that these institutions will direct funds to where they can do the most public good, but the reality is that they know that state-owned financial institutions enhance both their wealth and their power.

As has been emphasized in Rajan and Zingales (2003b), the second group that often supports financial repression is “incumbents,” entrenched special interests who are threatened by free markets.^{22,23} Large, established business firms often finance new investment projects out of their previous earnings and so do not need funds from external sources in the financial markets. Such firms have less to gain from financial liberalization and development and frequently have much to lose. Increased transparency through better accounting standards and disclosure requirements is required to foster financial development because it reduces asymmetric information problems. However, increased transparency may make it harder for incumbent businesses to exploit their connections and conduct business as usual, and so they will often oppose it. Incumbents also are likely to oppose improvements of the legal system that would promote financial development when these improvements would weaken their ability to sway the legal system to their own interests. If judges can be easily influenced, incumbents will be able to get favorable rulings that increase their power and wealth. Financial development also allows capital to flow to entrepreneurs

^{22}The history of Latin America illustrates many examples of incumbents encouragement of financial repression. For example, see Haber (1997, 2007).

^{23}The Rajan and Zingales (2003b) view is backed up by a substantial body of research. The survey by Morck, Wolfenzon, and Yeung (2005) summarizes this literature as follows: “In many countries, large pyramidal groups effectively entrust the corporate governance of substantial parts of their corporate sectors to a few extremely wealthy families. This can potentially magnify the poor governance of a few family patriarchs into inefficient economy-wide capital allocation, reduced investment in innovation, and retarded economic growth. Moreover, to preserve the status quo, these elite families sometimes appear to influence public policies so as to curtail private property rights development, capital market development and economic openness. We dub this situation economic entrenchment. We argue that much existing work points to economic entrenchment as a significant issue in many countries.”
who might be able to compete with the incumbents. Incumbents, thus, are often perfectly happy to see the financial system remain repressed because this subjects them to less competition.

Incumbents also are likely to encourage barriers to setting up legal businesses. These barriers can be prohibitive for all but the very rich in most less-developed countries and can discourage and prevent new businesses from becoming established and perhaps growing to a large scale. Any new and large-scale businesses would eat into the incumbents’ monopoly profits. The so-called “license-Raj” in India, which existed until the reforms of Rajiv Ghandi started to dismantle these regulations in the 1980s, is one notorious example.24 New businesses had to obtain hard-to-get licenses before opening their doors, and incumbents frequently spent more time lobbying government officials to prevent entrepreneurs from setting up competing business than they spent on making their own businesses more productive.

Incumbent financial institutions have incentives to repress the financial system.25 Through their connections, they may have the ability to collect information not available to the public that enables them to screen good from bad credit risks. Increasing transparency, which reduces asymmetric information and is thus necessary to the development of the financial system, may not be in their interest because their best customers may then be able to bypass the incumbents’ services and go to other financial intermediaries or instead use direct finance by issuing their own securities. Incumbent financial institutions also have incentives to discourage development of the legal system to enforce financial contracts fairly because they already have methods of enforcement through their influence over corrupt judges or by outright physical threats. Improving the legal system then would not help them very much but instead would enable competitors to enter the financial business and take away their customers.

Incumbent financial institutions often discourage effective prudential regulation and supervision over their activities. A government safety net, which insulates these firms from market discipline, enables them to take on risk, with most of the cost borne by taxpayers if their loans go sour. Thus, if financial institutions are poorly supervised, they can exploit the financial safety net to pursue risky strategies, such as rapidly expanding high-risk lending, on which they would make a lot of money if they bet right and lose only a small amount if they bet wrong. Rigorous prudential regulation and

24These restrictive regulations were actually not fully eliminated until the 1990s.
25Rajan and Zingales (2003b) provide a graphic example in which incumbent financial institutions in Japan were able to repress the financial system with government help. In 1933, the Japanese banks were able to get the approval of the Ministry of Finance to set up a Bond Committee that decided which firms could issue corporate bonds and on what terms. As a result the Japanese banks were able to limit the issuance of corporate bonds to small amounts. With the opening up of the global financial markets in the late 1970s, this system broke down, and corporate bond issuance skyrocketed.
supervision would stop incumbent financial institutions from doing this, so
naturally they would oppose such provisions. Indeed, opposition by financial
institutions to rigorous prudential regulation and supervision occurs in rich
as well as poor countries, but because poor countries have less transparency,
this opposition is far more successful there, with the result that the quality of
prudential regulation and supervision is typically very low.

How Financial Globalization Encourages Financial Development

How can the obstacles to financial development posed by politicians and
incumbents that support financial repression be overcome? Globalization,
particularly financial globalization, can encourage financial development
indirectly, by decreasing the incentives for financial repression outlined
above.

Financial globalization, defined as opening up to foreign capital and
foreign financial institutions, is a particularly strong force for institutional
reform that promotes financial development as long as it is extensive enough
so that the entry of foreign capital and foreign institutions increase
competition in domestic financial markets. When domestic businesses can
borrow from abroad or from foreign financial institutions that establish
affiliates in the less-developed country, domestic financial institutions would
start to lose many of their old customers. In order for the domestic financial
institutions to stay in business, they would have to seek out new customers
and lend to them profitably. And to accomplish this, they would need to have
the information to screen out good credit risks from bad ones and monitor
borrowers to make sure they do not take on excessive risk. Domestic financial
institutions would thus find that they need to encourage institutional reforms,
such as better accounting standards and disclosure requirements, that would
make it easier for them to acquire the information that they would need
to make profitable loans. Domestic financial institutions would see the
need to improve the legal system so that they could enforce restrictive
covenants or be able to take title to collateral if a borrower defaults. With
globalization, domestic financial institutions would support legal reform
because it would not only help them make profits but would also strengthen
property rights that encourage investment directly.

When foreign financial institutions enter a country, domestic financial
institutions have to become more efficient in order to survive, and this is
exactly what happens (for example, Levine, 1996; Barajas, Steiner, and
Salazar, 2000; Claessens and Jansen, 2000; Claessens, Demirgüç-Kunt, and
Huizinga, 2000 and 2001; Clarke and others, 2000; and Unite and Sullivan,
2003). Foreign financial institutions bring to domestic financial markets best
practices—that is, expertise that has been learned from their past
experience—and are likely to promote technology transfer to domestic
financial institutions (World Bank, 2001; Goldberg, 2007). Entry of foreign
financial institutions would help to improve domestic prudential supervision
because supervisors would then be able to see what risk-management
practices are successfully used in foreign institutions and insist that they be adopted by domestic institutions (Mishkin, 2003). Foreign financial institutions also would act as a constituency for institutional reform aimed at improving the quality of information in financial markets because, as outsiders, they do not have access to the same inside information that domestic institutions do.

Although I believe that the most important benefits from financial globalization are those that foster financial development and so are indirect, financial globalization has additional direct benefits. Allowing foreign capital to enter domestic financial markets increases the availability of funds and, thus, should necessarily increase liquidity and lower the cost of capital, which stimulates investment and economic growth. This economic growth is indeed what has happened when countries have opened up their stock markets to foreign capital: Henry (2003) finds that, on average, dividend yields fall by 2.4 percentage points, the growth rate of investment increases by 1.1 percentage points, and the growth rate of output per worker increases by 2.3 percentage points.

It should be pointed out that globalization of the nonfinancial kind is also extremely important in promoting financial development. Allowing entry of foreign goods and investment would produce a more competitive environment that would drive down revenue of incumbent firms and reduce their cash flow (revenue minus outlays) so that they would have to seek out external sources of finance (Rajan and Zingales, 2003b). Because these sources of finance would only be available if the financial system had the wherewithal to solve asymmetric information problems, incumbent firms would then be more likely to support the necessary institutional reforms to make the financial system work better. In turn, the increase in the size of the financial sector would foster economic growth. Greater openness to trade is indeed found to be linked to a larger financial sector (Svaleryd and Vlachos, 2002; Rajan and Zingales, 2003b), and the increased competition from

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26See also Kose and others (2007), who also come to this conclusion.

27Financial development also helps promote competition because it enables new firms to acquire firms so that they can compete with established firms. Increased competition is also a critical element in producing growth because it encourages efficiency and adoption of superior technology. Indeed, an important reason why developing countries like those in Latin America have done so poorly is their barriers to competition, among which is financial repression. For a discussion of how barriers to competition have stunted economic growth, see Cole and others (2005).

28For additional evidence, see Levine and Zervos (1998a, 1998b); Bekaert and Harvey (2000); Bekaert, Harvey, and Lumsdaine (2002); Bekaert, Harvey, and Lundblad (2005); Henry (2000a, 2000b); IMF (2001); and Kim and Singal (2000). Klein and Olivei (1999) and Bailliu (2000), however, find that these benefits are less clear for the poorest countries.

29Trade openness also weakens the effectiveness of capital controls because firms engaged in international trade can avoid them by over- and under-invoicing of exports and imports. With less-effective capital controls due to openness of trade, it is more likely that they will be abandoned, thereby promoting financial globalization. See Aizenman (2008).
foreigners stimulates domestic firms to become more productive in order to survive.

Even without trade liberalization, encouraging an export orientation of domestic markets creates a greater need for a well-functioning financial system because, to compete effectively in the international arena, firms need better access to capital. If they cannot get capital, they would not be able to make the investments they need to increase productivity and price their goods competitively. In this way, international trade creates a demand for reforms that will make the financial system more efficient.

VII. Why Financial Globalization Doesn’t Always Work

Even with all these powerful benefits, financial globalization is not always a force for good: it has a dark side and can go very wrong. Opening up the financial system to foreign capital flows can and has led to disastrous financial crises, which have resulted in great pain, suffering, and even violence. (There was widespread ethnic violence in Indonesia after its crisis in 1997, and in the wake of Albania’s financial crisis in 1996–97, there were around 2,500 casualties.) Given a government safety net for financial institutions, particularly banks, liberalization and globalization of the financial system often encourages a lending boom, which is fueled by capital inflows. Because of weak prudential supervision by bank regulators and a lack of expertise in screening and monitoring borrowers, losses at banking institutions could begin to mount. With a weak banking sector, the government could no longer raise interest rates to defend the domestic currency because doing so would cause even more distress in the banking sector and precipitate a bank panic. Once market participants would realize that the government no longer can defend the currency, they would engage in a speculative attack, leading to a currency crisis and a large devaluation. Because so many firms in emerging market countries have their debt denominated in foreign currencies such as dollars, the currency collapse would produce a sharp increase in their indebtedness in domestic currency terms, but the value of their assets usually would remain unchanged. The resulting destruction of firms’ balance sheets then would make it more difficult for the financial system to solve asymmetric information problems, and lending to firms would contract sharply, leading to a seizing up of the financial system and often a devastating economic contraction.

When instability follows financial liberalization and globalization, two problems are created. The most obvious one is the economic hardship

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30Kose and others (2006) come to a similar conclusion that, although financial globalization has many benefits, it can go very wrong because it can lead to financial crises.

31This figure is cited in Barth, Caprio, and Levine (2005).

32The above dynamics of financial crises in emerging market countries is discussed in Mishkin (1996) and Chapter 4 of Mishkin (2006), and case studies of these crises are found in Chapters 5–7 of Mishkin (2006).
following the resulting crisis, which particularly hurts the poor (Halac and Schmukler, 2004). The second is that the resulting financial instability gives financial globalization a bad name and can provoke a backlash against both financial globalization and liberalization, which retards financial development. This is why financial globalization is so controversial. It also explains why evidence using aggregate data on the benefits of financial globalization are mixed: there is no clear-cut relationship between international financial openness and economic growth.33

In recent years, the move by developing countries to more freely floating exchange rates, more disciplined monetary and fiscal policy, and widespread current account surpluses has substantially reduced the incidence of financial crises. Nevertheless, should efforts to strengthen and reform financial systems in developing countries flag, it is quite possible that we could see more such crises in the future.

Thus, the issue is not whether financial globalization is inherently good or bad; when it is done right, financial globalization has substantial benefits. But when financial globalization is perverted by policies that lead to an implosion of the financial system, it can go very badly.

VIII. Getting Financial Globalization to Work

I have argued here that financial globalization can be a powerful force in promoting economic growth and the reduction of poverty. On the other hand, financial globalization has a dark side and can lead to financial crises that cause much economic hardship. How can financial globalization be made to work effectively?

A full treatment of possible answers to this question are well beyond the scope of this essay. Indeed, I spent five chapters (8–12) discussing how financial globalization might be managed successfully in my 2006 book. Let me briefly sketch out the kind of policies that emerging market countries need to adopt to get financial globalization to work for them.

First, emerging market countries must promote financial development by taking the following steps: (1) developing strong property rights, (2)...

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33For example, see the surveys in Levine (1997); Eichengreen (2001); Fischer (2003); and Edison and others (2004). Prasad and others (2003, p. 31) summarize this literature: “Table 3 summarizes the 14 most recent studies on this subject. Three out of the fourteen papers report a positive effect of financial integration on growth. However, the majority of the papers tend to find no effect or a mixed effect for developing countries. This suggests that, if financial integration has a positive effect on growth, it is probably not strong or robust.” In a later paper, Prasad and others (2004), have a more positive slant on financial globalization, stating “We do find that financial globalization can be beneficial under the right circumstances. Empirically, good institutions and quality of governance are crucial in helping developing countries derive the benefits of globalization.” Some of the most cited papers in this literature are Alesina, Grilli, and Milesi-Ferretti (2004); Quinn (1997); Kraay (1998); Rodrik (1998); Tornell, Westermann, and Martinez (2004); Arteta, Eichengreen, and Wyplosz (2003); Edwards (2001); and Edison and others (2002). More recent evidence in Klein (2005), however, finds that capital account liberalization in countries with better institutions does indeed lead to higher growth.

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strengthening the legal system, (3) reducing corruption, (4) improving the quality of financial information, (5) improving corporate governance, and (6) getting the government out of the business of directing credit. Second, to prevent financial crises, emerging market countries need to encourage effective prudential supervision by (1) limiting currency mismatch, (2) restricting connected lending and preventing commercial enterprises from owning financial institutions, (3) ensuring that banks have plenty of capital, (4) encouraging a focus on risk management, (5) encouraging disclosure and market-based discipline, and (6) allowing entry of foreign banks but in a way that increases competition in domestic financial markets. Third, emerging market countries need to make prudential supervision work by (1) implementing prompt corrective action, (2) limiting implicit guarantees to entities that are too-big or too-politically-connected to fail, (3) giving adequate resources and statutory authority to prudential regulators/supervisors, (4) giving independence to regulatory/supervisory agencies while making supervisors accountable, (5) getting the government out of the banking business, and (6) using capital controls only as part of the prudential supervisory process. Fourth, emerging market countries need to pursue reforms that help manage the overall economy to prevent financial crises by (1) sequencing financial liberalization, (2) reforming fiscal policy to prevent excessive budget deficits, (3) promoting price stability through reform of the monetary policy framework, (4) avoiding pegging the exchange rate, and (5) opening up to international trade.

The list of policies above is very long and might seem insurmountable. The essay in this volume by Dani Rodrik and Arvind Subramanian indeed argues against financial globalization on these grounds. However, I argue here instead that we should not give up on financial globalization because it can play such an important role in enabling countries to reach their full economic potential. Furthermore, many emerging market countries have made great progress in adopting policies along the lines outlined above, which is one reason why financial crises in these countries have been occurring less frequently of late. To reap the benefits of financial globalization does not require that these policies be treated as prerequisites to opening up the economy to international flows of capital and foreign financial institutions. These policies are complementary to financial globalization. Not only will they help make financial globalization work better, but financial globalization can help build support to adopt these policies because it creates incentives for institutional reform.

Indeed, the history in emerging market countries of inflation targeting, a reform to the monetary policy framework that promotes price stability, supports this view. Despite concerns that inflation targeting would not work in emerging market countries unless they instituted a rigorous set of institutional reforms beforehand (Eichengreen and others, 1999), Battini and Laxton (2007) find that even though inflation targeting has been adopted without these institutional reforms, it has been quite successful in controlling inflation in emerging market countries, and those that have adopted inflation...
targeting have been more likely to implement these institutional reforms than those that have not.

But how can the international community help? This is a complex topic that I discuss extensively in my 2006 book, but I will touch on it briefly here. Although less-developed countries need to build their own institutional frameworks to make globalization work, there is a lot of expertise in institutions like the IMF and the World Bank that these countries could draw on. Technical assistance from these organizations can thus be of great value and indeed has been in South Korea and Turkey, both of which asked for help after their financial crises. The right incentives from international financial institutions can also help encourage economic and political elements in the less-developed countries to overcome rich elites who may block good institutional development.

But what can advanced countries do to help promote institutional development? The answer is opening up our markets to goods and services from emerging market countries. By so doing, rich countries can provide exactly the right incentives to promote institutional reforms that will improve the functioning of financial markets. If firms in emerging market countries have access to foreign markets, their increased need for capital means that they will demand that the legal system be better at enforcing property rights and financial contracts that will enable them to borrow. Similarly, these growing, exporting firms will want to see improvements in the availability and quality of information because fewer asymmetric information problems will make it easier for them to get loans. They will also be more supportive of improvements in prudential supervision because a more efficient banking system can be a source of credit. Thus, opening up the markets in advanced countries to emerging market countries is the single most valuable thing the developed world can do to promote the necessary financial reforms. In turn, financial reforms can increase financial deepening and help allocate capital to its most productive uses.

More open trade with emerging market firms can also help promote financial stability and reduce the likelihood and severity of financial crises in emerging market countries by increasing the size of the export sector in these countries (Calvo, Izquierdo, and Talvi, 2003; Calvo, Izquierdo, and Mejia, 2004; Edwards, 2004; Calvo and Talvi, 2005; Cavallo and Frankel, 2007). Firms that have debt denominated in foreign currency are more vulnerable to currency depreciations if the goods they produce are sold primarily in domestic markets and so are priced in the local currency. Under these circumstances, a domestic currency depreciation increases the value of their foreign-currency-denominated debt in terms of the local currency, but the domestic currency value of their output remains unchanged. The discrepancy between the increase in what they have to pay on their debt (liabilities) and what their product sales will bring in (assets) is what destroys their balance sheets and produces financial crises. However, if the firm is selling its goods abroad, when there is a depreciation, the demand for the goods they produce rises in terms of local currency. The value of their production thus goes up,
compensating for the increased value of the debt. When an emerging market country’s export sector is larger, it is less vulnerable to a financial crisis because a currency depreciation will do less damage to the balance sheets of firms. Indeed, one of the reasons why Argentina was so hard hit by the collapse of its currency in 2001 was that it had such a small export sector.

IX. Concluding Remarks

I have argued in this essay that we should not turn our backs on financial globalization. In my concluding remarks, I would like to leave the reader with six thoughts from this discussion.

Financial globalization is not the answer, but it is an important part of the answer.

An economy’s ability to allocate capital to its most productive uses is what enables it to reach its full potential in terms of growth, high income per capita, and all the benefits that come with achieving these goals. Developing this ability takes dedication, hard work, commitment, and time. It also takes the development of institutions that promote strong property rights and a well-functioning financial system that moves funds to support productive investments. Institutional development is a complex process, and the one-size-fits-all approach of just taking institutions from advanced countries and plopping them down in poor countries has not worked.34 Institutional frameworks need to be homegrown.

Strong domestic forces, however, are often lined up against financial development. By keeping property rights and the financial system underdeveloped, powerful, entrenched business and political interests are able to restrict competition and prevent entrepreneurs in poor countries from accessing the funds they need to put their ideas into practice. The entrenched interests will then keep the markets to themselves and will keep on earning high profits. The economy will remain unproductive, and no matter how hard the average person in the society is willing to work, the country will remain poor.

What is the solution? There are no easy answers, but the key is incentives.

By opening up the economy to foreign capital and financial institutions, financial globalization creates incentives for institutional development by increasing demands within a country for institutional reforms that promote financial development. When domestic firms can borrow from abroad or from foreign financial institutions, domestic financial institutions will start to lose business. They will need to seek out new customers to whom they can profitably lend. Without good information to screen out good from bad credit risks and to monitor new borrowers to make sure they do not take on

34Easterly (2006) points out that when eastern European countries adopted Western-drafted laws as part of the conditions to receive foreign aid, the new laws often did not work well. For example, Albania passed a bankruptcy law in 1994, yet only one case ever made it to the Albanian courts, even after a Ponzi scheme led to horrendous losses for Albanian investors in the mid-1990s.
excessive risk, domestic financial institutions will not be able to make any money. Domestic financial institutions would then have incentives to encourage institutional reforms that would make it easier for them to acquire the information they need to make profitable loans. Instead of blocking financial development, they would become supporters and would begin to push for institutional reforms to improve accounting standards and disclosure of financial information. To make loans less risky, they would support reforms of the legal system to enhance the enforcement of contracts that protect property rights, thereby making it easier to enforce financial contracts.

Opening up financial markets to the outside world does not magically or automatically make a country rich. Financial globalization will only help promote institutional development if it is managed to promote more competition in financial markets. Financial globalization will only promote growth if the process is not perverted and thus does not lead to destructive blowups of the financial system. Financial crises in the aftermath of financial liberalization and globalization, unfortunately, have been a fact of life for many emerging market countries and have led to depressions that have increased poverty and have stressed the social fabric. Successful financial globalization, which avoids these crises, requires effective prudential regulation and supervision, responsible fiscal policy, and strong monetary policy institutions.

Throwing money at the problem won’t work.

One objection to focusing on financial development and globalization as key factors in economic growth is that it is far from clear that emerging market countries are finance constrained, a point emphasized by Rodrik and Subramanian (2008): in other words, they often do not have trouble getting money for investments. The discussion in this essay supports the view that a lack of money flowing to investments is often not the problem in emerging market countries, but it shows that randomly throwing money at investments does not work. Indeed, as the emerging market financial crises in past years indicate, too much money flowing into these countries often resulted in bad loans and investments, which led to disastrous financial crises. The argument for the importance of financial development is not that it increases investment but that it promotes the allocation of investment to where it can do the most good for the economy. Research finds that financial development primarily increases growth not by increasing the amount of investment but by ensuring that investment is allocated to uses that increase productivity.\(^\text{36}\)

\(^{35}\)Gourinchas and Jeanne (2005) provide a theoretical model that is consistent with the arguments in this essay. It shows that capital mobility encourages institutional reform because it enhances the benefits of good policies and helps lock in political support for reforms. On the other hand, capital mobility makes it more likely that there would be capital flight that could trigger a financial crisis that destroys the support for reform.

\(^{36}\)See Beck, Levine, and Loayza (2000); Easterly and Levine (2001); and Levine (2005a).
Disadvantaged countries must take responsibility for their own fate.

The ultimate responsibility for success or failure in poor countries is their own. There needs to be a political will in emerging market countries to promote institutional development. However, this is not the view that is heard when antiglobalization protestors rally in the streets. They see a cabal of sinister institutions, particularly those based in Washington—the IMF, the World Bank, and the U.S. Treasury—as the source of the woes in poor countries. This view is not only held in the streets but is also supported by some of the leading academic minds. The most prominent critic of the IMF is Nobel Prize winner Joseph E. Stiglitz, who titled one of the chapters in his book, *Globalization and Its Discontents*, “The East Asia Crisis: How IMF Policies Brought the World to the Verge of a Global Meltdown.”37 To put it bluntly, those who believe that Washington-based institutions are the reason why the developing countries stay mired in poverty, as Stiglitz and the antiglobalization protestors do, are just plain wrong.

International financial institutions and citizens in advanced countries can make a difference.

International financial institutions, like the IMF and the World Bank, and advanced government agencies, like the U.S. Treasury, have made mistakes in the past, but they can create incentives to promote institutional development in poor countries. These institutions and agencies can admit that they do not know all the answers and can recognize that the answers to institutional development often reside in the emerging market countries themselves. They can give more ownership of policies to these countries by designing them jointly through a process of give and take. They can also provide the right incentives for institutional development by providing funds to countries only when they are serious about putting in place the kinds of reforms needed to establish strong property rights and an efficient and effective financial system. If special interests block these reforms, then institutions like the IMF and the World Bank have to pull back their funds and just say “no,” thereby providing incentives to overcome the powerful forces of those who oppose the reforms needed for successful financial globalization.

Can we, as individuals, in the advanced countries help? Yes, by supporting the opening of our markets to goods and services from emerging market countries. By encouraging these countries to increase their export sectors, we create exactly the right incentives for them to implement the difficult measures that will enable them to grow rich. Exporters have strong incentives to be productive so that they can take advantage of access to our markets and thus make the investments needed for growth. They also will push for the institutional reforms to make financial markets more efficient and promote financial deepening. By getting financial markets to work well, exporters will have access to the capital that they need.

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37See Chapter 4 in Stiglitz (2002).
to increase their businesses. A larger export sector in emerging market countries also helps make financial crises less likely and less severe: firms that have their goods sold in foreign markets have found that declines in the value of the domestic currency help to raise the demand for their goods, which compensates for a higher value of their liabilities denominated in foreign currency.

Opening up our markets to emerging market countries is an important way that those in advanced countries can help emerging market economies to become successful. Although providing more aid to poor countries seems like a good way to eradicate poverty, it rarely works because it usually does not create the right incentives to promote economic growth. A handout is almost never as effective as a hand up.

Arguing that we need to keep jobs in rich countries like the United States, and so have to bar imports or outsourcing, is just another way of saying that we want to keep workers in less-fortunate countries poor.38 This does not mean that those who lose their jobs in advanced countries do not deserve our sympathy and our support in finding new jobs, but displaced workers can be taken care of in ways other than trade restrictions. In the long run, free trade raises productivity in advanced countries like the United States and so eventually provides better jobs.

It’s the politics, stupid.

Is making financial globalization work for emerging market countries easy to accomplish? Far from it. It is difficult because it requires development of institutions, which takes a lot of time and effort. Furthermore, it requires getting the political process in poor countries to support institutional reform. This is a difficult task, but it is not insurmountable, as the success of Hong Kong, Singapore, Taiwan, South Korea, and Chile has demonstrated.

The example of South Korea is particularly instructive. South Korea has pursued many different strategies to promote growth. When it started to focus on economic development after the Korean War, the South Korean government did not focus on reforms to develop an efficient financial system. The government was heavily involved in allocating capital, financial markets were highly regulated, and the domestic financial system was completely closed off from the rest of the world. Then, when it liberalized its financial system and opened the economy to flows of foreign capital, it did so in a particularly perverse way that culminated in a financial crisis of massive proportions. The Korean government, however, learned from its mistakes. After its financial crisis, the Korean government actively pushed financial reforms to make its financial system work better and be less prone to crises. South Korea was then rewarded with a far stronger recovery than the other countries in the region that suffered crises.

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38Jerry Caprio, in personal correspondence, suggested this way of expressing this point.
There is no simple answer.

This essay argues that institutional development that promotes strong property rights and a financial system that directs capital to its most productive uses are crucial to achieving high economic growth and the eradication of poverty. This does not mean that other factors such as health, education, or income inequality are not important to economic growth. They surely are. The importance of developing a well-functioning financial system, however, has not received sufficient attention in discussions about economic growth. This essay does not come up with 10 easy ways to get financial globalization right. Globalization requires hard work on the part of emerging market countries. All that advanced nations can do is provide incentives that encourage policymakers, politicians, and citizens to support the kind of institutional development that will promote economic growth in poor countries. Getting governments to work in the interest of the public, so that the right kind of institutional reform occurs, is one of the toughest problems facing development economists and political scientists today.

REFERENCES


Income inequality can also play an important role in hindering institutional development, which this essay argues is key to economic growth. For example, see Engerman and Sokoloff (1997). For an excellent nontechnical discussion of the other factors behind economic growth, see Weil (2005).

For a discussion of the recent literature on the politics of institutional development, see Acemoglu, Johnson, and Robinson (2005) and Morek, Wolfenzon, and Yeung (2005).


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Understanding Banking Sector Globalization

LINDA S. GOLDBERG*

This article profiles the recent evolution and consequences of banking sector globalization. After presenting trends in international banking, the article overviews macroeconomic consequences of banking sector globalization, including the role of banks in the international transmission of shocks, comovements of business cycles, financial crises, and economic growth. Other consequences of banking globalization have parallels with the effects of real-side foreign direct investment, including technology transfers, productivity enhancements, and wage spillovers into the host country. Finally, the article provides arguments that banking globalizing can have important consequences for financial supervision and regulation. [JEL F3, G2]


The past two decades have experienced a resurgence of international banking, continuing a well-documented general expansion of international financial integration within what has become known as the “second age of globalization” (Obstfeld and Taylor, 2004). The shares in country banking systems of banks with sizable foreign positions have grown tremendously. Moreover, the form of banking globalization is evolving, moving away from a system with primarily cross-border flows to a system with both cross-border transactions and more internationally diversified ownership of banks. Other types of international transactions also have been growing, including the transactions extended by the branches and subsidiaries of parent banks that are located in host country markets, derivative use, and other forms of international investments made by banks.

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All of these developments could have profound implications for the host countries receiving the services of globally oriented banks, and for the parent countries of these same banks. Some implications are immediately evident—for example, those related to the international transmission of shocks. Other implications are longer term and more structural in nature, such as those associated with productivity and technology spillovers, growth consequences, and institutional development. In this paper, we overview some of these key implications associated with banking sector globalization.

The discussion in this paper is divided into three main sections. The paper first profiles the recent evolution of international banking, focusing on trends in cross-border acquisitions, shifting ownership forms, composition of lending by banks, and the growth of derivatives exposures. This discussion highlights the evolving outward orientation of banks from countries with highly developed financial markets, and the differences across emerging market regions in patterns of state vs. private ownership of banks.

The paper then turns to the consequences of banking sector globalization. It primarily discusses the role of banks in the international transmission of shocks and comovements of business cycles. The main observation is that global banks enhance the international transmission of shocks through their activities, contributing to more integrated global business cycles. Indeed, this globalization of banking is consistent with observations that financial linkages are increasingly important in, and sometimes dominant channels for, international transmission of shocks.

The paper then explores other consequences of banking sector globalization, some of which are comparable to consequences of the more traditional topic of globalization via trade in goods and via foreign direct investment (FDI) in manufacturing and extractive resource industries. Many consequences of financial sector (FS) FDI and real-side FDI may be similar, including along the dimensions of technology transfers, productivity enhancements, and wage spillovers into the host country. Other consequences are likely to differ. In particular, FS-FDI is more likely to induce institutional changes in the host country, such as a strengthening of financial supervision when the host country markets have weaker institutions and supervisory regulations than those in the parent bank’s market. FS-FDI also may have pronounced allocative consequences within the host country, as banks have the important function of intermediating capital from savers to borrowers across sectors of an economy.

The paper concludes with a focus on some potentially rich future areas of policy and research discussion. In particular, we argue that globalization of banking and other forms of financial services may influence regulatory and macroeconomic challenges for the countries involved.

I. Evolving Banking Sector Globalization

In this section, we begin by highlighting some of the forces behind recent advances in banking globalization and then overview some of the resulting
international banking positions. Broader trends in global capital market integration have been discussed elsewhere in rich detail by Obstfeld and Taylor (2004) and in the empirical studies of Lane and Milesi-Ferretti (2001, 2006). More specific details on banking globalization in the latter part of the 20th century are nicely overviewed by Turner (2006).

The impetus for the globalization of banking varies by player, by time, and by country. From the perspective of the parent bank, some episodes of enhanced international positions originate in bank-specific searches for yield and diversification opportunities. Other episodes have followed regulatory changes in the home of host country markets, which have increased the accessibility of expanding services to the host country, either as cross-border transactions or through establishing branches and subsidiaries in the host. Some cases of foreign bank entry into previously restricted markets have occurred in the aftermath of crises, or as a result of agreements made in conjunction with negotiations over international trade and specific forms of market access.

Particular episodes of expanded global banking include the period following the dissolution of the Soviet Union, when bank entry into central and eastern Europe in the early 1990s led to a rapid growth of foreign ownership in local banking systems. By the early part of the 21st century, foreign participation in the markets often exceeded 80 percent of local banking assets. Another episode of expansion occurred with the liberalization of FSs in Latin America through the mid to late 1990s. The first wave of liberalization was a follow-your-customer type, taking place in the aftermath of expanded FDI into manufacturing and resource extraction industries and enhanced competition that Latin American countries faced from Asian counterparts. Another burst of foreign banking activity within Latin America occurred as a result of financial crises of the mid to late 1990s, as countries sought to recapitalize their ailing banking systems and to improve the overall efficiency of their FSs.

Acquisition data present one window into the vibrant changes in international banking in recent decades. Figure 1 shows the value and number of acquisitions of banks in developing countries by source countries between 1990 and 2003. During this period, banks in countries with highly developed financial systems were the main sources of FS-FDI. Through this FS-FDI parent banks based in industrialized countries assumed substantial, if not majority, control of assets in host-country financial systems.

The United States and Spain were particularly active in their expansion into foreign markets this period, as measured in terms of either value of positions or numbers of acquisitions. Indeed, the result was substantial inroads into central and South America, as well as into Mexico by both U.S. and Spanish parent banks. By contrast, as we further elaborate below, the next most active group of banks in mergers and acquisition were the U.K. banks and those from other euro area countries. These banks took a regional focus, with targeted positions that were more concentrated across industrialized and developing Europe.
Foreign bank entry, and the regulatory evolution that often preceded it, altered the mix of public and private control over emerging market financial assets. These changes are illustrated in Figure 2, which shows the evolution of commercial banks by ownership between 1994 and 2004, and distinguishes between shares attributable to private domestic owners, private foreign owners, and state or public sector owners. In the early part of the 1990s, foreign control of banks was typically below 10 percent of banking system credit. By the late 1990s, foreign banks had made substantial inroads into markets in Latin America and central Europe, accounting for 34 and 48 percent of bank credit, respectively. Acquisitions of local banks continued through the early 2000s in both of these regions, significantly expanding foreign bank presence into majority ownership in many countries. Over this decade the largest change in bank ownership occurred in central Europe, where the foreign ownership share in the region rose to 77 percent.1

This pattern of FS-FDI was not mirrored in China, India, other Asian, and other emerging market economies. Through 2004, state-owned banks mostly dominated credit issuance in China and India. Yet, in recent years the prospects for change have accelerated. Globalization of banking has been evolving in these markets as well.

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1 For history and context, see the Bank for International Settlements (2006).
World Trade Organization (WTO) negotiations as part of the Doha round of trade talks led to a schedule of liberalized access of foreign banks to Chinese banking markets, phasing market access in stages. Upon accession to the WTO in 2002, the negotiated access provided for foreign banks to be able to engage in renminbi business with foreign customers in selected cities, to conduct foreign exchange business with Chinese citizens and companies, and to purchase minority stakes in mainland banks. According to the schedule, by 2007 the WTO provisions enabled foreign banks to engage in renminbi business in the local retail market and purchase full ownership stakes in local banks.

The evolution of banking in India has been slower. India’s public sector banks hold more than 75 percent of commercial bank assets. As of 2007, 8 of the 10 largest commercial banks in India were public sector banks, with the State Bank of India alone directly accounting for 17 percent of commercial bank assets. Although foreign banks currently have limited participation in Indian banking, in late 2007 the Reserve Bank of India announced pending phases of partial access with the first stage through March 2009, and a second phase thereafter. Meanwhile, foreign banks are increasing their nonbank businesses, expanding activities through consumer finance franchises.2

Data collected by Bank for International Settlements (BIS) facilitate perspectives from the vantage point of countries with large international banking positions. Thirty countries report national consolidated data to the BIS, consolidated across banks with international positions at quarterly

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2Economist Intelligence Unit, India Finance: Foreign Banks in India, April 4, 2008.
The data reflect banks’ “on-balance-sheet” financial claims on the rest of the world, aggregated across all banks within each reporting country, covering contractual lending by the head office and all its branches and subsidiaries on a worldwide consolidated basis, that is net of interoffice accounts.

The types of claims reported to the BIS are organized under two headings: international claims and foreign claims. International claims encompass cross-border lending and the local claims extended by foreign affiliates of the parent bank that are denominated in foreign currency. Foreign claims are broader than international claims, in that they also capture local claims, which are loans extended by foreign affiliates of the parent bank and denominated in local currency terms.

To gauge the scale of global lending of those countries with large international banking positions, we begin with Table 1 that presents September 2007 information. The countries profiled are those with the largest absolute claims, whether on an immediate-borrower basis or on an ultimate risk basis. Germany, the United Kingdom, and France have the largest foreign claims on an immediate-borrower basis, although the composition of these claims differs substantially across countries. For example, the United Kingdom dominates this group in terms of local claims, whether reported on an ultimate risk basis or an immediate-borrower basis. By contrast, the international banking by Germany and Japan occurs largely through international claims. The positions of the United Kingdom, the Netherlands, and Switzerland are largely balanced across local currency vs. foreign currency lending, whereas the United States and France more often lend in a currency other than that of the local market. These types of claims may have different underlying motivations and different determinants. For example, Cetorelli and Goldberg (2006) show that cross-border claims of the United States tended to be more volatile than claims issued abroad by the branches and subsidiaries of the U.S. banks.

The second panel of Table 1 provides a decomposition of foreign claims by sector, with distinction made according to whether the claims are on counterparties that are banks, the public sector, or the nonbank private sector, with differing splits across bank and public sector borrowers. Japan has the highest share of claims extended to public sector counterparties. Germany is on the other end of the spectrum, with the lowest share to public sector borrowers, and the highest share to other banks.

Table 2 details the destination of claims extended by banks from different parent countries. The destinations are distinguished according to the level of development of the countries, whether the destinations are offshore centers, and by region. Although European banks together represent well more than half of the foreign claims on borrowers in all regions, individual countries have different regional footprints. German banks have the largest share of

3See the Bank for International Settlements website at http://www.bis.org/.
<table>
<thead>
<tr>
<th>Claims on immediate borrower basis</th>
<th>France</th>
<th>Germany</th>
<th>Japan</th>
<th>Netherlands</th>
<th>Switzerland</th>
<th>United Kingdom</th>
<th>United States</th>
<th>Total of 24 Reporting Countries¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>International claims²</td>
<td>2,095.4</td>
<td>3,539.2</td>
<td>1,839.9</td>
<td>1,307.2</td>
<td>1,466.0</td>
<td>1,911.1</td>
<td>1,052.9</td>
<td>17,593.9</td>
</tr>
<tr>
<td>+ Local claims³</td>
<td>1,241.1</td>
<td>724.2</td>
<td>298.5</td>
<td>1,156.6</td>
<td>1,212.1</td>
<td>1,971.1</td>
<td>691.6</td>
<td>10,435.5</td>
</tr>
<tr>
<td>= Foreign claims</td>
<td>3,336.4</td>
<td>4,263.3</td>
<td>2,138.3</td>
<td>2,463.8</td>
<td>2,678.0</td>
<td>2,882.8</td>
<td>1,744.5</td>
<td>28,029.5</td>
</tr>
<tr>
<td>Inward risk transfers</td>
<td>265.0</td>
<td>—</td>
<td>—</td>
<td>113.0</td>
<td>172.3</td>
<td>443.5</td>
<td>136.7</td>
<td>1,571.5</td>
</tr>
<tr>
<td>Outward risk transfers</td>
<td>393.0</td>
<td>—</td>
<td>—</td>
<td>112.3</td>
<td>185.7</td>
<td>254.4</td>
<td>196.3</td>
<td>1,760.0</td>
</tr>
<tr>
<td>Net risk transfers</td>
<td>−128.0</td>
<td>−203.8</td>
<td>−120.7</td>
<td>0.6</td>
<td>−23.5</td>
<td>189.1</td>
<td>−59.6</td>
<td>−523.9</td>
</tr>
<tr>
<td>Claims on an ultimate risk basis⁴</td>
<td>3,208.4</td>
<td>4,059.5</td>
<td>2,017.6</td>
<td>2,464.4</td>
<td>2,654.6</td>
<td>4,071.9</td>
<td>1,684.9</td>
<td>27,497.8</td>
</tr>
<tr>
<td>By sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banks</td>
<td>1,195.8</td>
<td>1,327.1</td>
<td>365.4</td>
<td>758.4</td>
<td>503.7</td>
<td>1,134.7</td>
<td>360.5</td>
<td>7,871.9</td>
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<tr>
<td>Public sector</td>
<td>474.9</td>
<td>320.1</td>
<td>672.6</td>
<td>278.5</td>
<td>688.2</td>
<td>381.0</td>
<td>314.2</td>
<td>3,927.2</td>
</tr>
<tr>
<td>Nonbank private sector</td>
<td>1,537.6</td>
<td>2,412.3</td>
<td>979.6</td>
<td>1,427.5</td>
<td>1,358.7</td>
<td>2,556.2</td>
<td>1,010.2</td>
<td>15,503.5</td>
</tr>
<tr>
<td>Unallocated</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>103.9</td>
<td>0.0</td>
<td>0.0</td>
<td>195.2</td>
</tr>
<tr>
<td>By type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-border claims</td>
<td>2,112.2</td>
<td>2,900.4</td>
<td>1,716.6</td>
<td>1,097.0</td>
<td>1,217.6</td>
<td>1,948.1</td>
<td>849.3</td>
<td>15,666.3</td>
</tr>
<tr>
<td>Local claims</td>
<td>1,096.2</td>
<td>1,159.1</td>
<td>301.0</td>
<td>1,367.4</td>
<td>1,337.0</td>
<td>2,123.8</td>
<td>835.6</td>
<td>11,831.5</td>
</tr>
<tr>
<td>Basis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Derivatives contracts⁵</td>
<td>265.7</td>
<td>799.6</td>
<td>28.7</td>
<td>110.6</td>
<td>440.9</td>
<td>692.8</td>
<td>137.4</td>
<td>3,074.6</td>
</tr>
<tr>
<td>Guarantees extended</td>
<td>886.9</td>
<td>340.0</td>
<td>66.8</td>
<td>67.8</td>
<td>1,022.4</td>
<td>851.3</td>
<td>2,426.5</td>
<td>6,867.4</td>
</tr>
<tr>
<td>Credit commitments</td>
<td>644.7</td>
<td>684.6</td>
<td>191.6</td>
<td>235.0</td>
<td>432.5</td>
<td>895.4</td>
<td>488.0</td>
<td>4,635.0</td>
</tr>
</tbody>
</table>

Sources: Table CB1 of “Global Consolidated Country Risk Exposures of BIS Reporting Banks: Domestically Owned Banks” at end-September 2007; and BIS International Consolidated Banking Statistics, March 2008.

¹Includes data of Austria, Chile, Finland, Greece, India, Ireland, Norway, Spain, Sweden, Taiwan POC, and Turkey.
²Cross-border claims denominated in all currencies plus local claims of foreign offices denominated in foreign currencies.
³Local claims of foreign offices denominated in local currencies.
⁴Foreign claims on an immediate borrower basis and net risk transfers may not add up to foreign claims on ultimate risk basis as some of the reporting countries do not provide full vis-à-vis country positions of net risk transfers.
⁵Excluding Chile. Positive market values only.
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All countries</td>
<td>28,456.2</td>
<td>6.1</td>
<td>7.5</td>
<td>5.7</td>
<td>80.6</td>
<td>11.7</td>
<td>15.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Developed countries</td>
<td>22,423.8</td>
<td>4.9</td>
<td>7.1</td>
<td>5.6</td>
<td>82.4</td>
<td>12.5</td>
<td>16.0</td>
<td>12.5</td>
</tr>
<tr>
<td>Offshore centers</td>
<td>2,151.6</td>
<td>7.6</td>
<td>17.5</td>
<td>6.7</td>
<td>68.2</td>
<td>8.9</td>
<td>13.8</td>
<td>22.6</td>
</tr>
<tr>
<td>Developing countries</td>
<td>3,809.3</td>
<td>12.5</td>
<td>4.5</td>
<td>5.9</td>
<td>77.1</td>
<td>9.1</td>
<td>9.9</td>
<td>15.4</td>
</tr>
<tr>
<td>Africa and Middle East</td>
<td>460.0</td>
<td>7.7</td>
<td>3.7</td>
<td>3.1</td>
<td>85.5</td>
<td>19.6</td>
<td>11.4</td>
<td>38.3</td>
</tr>
<tr>
<td>Asia and Pacific</td>
<td>1,172.7</td>
<td>18.5</td>
<td>9.7</td>
<td>12.2</td>
<td>59.6</td>
<td>7.8</td>
<td>8.4</td>
<td>23.7</td>
</tr>
<tr>
<td>Europe</td>
<td>1,351.0</td>
<td>4.6</td>
<td>1.6</td>
<td>0.6</td>
<td>93.3</td>
<td>9.7</td>
<td>14.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Latin America and Caribbean</td>
<td>825.6</td>
<td>19.6</td>
<td>2.4</td>
<td>7.2</td>
<td>70.8</td>
<td>4.2</td>
<td>3.9</td>
<td>10.5</td>
</tr>
</tbody>
</table>

Source: Table CB9, Overall Results by Nationality of Reporting Banks, March 2008, Bank for International Settlements; and BIS, International Consolidated Banking Statistics.

Note: Classification according to the location of the head office rather than location of the banking unit.
lending to developed countries and to developing Europe. U.K. banks are very active in offshore centers, and in developing Asia and Pacific, Africa, and the Middle East. U.S. banks have large shares in developing Asia and Pacific and in Latin America and the Caribbean. Japanese banks also play a large role in claims on offshore centers.

In recent years (since the first quarter of 2005), the BIS has been collecting information on bank exposures resulting from derivatives contracts, guarantees extended, and credit commitments. The data can reflect the fact that banks’ country risk exposures can differ substantially from that of contractual lending due to the use of risk mitigants such as collateral. Table 3 presents total amounts of derivatives positions and the form of these positions. The top panel of the table provides values of outstanding over-the-counter (OTC) single-currency interest rate derivatives. The bottom panel provides values of OTC equity-linked and commodity derivatives. Notional amounts outstanding and gross market values of the positions are shown.

Although derivatives have risen in size in recent years, the vast majority of the activity remains in the form of single-currency interest rate derivatives. The counterparties to banks in these transactions are typically reporting dealers and other financial institutions. Swaps are the most common form of derivatives. The notional amounts of derivatives contracts outstanding in June 2007 were nearly $350 trillion, compared with total foreign claims of banks that are approximately $28 trillion. The gross market value of these contracts was approximately $6 trillion across all BIS reporting banks.

Overall, these charts and forms of globalization of banking show the extensive evolution of global banking, raising the scope for dramatic changes in the potential for international spillovers and shock transmission to rise over time. In the sections below, a range of alternative forms of spillovers are explored with the goal of providing some perspectives on the consequences of banking sector globalization.

II. Globally Oriented Banks, Cyclical Lending, and International Linkages
As banking becomes more globalized, the international comovement of business cycles of linked economies is potentially altered, along with the transmission of shocks across markets. In principal, with banks viewed as agents for international risk sharing, diversification, and financial intermediation, consequences for the host markets depend on whether the foreign bank is filling a gap and providing a service that previously was missing in the host market, and on whether the foreign bank’s lending activities are financed with alternative source funds or on alternative terms compared with those in its absence. The globalized banks have business cycle consequences that also depend on whether host markets are served through cross-border flows or in the host markets by branches and subsidiaries of the parent bank.
Table 3. Bank for International Settlements (BIS) Reporting Bank Derivative Exposures, June 2007
(In billions of U.S. dollars)

<table>
<thead>
<tr>
<th>Notional Amounts Outstanding</th>
<th>Gross Market Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>Reporting dealers</td>
<td>Reporting dealers</td>
</tr>
<tr>
<td>Other financial institutions</td>
<td>Other financial institutions</td>
</tr>
<tr>
<td>Nonfinancial institutions</td>
<td>Nonfinancial institutions</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Amounts outstanding of over-the-counter (OTC) single-currency interest rate derivatives</strong></td>
<td><strong>Amounts outstanding of OTC equity-linked and commodity derivatives, June 2007</strong></td>
</tr>
<tr>
<td>Total contracts</td>
<td>Total equity contracts</td>
</tr>
<tr>
<td>346,937</td>
<td>9,202</td>
</tr>
<tr>
<td>148,318</td>
<td>3,147</td>
</tr>
<tr>
<td>153,328</td>
<td>5,056</td>
</tr>
<tr>
<td>45,291</td>
<td>999</td>
</tr>
<tr>
<td>6,057</td>
<td>1,116</td>
</tr>
<tr>
<td>2,371</td>
<td>405</td>
</tr>
<tr>
<td>2,946</td>
<td>549</td>
</tr>
<tr>
<td>740</td>
<td>161</td>
</tr>
<tr>
<td><strong>Of which</strong></td>
<td><strong>Of which</strong></td>
</tr>
<tr>
<td>Foreign exchange swaps</td>
<td>Forwards and swaps</td>
</tr>
<tr>
<td>22,809</td>
<td>2,599</td>
</tr>
<tr>
<td>10,754</td>
<td>687</td>
</tr>
<tr>
<td>11,035</td>
<td>1,421</td>
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<td>Currency swaps</td>
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Source: BIS Semiannual OTC Derivatives Statistics at end-June 2007, Tables 21A and 22A.
First, it is informative to consider how a change in the structure or ownership of banks in an economy may influence business cycles. There are lessons from a broader literature on banking, with the net effect on business cycles working in two general ways. As in the macrobanking model by Morgan, Strahan, and Rime (2004) used to study the implications of relaxed restrictions on cross-border banking within the United States, integration tends to dampen the effect of bank capital shocks within borders, but amplifies the effect of bank-specific shocks across borders.

A basic observation is that the availability of loanable funds via the deposit base contributes to procyclicality. If foreign-owned bank entrants are less reliant on host-country funding sources and more reliant on foreign sources than are their domestically owned counterparts, the procyclicality of their supply of loanable funds may be lower. Loan demand, too, can either be procyclical, as individuals or businesses borrow more to expand their holdings in prosperous times, or countercyclical, as individuals try to smooth consumption intertemporally. Although the existence of foreign banks per se may not influence local loan demand substantially, it is possible that foreign banks may have a different client base than domestically owned banks or offer different products. This potentially can give rise to an observation of altered cyclicality of loan demand.

Most empirical studies of these issues find that foreign banks, like domestic banks, are procyclical lenders. In Chile, Colombia, and Argentina, the lending patterns of private, domestically owned banks and longer-established foreign-owned banks were similar, especially when foreign bank entry occurred through acquisition of local banks (Crystal, Dages, and Goldberg, 2001). The cases of statistically relevant differences across banks were weak, but mainly observed when existing banks—foreign- or domestic-owned, were compared with newer foreign entrants. Although foreign banks had higher average loan growth, they did not add significant volatility to local financial systems or act as relatively destabilizing lenders.

Related evidence on the experiences of Argentina and Mexico in the 1990s found that foreign-owned banks did not necessarily rely on different funding sources when meeting loan demand needs in the host market (Dages, Goldberg, and Kinney, 2000). When a healthy bank acquired a healthy private sector counterpart in the Argentina and Mexico host country markets, on balance this did not lead to extensive changes in the patterns of borrowing and lending in the host market. In these cases, the cyclical lending behavior in the host market banks changed when the foreign bank acquired a lower health domestic bank, or acquired a previously state-owned bank that engaged in borrowing and lending at potentially nonmarket terms.

A comparative study of bank behavior across 20 Asian and Latin American countries from 1989 through 2001 found only weak evidence that foreign bank entry into emerging markets contributed to altered credit market stability, especially as compared with domestically owned banks (Arena, Reinhart, and Vazquez, 2006). By contrast, Morgan and Strahan (2004) found no evidence that foreign bank integration had stabilized real activity,
on average, over the period 1990–97. Of course, the period of analysis of this latter study was quite short and coincided with some of the early years of entry in some markets and preceded broader opening.

The related issue for countries of international transmission of shocks and changes associated with financial globalization, and banking in particular, has been approached from different perspectives. As a first window into this theme, studies using macroeconomic aggregates as the main data provide ample evidence on international transmission of U.S. monetary policy shocks. However, most studies do not pin down the specific mechanisms for transmission.

Interdependence and transmission are evident in VAR frameworks (Kim, 2001; Bayoumi and Swiston, 2007). The latter study explores the responses of shocks to GDP across the United States, euro area, Japan, and an aggregate of small industrialized countries, with an interesting goal of identifying the major international channels through which shocks are propagated. The largest contributions to spillovers almost universally come from financial variables, as opposed to those from trade flows or through commodity prices. World interest rates also are found to be important for emerging market business cycles (Neumeyer and Perri, 2005), and U.S. shocks are clearly transmitted to Latin American countries (Canova, 2005). Financial integration raises business cycle synchronization among a sample of industrialized countries, even though countries also tend to be more specialized (Imbs, 2004).

In principal, the degree of monetary transmission across markets should be influenced by the monetary regimes in place in the host markets. Countries with de jure or de facto currency pegs with respect to the U.S. dollar have their interest rates moving largely in step with U.S. interest rates. The consequence is greater comovement of monetary stances, which also ties the broader business cycles more closely (di Giovanni and Shambaugh, forthcoming; Frankel, Schmukler, and Serven, 2004; Obstfeld, Shambaugh, and Taylor, 2005). Yet, despite establishing international transmission of shocks and policy-induced comovements, the literature on business-cycle comovements surveyed thus far is not predicated on a role for international banks in international linkages.

The specific role of banks is nicely demonstrated in analyses using bank-specific data and focused on establishing the consequences of foreign-vs. domestically owned banks for international linkages. Overall, these studies support an explicit role for foreign-owned banks in enhancing the transmission of monetary policy and interest rate shocks across markets. Seminal work documented that Japanese banks transmitted the shocks that hit their own capital bases, which arose from Japanese stock price movements, into the U.S. real estate market through Japanese bank branches operating in the United States (Peek and Rosengren, 1997, 2000). Recent concrete evidence of transmission through individual U.S. banks is established using individual bank balance sheet data for all U.S. banks with global operations between 1980 and 2006 (Cetorelli and Goldberg, 2008).
This analysis, which also considers the effect of banking globalization on the lending channel within the United States, demonstrates that not only is the lending of foreign offices of U.S. banks affected by U.S. monetary policy, but these foreign offices can rely less on support from parent bank balance sheets in times of tighter liquidity conditions in the United States.

Although the aforementioned studies emphasize business cycle comovements and interest rate transmission, banking globalization may reduce the magnitude of host-country cycles if the foreign bank involvement reduces the actual incidence of crises, and the sharp output contractions that typically are associated with such crises (Calvo and Reinhart, 2000). The boom-bust cycles in international capital flows are often derided as wreaking havoc on economies, with lending booms contributing to financial crises and leading to sudden stops. One criticism of financial liberalization is that, by giving banks and other intermediaries more freedom of action and allowing them to take greater risks, the financial fragility of an emerging market may increase especially in the absence of strong institutions necessary to support a well-functioning financial system (Demirgüç-Kunt and Detragiache, 1998, 2001). The degree of international diversification by foreign banks also could be important for performance during crisis. In the Malaysian case, banks with sufficient international diversification played a stabilizing role in host credit markets during the Asian crisis, whereas foreign banks that had a narrower focus on Asia behaved similarly to domestic banks (Detragiache and Gupta, 2004). In a wide sample of countries, the share of bank assets held by foreign owners is negatively correlated with the probability of a crisis (Levine, 1999). Foreign bank presence was found to have a negative and statistically significant coefficient in cross-country regressions on crisis probability, so that after controlling for other factors likely to produce banking crises, greater foreign bank participation is stabilizing and supportive of growth (Demirgüç-Kunt, Levine, and Min, 1998).

Choices by depositors on where to hold their funds during stable and crisis periods may contribute to this theme. Depositors recognize the differences in the health and efficiency of banks and move their assets to better functioning ones or demand higher deposit rates (Peria and Schmukler, 1999). If foreign banks keep resources in an economy that would otherwise contribute to capital flight, this might be a stabilizing influence on the economy. Moreover, if the foreign bank presence within a host market means that locally generated claims extended by these banks are substitute for cross-border flows, this might contribute to stability as local claims are more stable than the more volatile cross-border claims (Goldberg, 2002).

On the issue of crises, it is worth noting that foreign banks may contribute to domestic financial stability by operating within a country’s borders rather than from abroad. If flight to quality occurs in stress periods, it may be better for domestic depositors to keep their money within the domestic financial system, to be reintermediated locally, rather than leave the country through capital flight. Cross-border claims by U.S. banks tend to
be more volatile than locally issued claims (Cetorelli and Goldberg, 2006). If locally issued claims replace cross-border claims, depository capture and more stable lending can contribute to domestic stability.

The specific role of banks transmission in shocks across borders is another issue that bears on financial crises. The common-lender effects occur when banks have significant exposures to financial crises and substantial potential losses (Masson, 1998). Bank actions to restore capital asset ratios have spillovers across other markets in which the bank networks operated, with a bank creditor withdrawing from a country in which it holds a position after experiencing an unexpected loss in another country. Interesting observations can be drawn from the behavior of international bank lending during alternative crises. Using a panel dataset of 11 creditor countries and 30 emerging market debtor countries in a period spanning the Mexican, Asian, and Russian currency crises, there was a large and statistically significant common-lender effect during the Thai crisis (van Rijckeghem and Weder, 2003). The effect was somewhat smaller in the Mexican crisis and not statistically significant in the Russian crisis. The policy conclusion reached by these authors was that emerging market economies could reduce their contagion risk by diversifying the sources of their funding and carefully monitoring their vulnerability through shared bank creditors.

III. Globally Oriented Banks and Other Real-Side Consequences

In this section we consider consequences for host markets of entry by foreign-owned banks. FS-FDI shares many of the consequences already established by analyses of FDI into manufacturing and extractive resource industries, as elaborated in Goldberg (2007). One caveat to the complete adoption of findings from “real-side” research on FDI is that studies seldom distinguish between FDI that arose via mergers and acquisitions and the FDI that arose via Greenfield investments. In the FS-FDI area, the analogies are between acquisitions of local banks and *de novo* investments in the financial services industry. In both FS-FDI and real-side FDI, the form of entry is relevant for measuring and interpreting the employment, growth, and efficiency consequences of FDI.

Below, the primary discussion focus is on the host-country implications of banking globalization, especially for emerging markets. Our main conclusions are that FS-FDI, like real-side FDI, can induce limited technology transfers and productivity gains for the host country. We conclude our expositions by considering the distinct concerns that FS-FDI pose for the host country, especially in terms of institutional development and crisis avoidance. Banks provide key financial intermediation services, and their activities have externalities for bank regulation and supervision.

4Parts of this section closely follow Goldberg (2007).
that cannot be overlooked and certainly have come to the attention of host countries.

**Technology Transfer and Productivity Spillovers**

It has long been argued that the international investments by multinationals generate growth opportunities by transferring knowledge to countries and consequently filling an “idea gap” (Romer, 1993). Studies of technology transfer reach mixed conclusions on the extent to which the transfers and productivity spillovers have occurred as a result of FDI in manufacturing and extractive resource industries. Some conclude that domestic firms in sectors with greater foreign ownership are more productive than firms in sectors with less foreign participation. Others dispute the spillover benefits of FDI into local markets. Part of the disagreement arises when studies do not control for sample selection, that is, that foreign investment may enter sectors where firms are ex ante more productive. On balance, research on real-side FDI supports the finding of positive productivity and technology spillovers into host markets.

Lessons from real-side FDI include paying careful attention to the characteristics of the acquired operations. Small plants may have the largest productivity gains from foreign entry. Some local plants may lose workers and experience productivity declines. In some cases, the gains from foreign investment appear to be captured entirely by the joint ventures. Technology transfers can also flow into local industries that are not themselves direct recipients of foreign capitals.

Recent research on FS-FDI focuses on the altered efficiency of foreign- and domestically owned banks, as opposed to specifically on technology transfer. FS-FDI typically is found to enhance the efficiency of banks that remain in business in the host markets. Foreign banks operating in developing countries appear to be more efficient than their domestic counterparts, whether those counterparts are privately or government-owned. Domestic banks are forced to become more efficient after foreign entry, especially in the business lines in which foreign banks choose to compete. Claessens, Demirgüç-Kunt, and Huizinga (2001), using data from a sample of 80 countries, show that foreign entry reduces the profitability of domestic banks but enhances their efficiency. Country-specific studies that mainly use bank balance-sheet data reach similar conclusions, such as work on Latin America by Crystal, Dages, and Goldberg (2001), on the Philippines by Unite and Sullivan (2001), on Colombia by Barajas, Steiner, and Salazar (2000), and on Argentina by Clarke and others (2000). Turner (2006) argues that the larger role of foreign-owned banks in Europe and

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5Efficiency calculations are performed by using data on overhead costs (the ratio of bank overhead costs to bank total assets) and bank net interest margin (bank interest income minus interest expense divided by bank total assets).
Mexico in the past decade has made the banking industry more efficient and improved credit allocation.

These FS-FDI studies do not identify whether the productivity enhancements that occur in banking are attributable to increased competition among banks or to technology transfers between foreign and domestic banks. This distinction is important for assessing whether FS-FDI is helping to close a knowledge gap between countries. The distinction may also help reconcile two potentially contradictory themes in discussions on FS-FDI. One such theme is that FS-FDI induces efficiency gains by changing an industry’s competitive structure: foreign entry reduces the monopolistic excesses of domestic banks. Bank exits or mergers and acquisitions change local competitive structures in ways largely unparalleled in other sectors that have received FDI. Another theme is that the significant amount of bank consolidation during the past decade has been fostered by technological change and foreign entry into emerging markets. Interestingly, whereas such consolidation has been associated with efficiency improvements, it has not reduced competition in local financial markets (Gelos and Roldos, 2002). Foreign entry may be enhancing the productivity of other banks in the host market through the channel most often explored in real-side FDI research—technology transfers—instead of exclusively through competitiveness changes. This issue is interesting from a policy perspective: if the main channel is technology transfers, productivity transfers and gains can continue as long as the parent banks innovate, even if a stable ownership structure exists in the host-country banking industry.

**FS-FDI and Host-Country Workers**

The productivity and technology transfer arguments lead directly to the question of whether foreign entry benefits local workers in terms of wages. When the foreign firm has some intangible productive knowledge, technology transfer and other training after entry should expand the human capital of the employees of the foreign firm within the host country. This expansion of human capital should manifest itself in greater worker productivity and be rewarded by higher wages.

Although studied extensively in the context of real-side FDI, these consequences are less extensively documented for financial service industries. Bank balance sheet data indicate that foreign bank operating costs are lower and that domestic bank costs are pushed down by foreign entry (Crystal, Dages, and Goldberg, 2001). In some cases, wage expenditures also decline. The analysis has not determined whether these cost reductions are due to decreases in the numbers of workers (often a result of acquisitions and consolidations of banks) without wage declines or to reductions in employment with higher wages paid to the remaining workers.

Employment consequences of FS-FDI are, in part, contingent on whether FDI takes the form of Greenfield (de novo) investments or occurs via mergers and acquisitions of existing plants (or banking networks).
Although *de novo* investments, where new banks are introduced, may generate increased host-country employment, the scale of increases might be strongest if the new bank does not compete directly with other local facilities that serve thin host-country markets. Net employment gains could also be strong if agglomeration externalities exist, so that the infrastructural improvements associated with FDI spill over to other local firms and all local producers gain.

The net employment effects of mergers and acquisitions FDI are less transparent. Mergers and acquisitions may trigger consolidation of an inherited bloated infrastructure, leading to job loss. Fewer individuals may be employed at higher wages in a plant or banking system that ultimately operates more efficiently. In the case of FS-FDI, evidence reported by the BIS (2006) shows that this type of investment is often made through acquisitions of host-country banks. If FS-FDI is followed by branch closures and reductions in wage bills after acquisition, it accords with this scenario. Yet such declines in employment by a bank do not necessarily imply reductions in total employment in host countries. The special role of banks in financial intermediation means that the employment consequences of FS-FDI may be broader, and more positive, than the consequences of FDI to the real economy. This could arise if intermediation is improved and financial capital is allocated more effectively in the host country.

**FS-FDI and Macroeconomic Growth**

The spillovers and growth ramifications are expected to be strongest when foreign affiliates and local firms compete most directly with each other, as may be the case in previously protected industries. Positive threshold effects may exist between FDI and growth, with human capital accumulation in the host country needing to be sufficiently large before countries can reap the beneficial growth effects of the foreign inflows (Borensztein, DeGregorio, and Lee, 1998).

Studies of FS-FDI effects conclude that growth may expand both through the technology transfer channel and through improved intermediation of capital flows from savers to investment opportunities. A broad literature looks beyond FS-FDI and considers the growth implications of overall financial liberalization. The issue of FS-FDI, as opposed to portfolio investment or other forms of capital inflows, is not explicitly addressed. In this literature, financial liberalization events are usually defined in terms of regulatory changes, such as the relaxation of capital controls or the lifting of interest rate ceilings. Despite the considerable research undertaken, the extent of the long-term growth benefits of capital account liberalizations is hotly debated, and a consensus view has not emerged. Researchers have found sharply contrasting results owing to differences in country coverage, sample periods, inclusion of crisis controls, and indicators of financial liberalization.6

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6Edison and others (2002) and Prasad and others (2003) provide informative surveys.
Cross-country growth regressions reach the broader finding that financial development improves economic growth (Rajan and Zingales, 1998; Levine, Loayza, and Beck, 2000). However, other work finds no evidence that country differences in economic growth can be explained by distinguishing countries by type of financial structure, that is, bank-based vs. market-based structures (Demirguc-Kunt and Maksimovic, 2002). Although the growth-volatility relationships were generally preserved in the 1990s, compared with prior decades, both trade and financial openness tended to attenuate the observed negative effects of volatility on growth (Kose, Prasad, and Terrones, 2006).

Microeconomic arguments for positive growth effects from FS-FDI are rooted in the idea that these banks can engage in more efficient credit allocation in host markets, with funds made more available for private sector use. Prior to FS liberalization and reform, some governments used the local banking system as a tool for providing directed credit to politically favored constituents or favored but loss-incurring sectors of the economy. In this type of scenario, the banks implicitly play a role in patronage and “development finance” and subsidize levels of activities that might not be viable on market terms. Suggestive evidence of the costliness of such strategies is found in La Porta, López-de-Silanes, and Shleifer (2002) who argue that a higher level of government ownership of banks is associated with lower growth of per capita income and productivity across countries. A fascinating study of state-owned banks in Italy concluded that public bank lending had a pattern of rewarding political supporters (Sapienza, 2004).

This type of directed lending crowds out intermediation to worthy private borrowers—with the types of classic principal-agent problems arising (Mishkin, 2005). If foreign banks operating in host markets were better regulated and subject to parent bank oversight, these banks might be able to more effectively resist local suasion. As such, the banks may more effectively discipline host-country fiscal or monetary “irresponsibility” by being less amenable to forced purchases of government bonds or forced lending to favored political constituents. Such outcomes would be auspicious for sustainable economic growth.

A related observation is that financial liberalization tends to relax financing constraints on producers in developing countries and make them less adversely influenced by financial crises (Galindo and Schiantarelli, 2003). Outside of crisis periods, foreign banks might be expected to contribute to growth by providing capital to worthy but previously credit-constrained borrowers, and by not crowding out credit provision to worthy borrowers that are outside the scope of their business model. During crises, foreign-owned banks may be destinations for local flight capital, preventing this capital from leaving the country and creating greater opportunities for these funds to continue to be intermediated locally.

There is a substantial amount of research activity that has focused on patterns of lending activity by individual banks in countries that have
permitted extensive foreign bank entry, generally concluding that FS-FDI fosters economic growth. One line of work finds that credit provision by U.S. banks to Latin American countries grew faster during the 1990s and was less sensitive to local cycles than credit provision by domestically owned banks (Crystal, Dages, and Goldberg, 2001).

Other lines of research address whether foreign bank entry alters the composition of private sector credit provision, raising the concern that small businesses relying on bank credit and potentially fueling growth might have constrained credit access following foreign bank entry. One argument, exposited in a model by Detragiache, Tressel, and Gupta (2006), is that if foreign banks have an advantage at monitoring high-end customers compared with their domestic bank competitors, the distribution of credit availability changes with foreign entry. Using a cross-country and dynamic specification, higher foreign bank presence in poor countries was actually associated with less credit growth and less private access to credit. Another argument, exposited by Mian (2006), is that greater cultural and geographical distance between foreign-owned banks and local customers places the foreign banks at a comparative disadvantage. Using detailed data from the Pakistani experience, foreign banks are found to engage in less lending to “soft information” firms, and appear to have more difficulty performing bilateral renegotiation and achieving bad loan recovery.

Conflicting evidence comes from other studies. In Latin America, foreign-owned banks appear to have been providing credit to local constituents in patterns similar to those of healthy domestically owned banks (Dages, Goldberg, and Kinney, 2000). Detailed evidence for Latin American countries shows that other than possible biases in borrower orientation often linked to bank size (large banks lend relatively less to small and medium-sized enterprises), there has been no systematic bias in orientation specifically associated with foreignness (Clarke, Cull, and Peria, 2001). Foreign banks in Argentina may have behaved significantly differently from local banks only when decision-making remained in foreign headquarters (Berger, Klapper, and Udell, 2001). In Mexico, foreign banks have been associated with expanded access to bank branches across municipalities, yet deposit and loan penetration in per capita terms declined, especially in poorer and more rural areas (Beck and Peria, 2008). In Eastern Europe (specifically, Hungary) foreign entry may even have been associated with expanded credits, in aggregate, to small and medium-sized enterprises when the domestic banks had to search more aggressively for a broader clientele for lending (Bonin and Abel, 2000). The Eastern European experience with foreign banks is argued to have benefited lending to all firms (Giannetti and Ongena, 2005).

Overall, these observations support the conclusion that FS-FDI should foster more rapid growth within economies. The conclusion is also supported by arguments based on better information processing, technology, and risk management practices.
Institutions in developing countries can respond positively to FS-FDI. Foreign-owned banks appear to contribute to the overall soundness of local banking systems by screening and treating problem loans more aggressively (Crystal, Dages, and Goldberg, 2001). If foreign entry spurs additional regulatory improvements, the risk of financial crisis declines. Numerous studies assert that FS-FDI spurs improvements in bank supervision, with regulatory spillovers. The entry into emerging markets of foreign banks that are healthier than domestic banks implicitly allows a country to import stronger prudential regulation and increase the soundness of the local banking sector. In Argentina, Chile, and Colombia, for example, foreign banks have contributed to enhanced domestic financial stability by engaging in more aggressive risk management techniques. Argentina’s bank regulatory system in the late 1990s was arguably one of the most successful among emerging market economies (Calomiris and Powell, 2001). Reliance on market discipline was viewed as playing an important role in prudential regulation by strengthening risk management among banks.

Another institutional and regulatory challenge can arise if a country’s financial services industry becomes highly concentrated, in which case banks may exert monopolistic pricing tendencies more extensively. If foreign banks are among the few surviving banks, local regulators may be tempted to conclude that these banks bear specific responsibility for adverse outcomes. Yet in many cases, foreign bank entry is part of a larger scale restructuring and recapitalization of the emerging market financial system. More concentrated market power may have occurred regardless of whether owners were foreign or domestic. Even with monopolistic pricing, there may be other benefits through scale economies and improved services that are by-products of consolidation. These issues challenge regulators to engage in careful cost-benefit analyses and policy reactions.

Foreign bank entry also raises issues of competition policy within host-country banking systems. Although the actual experiences of host countries have been researched extensively—see BIS (2001) and the volume’s overview by Hawkins and Mihaljek (2001)—on average, evidence suggests that consolidation has been occurring without deterioration of the competitiveness of a country’s financial services industry (Gelos and Roldos, 2002).

Financial globalization should be an important supporting force behind institutional reform (Mishkin, 2005). Domestic institutions, facing competition from abroad, will seek new customers to stay in business. For lending to be profitable, domestic banks will require information to screen and monitor their customers. Better accounting standards and disclosure requirements, as well as a more efficiently managed legal system, will be consistent with continued domestic bank profitability. Foreign-owned banks will also be a constituency supporting these positive reforms because, as outsiders, they would not have access to the same information as their domestic competitors.
The transition to improved local supervision, however, might be bumpy. Major international banks may try to build market share by offering a variety of new financial products, including OTC derivatives, structured notes, and equity swaps. These new derivative products can provide greater opportunities for hedging risks. Yet some new products may also be used to evade prudential regulations and take on excess risks, especially in countries with weak financial systems and underprepared supervisors (Garber, 2000). One clear implication is that local supervisors in emerging markets may have to invest in upgrading their skills in order to evaluate more efficiently the use and effects of new products. Other challenges for supervisors arise in the context of relationships with parent banks, and may depend on whether the foreign entry is accomplished through branches or subsidiaries.

Moreover, the path of regulation and supervision could be importantly influenced by the institutions and political arrangements within a country, as argued by Barth, Caprio, and Levine (2006) based on cross-country analysis using a new database on bank regulation and supervision. The extent to which regulation and supervision proceed, and the degree of harmonized versus market-specific progress, will certainly continue to be an important focus of policy community efforts (Caprio, Evanoff, and Kaufmann, 2006; Claessens, 2006; Moskow, 2006; Haines and Ho, 2007).

IV. Conclusions

In this article we have documented some of the recent evolution of the globalization of banking and overviewed some of the related consequences. These consequences are grouped into the international transmission of shocks and cycles, allocative efficiency of credit and growth, technology transfer and diffusion, wage and employment spillovers, and institution building.

First, we showed that banking globalization expanded rapidly in the 1990s. This occurred through acquisitions, which were impressive in their number and scale, and through new entry into foreign markets. In some markets the entrants displaced state-owned banks, but entry in other markets occurred via acquisitions of privately held banks. In the developing world, large strides were made in Latin America and developing Europe. Recently China has been making more progress in the area of banking openness, whereas India still has significant scope for private entry. The participation of foreign-owned banks in local markets has led to some substitution of cross-border lending that tends to be more volatile, in favor of locally generated claims.

The paper also has presented evidence that bank globalization has been changing international transmission and business cycles. General changes in cyclicality of lending depend on what type of bank is being displaced when a foreign bank enters a host market. A change in loan volumes and cyclicality is not a generalized feature when a foreign owner purchases a healthy bank...
that is either foreign- or domestically owned. The change in behavior arises when the bank that is acquired is a troubled entity or is a previously state-owned bank. Another key feature of banking globalization is that it has been associated with a reduced incidence of financial crises in emerging market economies, and thereby with a reduced incidence of the sharp output contractions that accompany such crises. So, although foreign bank entry into emerging markets reduces the incidence of crises, it enhances the potential for greater contagion through common-lender effects. The contagion problem is reduced when foreign banks have a stronger subsidiary presence, as opposed to supporting local markets through cross-border flows. Bank globalization alters shock transmission across international markets, both through the internal capital markets of banks and their foreign subsidiaries, and also through what has been described as common-lender effects across the markets in which foreign banks have staked out positions.

Some of the consequences of bank globalization for the real economy come under the headings of allocative efficiency, technology transfer, consequences for workers, and institutional and regulatory changes. FDI is typically associated with improved allocative efficiency. This improvement can occur when foreign investors enter industries with high entry barriers and then reduce local monopolistic distortions. The presence of foreign producers may also increase technical efficiency: heightened competitive pressure or some demonstration effect may spur local firms to use existing resources more effectively. FDI is also associated with higher rates of technology transfer and diffusion as well as with greater wages. Although there is evidence of technological improvements from FDI and a presumption that such investment will consequently stimulate economic growth, the strength of these effects is disputed. FDI into host countries also induces higher wages, although these wage effects are sometimes limited to the foreign-owned production facilities and do not spill over more broadly. The employment and growth effects of FS-FDI are more subtle than other effects, depending in part on whether the investment is Greenfield or mergers and acquisitions. In the latter case, the effects also depend on whether the acquired institution was financially sound or in need of restructuring, regardless of the nationality of the new owners. However, if financial intermediation improves, FS-FDI should support greater employment and growth prospects.

The institutional effects of FS-FDI are potentially clearer and quite positive. FS-FDI from well regulated and well supervised source countries can support emerging market institutional development and governance, improve a host country’s mix of financial services and risk management tools, and potentially reduce the incidence of sharp crises associated with financial underdevelopment in emerging markets. Yet this type of investment can initially pose formidable challenges to local supervisors, who will need to develop expertise in the practices and products introduced into their economies.
Improved regulation and supervision occasionally occur with a lag, as supervisors in the host countries at first may not be prepared to evaluate the new products and processes introduced by foreign entrants. The path forward on regulatory and supervisory reform continues to be an important focal point in the policy community, with continued importance underscored both by trends in banking globalization and by recent events reinforcing the strength of international financial linkages across the industrialized and emerging economies of the world.

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MARK M. SPIEGEL

The literature appears to have reached a consensus that financial globalization has had a “disciplining effect” on monetary policy, as it has reduced the returns from—and hence the temptation for—using monetary policy to stabilize output. As a result, monetary policy over recent years has placed more emphasis on stabilizing inflation, resulting in reduced inflation and greater output stability. However, this consensus has not been accompanied by convincing empirical evidence that such a relationship exists. One reason is likely to be that de facto measures of financial globalization are endogenous, and that instruments for financial globalization are elusive. This paper introduces a new instrument—financial remoteness—as a plausibly exogenous instrument for financial openness. It examines the relationship between financial globalization and median inflation levels over an 11-year cross-section from 1994 through 2004, as well as a panel of five-year median inflation levels between 1980 and 2004. The results confirm a negative relationship between median inflation and financial globalization in the base specification, but this relationship is sensitive to the inclusion of conditioning variables or country fixed effects, precluding any strong inferences. [JEL E5, E52, E58, F21, F36, F4]

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This paper offers a contribution to the literature on globalization and macroeconomic performance. To keep the analysis tractable, attention is restricted to the potential impact of financial globalization, loosely defined as the phenomenon of increased international cross-holdings of assets and its implied increased international asset substitutability. This phenomenon has led to a reduction, but in no sense an elimination of, the so-called “home bias” effect, whereby economic agents are found to hold a disproportionate share of their asset portfolios in assets originating from their home country. The relationship between financial integration and macroeconomic volatility is ambiguous in theory. Volatility may increase in the wake of financial globalization, as agents may rationally respond to enhanced risk-sharing opportunities by increasing the specialization of their home country production bundles (for example, Kalemi-Ozcan, Sorensen, and Yosha, 2003), or it may decline, as in Caballero and Krishnamurthy (2001), where firms in countries with less-developed domestic financial sectors may enjoy greater capacity to smooth investment.

In a series of recent papers, a group of researchers at the International Monetary Fund have documented the fragility of the evidence of macroeconomic benefits of financial integration. Kose, Prasad, and Terrones (2003a) demonstrate that the ratio of consumption volatility to income increased during the 1990s for more financially integrated economies. Kose, Prasad, and Terrones (2007) demonstrate that financial globalization has led to little increased risk-sharing among emerging market economies, even among those that are relatively more financially integrated with the rest of the world. Similarly, Kose, Prasad, and Terrones (2003b) demonstrate that consumption correlations across countries did not increase in the 1990s, the period corresponding to rapid increases in financial globalization, as would have been expected. Prasad and others (2003) also fail to find a statistically significant relationship between financial integration and growth or a negative relationship between financial integration and consumption volatility. Indeed, they find that, in the short run consumption volatility is positively related to levels of financial integration.

Their findings have been corroborated in a number of independent studies. Buch, Doepke, and Pierdzioch (2005) find no systematic relationship between financial integration and output volatility. Bekaert, Harvey, and Lundblad (2006) do find that financial liberalization is associated with reduced consumption volatility, but other studies have obtained different results, as in Fujiki and Terada-Haiwara (2007) who demonstrate that increased financial integration is not measurably associated with reduced consumption volatility in east Asian economies.

Stronger results for financial integration and macroeconomic volatility have recently been found by Rose and Spiegel (forthcoming), using financial remoteness, measured as the natural logarithm of great-circle distance to the closest major financial center (London, New York, or Tokyo) as an indicator of financial integration. Relative to other measures of financial integration in
the literature, this measure has the advantage of plausible exogeneity, particularly for their subsample that excludes large countries, as small countries are unlikely to have had much influence on the geographic allocation of world financial centers. Using this measure, Rose and Spiegel (forthcoming) find an economically significant relationship between financial remoteness and macroeconomic volatility that is positive and usually statistically significant.

This paper applies the financial remoteness variable to the question of financial integration and the quality of monetary policy outcomes. Obstfeld (1998) and Rogoff (2004) have argued that increased international capital mobility could have a “disciplining effect” on monetary policy. Increased international asset substitutability reduces the effectiveness of using inflation as a source of government revenues. Holding all else equal, this should reduce the inflationary pressure on central banks and result in lower average levels of inflation.

In concentrating on financial globalization, I ignore a number of other components of globalization in a broad sense that may independently impact monetary policy. For example, Rogoff (2004) argues that increased competition worldwide has increased the slope of the Philips curve, reducing the gains from, and hence pressure for, loose monetary policy. Alternatively, some have argued (for example, Borio and Filardo, 2007) that increased goods tradability has left global, rather than domestic, capacity the relevant metric for measuring the output gap.1

Moreover, the rate of inflation is not directly tied to welfare, and therefore represents an intermediate policy goal. For example, price stability is typically valued because it has been shown to be associated with superior overall economic performance. As such, one might wonder why it would not be preferable to examine the relationship between financial openness and long-term economic growth directly. One answer may be that it appears to be difficult to detect the growth benefits of financial globalization, which may only appear over long periods and may even be difficult to detect in panels over long periods in specifications that condition for institutional and other domestic characteristics whose values may be a function of financial openness and leave little explanatory power to the financial openness variable itself (Kose and others, 2006).

Empirical evidence for the disciplining effect on financial openness on monetary policy is relatively limited. One notable exception is Tytell and Wei (2005), who examine the relationship between de facto financial openness and monetary and fiscal discipline. They find that financial openness is negatively related to average inflation but has no measurable affect on the government budget deficit.

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1However, see Ihrig and others (2007), which questions the validity of the global capacity hypothesis based on the domestic consumer price level’s lack of sensitivity to the foreign output gap.
In examining the relationship between financial development and policy outcomes, causality is always in question. As an instrument, Tytell and Wei (2005) consider financial openness in neighboring countries in the same geographic region, weighted by distance from the country in question. They motivate using this instrument by noting that countries from some region of the world, such as Latin America, have a disproportionate amount of financial interaction with common countries, in this case the United States.2

This paper uses the same de facto measure of financial integration as that used in Tytell and Wei (2005): the sum of international capital outflows and inflows as a share of GDP using the Lane and Milesi-Ferretti (2001) data set as the measure of capital flows. Kose and others (2006) argue that this provides the best indicator of financial integration, as gross flows are less volatile than net flows and are particularly appropriate as measures of risk sharing. However, the analysis here differs from that in Tytell and Wei (2005) in that it makes use of financial remoteness as a plausibly exogenous instrument for the level of financial integration.3 This instrument is not time-varying, as the Tytell and Wei (2005) instrument is, but as we argue in Rose and Spiegel (forthcoming), it has a strong claim to plausible exogeneity. It seems possible that some shock, such as a large change in the price of oil, could have common implications for capital flows within a region, as well as macroeconomic policies within that region, depending on whether the region is a net oil importer or exporter, that could be problematic for the instrument used in Tytell and Wei (2005). Still, as one instrument is time-varying while the other is not, I view the analysis here to be complementary to that done in their paper.

In addition, I introduce some conditioning variables not considered in Tytell and Wei (2005). These latter extensions appear to have substantive implications. I largely confirm a negative relationship between de facto financial openness and inflation for a univariate specification with or without instrumenting, but these findings do not appear to be robust to conditioning for country wealth or simply for introducing country fixed effects in a noninstrumented specification.

In the end, then, the results with this new instrument appear to be similar to much of the existing literature: while there is clearly a negative univariate relationship between financial integration and monetary stability, and indeed one that appears to stand up to instrumenting to address endogeneity issues, the importance of this relationship is very sensitive to sample specification. In particular, both financial integration and monetary stability appear to

2Tytell and Wei (2005) also move beyond a linear specification to allow for “threshold effect” in macroeconomic policies using a transition matrix approach. They find a significantly negative relationship between financial integration and the probability of transitioning from a low to a moderate inflation regime.

3As a robustness check, I also follow Rose and Spiegel (forthcoming) and consider financial remoteness as a possible indicator of financial integration itself, with similar results.
be characteristics of well-functioning economies, but so are a myriad of other factors examined in the literature, such as the level of development of the domestic financial sector, the quality of institutions, or indeed, simply an economy's level of GDP per capita. The prospects of ever isolating the role of financial globalization empirically do not seem promising.

I. Scope of Financial Globalization

This paper follows the literature (for example, Lane and Milesi-Ferretti, 2001; Prasad and others, 2003) in defining de facto financial openness as gross international asset positions as a share of GDP, measured as the sum of stocks of external assets and liabilities of FDI and portfolio investment as a share of GDP. This is the measure advocated in Kose and others (2006).

As is well-documented, financial globalization according to this measure took off in both industrial and emerging market countries in the latter half of the 1990s (for example, Lane and Milesi-Ferretti, 2003). There are a number of reasons for this dramatic upturn in international capital movements: technological progress has reduced the cost of acquiring and managing holdings of foreign assets, and thereby increased investors' demand for internationally diversified portfolios. In addition, innovations in finance have increased the capacity for hedging investment positions, leading to a proliferation of available international investment vehicles.

These flows have coincided with a large buildup of net surplus positions by emerging market economies, and, in particular, by emerging Asian and commodity-producing nations. Current account surpluses of emerging Asian nations are now at levels comparable to those that followed the Asian financial crisis. As of the current year, overall Asian holdings of foreign exchange reserves excluding gold reached close to $3.3 trillion. These increased capital flows have had a number of important impacts on the international economy. In particular, the emergence of emerging market economies as net creditors has allowed some developed economies, notably the United States, to finance large current account imbalances at relatively favorable rates.

This pattern of capital flows, with developed economies being net borrowers from emerging economies, is generally considered to be non-standard for a number of reasons. First, standard theory suggests that capital scarcity in developing countries leaves their marginal products of capital higher than the developed countries as a group. This implies that holding all else equal, investors should find more attractive opportunities in emerging market economies than in their developed counterparts. Second, at least for the rapidly growing developing countries, higher expected future incomes provide an incentive to run current account deficits now to smooth consumption. Instead, paradoxically, the largest net surpluses we observe in the data come from some of the most rapidly growing countries, such as China.
Much work has recently gone into explaining this paradoxical investment pattern. These include theories about differences in the quality of financial intermediation between developed and emerging market economies, where portfolio capital moves from south to north, to return as foreign direct investment (FDI) (for example, Mendoza, Quadrini, and Rios-rull, 2007).

Alternatively, the so-called Bretton Woods II school (for example, Dooley, Folkerts-Landau, and Garber, 2004) argue that net outflows from China serve as collateral against future opportunistic behavior. While these arguments are interesting, they appear to run into problems when confronted by the data. In particular, Figure 1 demonstrates that the pattern of buildup in Chinese reserves, which represents the majority of the net imbalances run by the United States with the Asian region, comes much later than its buildup of FDI. As a result, it would appear difficult to motivate this buildup by the desire to encourage inward FDI.

Another explanation is associated with Federal Reserve Chairman Ben Bernanke (2005), who argued that poor investment opportunities in Asia have resulted in a global “savings glut” that has freed up capital for lending to developed economies. This argument probably accounts for some of the imbalances we observed, but low public and private savings rates in the developed economies, particularly the United States, most likely also have played a role.

**Figure 1. Portfolio and FDI Positions in China versus Foreign Reserves**

*(In billions of U.S. dollars)*

![Bar chart showing portfolio and FDI positions in China versus foreign reserves](chart.png)

Sources: Lane and Milesi-Ferretti (2007); IMF, *International Financial Statistics.*
II. Monetary Policy in a Financially Globalized Environment

The increased volume of trade in financial assets has had a significant impact on international borrowing terms. Spreads on emerging market bonds have decreased markedly over time, with the EMBI index yield falling from over 16 percent in 1998 to just over 6 percent in 2006 (Spiegel, 2007). While this decline reflects a benign decrease in the cost of borrowing by emerging market economies, it also reflects the fact that debt obligations across countries are being treated as more substitutable than they have been in the past. This convergence in yield curves has been accompanied by convergence in other types of asset returns. For example, convergence in cross-country equity returns has also been documented (for example, Ferguson, 2005; Rogoff, 2006).

What does this convergence imply for monetary policy? If assets are close substitutes worldwide, domestic interest rates are likely to be influenced by global factors. A “savings glut” in Asia can play a role in reducing real interest rates in the United States. In this type of environment, it is likely to be the case that longer-term interest rates are less sensitive to transitory movements in the federal funds rate, the interest rate targeted by the U.S. Federal Reserve, leaving the impression that financial globalization has left interest rates less sensitive to monetary policy than in the past.

Does this mean that monetary policy loses its effectiveness under financial globalization? Some have argued that that is the case, as in Rogoff (2006), which claims that in the wake of increased financial globalization even the largest central banks “…have less direct impact on medium and long-term interest rates than might once have been the case.”

Woodford (2007) examines the implications of increased international financial integration for the monetary transmission mechanism in a simple version of the Clarida, Gali, and Gertler (2002) model, in which real interest rates are equal across countries. He demonstrates that in the special (but by no means extreme) case of unitary elasticity of substitution of domestic and foreign goods, the degree of financial openness has no impact on domestic aggregate demand for a given monetary policy. This raises the possibility that the impact of changes in openness need not be large. Moreover, Woodford demonstrates that in an environment of equalized real interest rates it is still possible for monetary policy to control both nominal expenditure and inflation. In contrast, foreign monetary policy can only impact domestic demand and inflation through its impact on foreign output levels. The conclusion is therefore that even under financial globalization, standard theory suggests that the monetary authority should retain the ability to control the domestic price level.

Moreover, as noted by Rogoff (2004), the fact that an individual central bank has lost some of its short-term influence over real interest rates does not...
imply that central banks as a group have lost the ability to act in concert and influence rates over the short term. Central banks acting in concert, such as the recent move by a number of banks to inject liquidity into the financial system, can still have a substantial impact. To the extent that countries in central banks in Asia as well as the oil-exporting countries target the dollar in their monetary policies, the impact of policy actions by the Federal Reserve will also be amplified (Rogoff, 2006).

Finally, while financial globalization raises opportunities for emerging market economies to acquire capital at more favorable interest rates, it also brings new challenges to these economies. In particular, globalization raises the possibility of exacerbated exchange rate volatility, which can be a source of output variability; that is, emerging economies may suffer terms of trade shocks from real exchange rate changes when nominal exchange rate movements are not passed through to changes in domestic prices. Exchange rate depreciations can also lead to inflationary pressure through increased import prices.

Others, such as Obstfeld (1998) and Tytell and Wei (2005) have stressed the potential disciplining effect that increased international capital mobility could have on monetary policy. Increased international asset substitutability reduces the effectiveness of using inflation as a source of government revenues. Holding all else equal, this should reduce the inflationary pressure on central banks and result in lower average levels of inflation. Kose and others (2006) argue that superior monetary policies are one of the primary “collateral benefits” associated with financial integration. This disciplining effect has been recently noted in a number of speeches by monetary policy makers (for example, Ferguson, 2005; Kroszner, 2007).

The discipline effect also applies to the overall stability of the monetary policy regime. If anything, it would appear to be the case that globalization raises the sensitivity of prices and inflation to changes in the monetary policy regime. The reason for this heightened sensitivity stems from the increased substitutability of assets internationally. With increased asset substitutability, global investors can avoid financial markets with excessive exposure to currency risk or the risk of the imposition of capital account restrictions, as they did to Malaysia subsequent to its imposition of capital controls following the 1997 crisis.

Difficulties for monetary policy raised by financial globalization have also been noted. Bernanke (2007) notes that financial globalization may make analysis of financial and economic conditions more complex, arguing that increased foreign demand for U.S. assets had contributed to recent inversions of the yield curve. Kohn (2008) acknowledges that asset price determination is more dependent on worldwide financial conditions in the wake of financial globalization, reducing the correlation between the federal funds rate, which is directly controlled by the Federal Reserve, and longer-term treasury bills.

Financial globalization also has implications for the desirability of monetary policy coordination. Sutherland (2004) demonstrates that the
welfare gains from monetary policy coordination increase with increased financial integration. The potential benefits of coordination are also heightened by the ability of central banks acting in concert to overcome some of the diminished traction between long-term rates and the federal funds rate discussed above. However, Taylor (2008) argues that even under financial globalization the benefits from policy coordination are still likely to be second-order relative to a central bank acting to control its domestic inflation rate.

Increased exposure to global shocks under financial integration may also lead to greater susceptibility to financial crises. As many emerging market economies continue to have liabilities denominated in dollars, exchange rate depreciations can lead to “currency mismatch” issues, as exchange rate movements raise the relative value of liabilities and damage the nation’s balance sheet as a whole.

As such, counter to the “discipline effect” noted above, some believe that financial globalization hinders the ability of emerging market central banks to pursue price stability, or even formal inflation targets, as doing so leaves them open to exchange rate volatility. The intuition behind this concern is the so-called “impossible trinity”, which notes that a country cannot simultaneously pursue price and exchange rate targets while maintaining open capital accounts. However, recent studies, such as Rose (2007) have found that countries that target inflation experience no more exchange rate volatility on average than do countries that do not target inflation.

The increased prevalence of global shocks may also make it more difficult for emerging market economies to conduct domestic monetary policy, because increases in the difficulty of assessing the value of the domestic output gap may be more severe in these types of economies, because they often find it more difficult to assess domestic economic conditions than their industrial counterparts (Wagner, 2004).

There are also concerns that financial globalization may be more disruptive in emerging market economies because of the relative lack of development of their domestic financial sectors. For example, Levchenko (2004) demonstrates that opening up to international markets can actually increase consumption volatility if domestic financial markets are relatively undeveloped and agents within the economy have heterogeneous access to external financial markets. The reason is that risk-sharing within the domestic economy can deteriorate if a subset of domestic agents face increased external risk-sharing opportunities not available to all.

III. Monetary Policy Responses to Financial Globalization

The discipline hypothesis contends that financial globalization reduces the optimal reliance on the inflation tax, as investors can more easily flee a currency than in the past. It also reduces the optimal intensity of optimal output stabilization, as the increased substitutability of assets internationally increases the relative desirability of targeting inflation.
Recent experience concerning monetary policy appears consistent with this hypothesis: the additional discipline placed on monetary authorities from enhanced financial integration has led to advances globally in monetary policy. Countries are paying more attention to targeting the inflation rate, formally or informally, as their policy goal. Indeed, formal inflation targeting is now a common policy. As reported by Rose (2007), 14 of the 30 countries in the Organization for Economic Cooperation and Development (OECD) now formally target inflation, while the 12 countries in the European Monetary Union (EMU) have an inflation target as one of their policy goals, and the United States holds the pursuit of ‘‘price stability’’ as one of its dual monetary policy targets. Moreover, inflation targeting has been formally adopted by 10 emerging market economies with over 750 billion in population. Overall, formal inflation targeting is practiced in countries representing over a quarter of the world economy.

Inflation-targeting regimes have also been shown to be durable. The first explicitly formal inflation targeter, New Zealand, adopted its regime 17 years ago. The durability of inflation-targeting regimes also compares favorably to that of exchange rate pegs. Rose (2007) finds that there is only a 3 in 10 probability of an exchange rate regime lasting more than 8 years. Over the history of inflation targeting, only Finland and Spain have left inflation-targeting regimes, and in their case they left to join the EMU, which of course has an inflation target as one of its objectives.

Inflation-targeting regimes also tend to exhibit capital account openness. With monetary policy concentrated on fixing the price level, most inflation targeters have abandoned conflicting exchange rate targets and allowed free international capital movements. This has on some occasions led to increased exchange rate volatility, but on the whole observed capital movements have not been as disruptive as observed speculative attacks on pegged exchange rate regimes.

The increased focus on price stability has also not been limited to formal inflation-targeting regimes. Inflation rates in emerging market economies have declined dramatically since 10 years ago. As shown in Figure 2, average inflation rates for a representative group of emerging market economies in 1998 stood at 16 percent higher than those prevailing in the industrial countries. By 2006, that gap had been reduced to 6 percent, or just 4 percent above average levels in industrial countries. I should also note that maintaining the industrial country average at around 2 percent over this period was also an achievement attributable to countries’ paying greater attention to focusing monetary policy on maintaining price stability.

The variability of inflation has also declined markedly over this period (see Figure 3). This is relevant for a number of reasons: First, one might suspect that a few outlier countries, such as Brazil in the case of the emerging market economies and Japan in the case of the industrial countries, are by themselves driving the decline in observed average inflation rates. This figure demonstrates that instead inflation rates have converged across the board. Second, most economic theory would suggest that it is
Figure 2. Average Inflation in Industrial and Emerging Market Economies  
(In percent)

Notes: Average inflation rates for 22 industrial countries and 24 emerging market economies.  
Lists of included countries available from author on request.

Figure 3. Standard Deviation of Inflation in Industrial and Emerging Market Economies  
(In Percent)

Notes: Standard deviation of inflation rates for 22 industrial countries and 24 emerging market economies.  
Lists of included countries available from author on request.
the variability of inflation, rather than its overall rate, that is important in determining output volatility, so we should be concerned with the variability of inflation rather than its level. In practice, high inflation tends to coincide with variable inflation, which is why keeping the rate of inflation under control is usually sufficient to control its variability as well. The previous 10 years have been no exception to this rule. As average inflation rates fell worldwide, the variability of inflation has fallen as well.

The renewed focus on controlling inflation and inflation expectations has led to improved conditions in capital markets, neglecting the recent short-term volatility that has occurred. Long-term yields have decreased globally and the slopes of yield curves throughout the world have flattened considerably. These lowered reduced curves worldwide have also allowed emerging market economies to issue longer-term debt at favorable terms. Firms in emerging market economies have moved from bank borrowing in external so-called “hard” currencies toward external borrowing in bonds denominated in their domestic currencies with relatively long maturities and fixed interest rates. Korea and Thailand introduced 10-year domestic-currency bonds in the 1990s, while by the year 2000, Brazil, Chile, Colombia, Indonesia, Mexico, and Russia had also issued domestic currency bonds (Kroszner, 2007). As these instruments have become more standard, their yields have decreased.

This shift has accomplished a number of desirable achievements. First, currency risk has been shifted from borrower to lender. Second, the fixed interest rates have shifted interest rate risk to creditors as well. Third, the longer maturities reduce the risk of disruptive “sudden stops” in credit that have resulted in costly failures in the past. Fourth, government issues in local currency have helped encourage the development of local bond markets by providing “benchmark” yield curves for pricing private debt.

Finally, when defaults do take place, contagion is limited by the wide dispersion of creditors. One can contrast the implications of the immense recent Argentine default to outcomes in Latin America in the early 1980s, when the balance sheets of a number of prominent global commercial banks were devastated by losses from default. However, the large number of creditors may also leave it more difficult to pursue renegotiation with problem debtors.

To summarize, financial globalization has decreased the relative desirability of using monetary policy to stabilize output in favor of increasing attention toward the pursuit of price stability. In response, monetary policy makers have shifted their emphasis toward achieving price stability, with many formally adopting inflation-targeting regimes. The response from financial markets has been relatively benign, with lower and less variable inflation and better borrowing terms for emerging market economies. Notably, this pattern has not been markedly reversed under the recent subprime financial market turmoil.
IV. Evidence on Globalization and Monetary Policy

Specification

This section examines the evidence on financial integration and monetary policy outcomes, measured as median inflation rates over a variety of periods. As in much of the literature, the analysis is not structural and measurement of a number of key variables is almost certainly done with error. As a result, I examine a reduced-form specification of the determinants of inflation that includes my variable of interest and then subject the analysis to a battery of robustness tests.

As discussed above, the instrument introduced in this paper, a measure of financial remoteness, is time-invariant and hence not conducive to use in a panel. As a result, I examine both cross-sectional and panel results depending on whether the geography-based instrument is used.

Data for financial remoteness and most of the conditioning variables are taken from Rose and Spiegel (forthcoming). As in that paper, the cross-sectional data primarily comes from 11-year period averages from 1994 through 2004 inclusive, while panel data consists of 5-year averages from 1980 through 2004 inclusive. Exceptions include inflation data that come from the IMF’s International Financial Statistics database, and measures of financial openness, which are taken from Lane and Milesi-Ferretti (2007).

The default specification for the cross-sectional analysis is as follows:

\[
\log(p_i) = \alpha + \beta_1 \text{FinOpen}_i + \beta_2 \text{TrdOpen}_i + \beta_3 \text{Govi}_i + \beta_4 \text{Poli}_i + \beta_5 \text{Pop}_i + \epsilon_i,
\]

where \(\log(p_i)\) represents the log of the absolute value of median inflation of country \(i\) over the 11-year period. \(\text{FinOpen}_i\) represents our variable of interest, the level of financial integration. This variable is measured as the sum of stocks of external assets and liabilities of FDI and portfolio investment as a share of GDP.\(^5\)

I include the following conditioning variables. \(\text{TrdOpen}_i\) represents trade openness, measured as the average of the sum of exports plus imports as a share of GDP. I include this variable because countries that are open on their capital account are likely to be open on their trade account as well, so there is a danger that the variable of interest would actually be picking up the effect of trade openness if one did not condition for this characteristic. \(\text{Govi}_i\) represents government spending, measured as the average of government spending as a share of GDP. Holding all else equal, one would expect a positive coefficient on government spending, as a nation’s central bank may

\(^5\)Unlike Tytell and Wei (2005), we do not include debt stock data in our openness measure. As discussed in their paper, either measurement method would be biased as coverage of debt volumes is not complete. In any event, our base specification yields results that are similar to theirs, suggesting that the results are insensitive to the inclusion or exclusion of debt flows in the financial openness measure.
be induced to resort to the inflation tax to some degree with increases in government expenditures. Poli represents the average polity score, indicating the quality of domestic institutions.6 One would probably expect a negative coefficient on this variable, as nations with superior domestic institutions should be less susceptible to timing-inconsistency-based inflationary biases. I control for country size via Popi, which measures average population levels. It is unclear what sign one should expect on this variable. Finally, ei represents an error term assumed to be i.i.d.

I first test the above specification in a cross-section, with and without the financial remoteness instrument, FinRemi, which is measured as the minimum distance from one of the major three international financial centers, London, New York, or Tokyo. Using this measure, Mauritius and South Africa are the most financially remote countries in our sample, while Belgium and the Netherlands are the least financially remote.7 I then move to pooled and panel specifications of averages over 5-year periods from 1984 through 2004. I use panel specifications correcting for country fixed effects in the direct five-year specifications without instrumenting, and also report results for pooled specifications with financial remoteness used as an instrument for financial integration. In the latter specification, I allow for error clustering by country. Heteroscedasticity-consistent standard errors are reported throughout.

Summary statistics for the 11-year cross-section sample are shown in Table 1. It can be seen that there are notable differences between high-income

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6The measure is actually the “polity2” score, obtained from the Polity IV Project Data Set. For details, see http://www.cidcm.umd.edu/polity.

7As in Rose and Spiegel (forthcoming), the United Kingdom, the United States, and Japan are dropped from the sample. I also drop Luxembourg, which is an outlier in the financial openness measure at over 10,000. The next highest value in the sample, Hong Kong, SAR has a 508 score.
countries and the rest of the sample. High-income countries have median inflation rates that are substantially lower, 0.80 vs. 1.93, and much lower inflation volatility as well, 0.51 vs. 1.04. It can also be seen that higher-income countries are more financially open and less financially remote. It can also be seen that correlations between both our measure of financial openness and our measure of financial remoteness and median inflation rates are relatively high in absolute value, at $-0.32$ and $0.28$, respectively.

**Results**

Results for the cross-sectional sample are shown in Table 2. Model 1 runs our base specification. It can be seen that the variable of interest, $FinOpen_i$, enters with its predicted negative sign at a highly statistically significant level. Moreover, the coefficient point estimate suggests that a one standard deviation increase in financial integration, which would equal 74.89 in our sample, would result in a decrease in expected median log inflation of 0.45, an economically significant decline. Concerning the other conditioning variables, the only one that enters significantly is $Pop_i$, which enters with a

| Table 2. Cross-Sectional Evidence on Financial Openness and Inflation Volatility |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                 | (1)     | (2)     | (3)     | (4)     | (5)     | (6)     |
| Constant                        | 1.745***| 2.288***| 2.171***| 1.889***| 2.240***| 2.383***|
| $FinOpen$                       | $-0.006$***| $-0.003$***| $-0.001$ | $-0.016$**| $-0.007$ | $0.015$ |
| $TrdOpen$                       | 0.001   | 0.001   | $-0.000$ | 0.009   | 0.003   | $-0.010$ |
| $Gov$                           | 0.009   | 0.001   | 0.003   | $-0.007$ | $-0.003$ | 0.017   |
| $Pol$                           | 0.008   | 0.030*  | 0.037** | 0.030   | 0.033** | 0.039** |
| $Pop$                           | $-0.000$**| 0.000   | $-0.000$***| $-0.000$ | $-0.000$ | $-0.000$ |
| $DomCrd$                        | $-0.012$***| (0.002) | $-0.012$***| (0.002) | $-0.010$**| (0.005) |
| $GDPC01$                        | $-0.000$***| (0.000) | $-0.000$***| (0.000) | $-0.010$**| (0.005) |
| Observations                    | 122     | 121     | 122     | 122     | 121     | 122     |
| $R^2$                           | 0.15    | 0.28    | 0.31    | 0.25    | 0.25    | 0.25    |

Note: Dependent variable is log($\pi$). Eleven-year cross-section estimation with White’s heteroskedasticity correction. Standard errors in parentheses. Models 1 through 3 report ordinary least squares estimation, while Models 4 through 6 report IV estimation with financial remoteness used as an instrument for the $FinOpen$ variable. ***Significant at 1 percent confidence level; **significant at 5 percent confidence level; and *significant at 10 percent confidence level.
negative coefficient, suggesting that inflation levels are lower on average in larger countries in our sample.

Model 2 introduces the conditioning variable $DomCrd$, which measures domestic credit held by domestic commercial banks as a share of GDP. This variable is introduced as an indicator of the level of development of the domestic banking sector. The intuition behind adding this variable is that international financial integration is likely to have a smaller impact on domestic macroeconomic performance the more developed is the domestic financial sector. It can be seen that the variable of interest is robust to the inclusion of this conditioning variable, as it continues to enter with its expected negative at statistically significant levels. However, the coefficient estimate drops by 50 percent relative to the base specification.

Concerning the other conditioning variables, the poliity variable, $Poli_i$, enters with a positive coefficient at a marginal 10 percent level of statistical significance, suggesting that democracy is associated with increased inflation in our cross-section. The $DomCrd_i$ variable is enters negatively, as expected, at a 1 percent confidence level.

Model 3 introduces a conditioning variable for country wealth, $GDPC01_i$, which measures GDP per capita in 2001. As was the case for the domestic credit variable, this variable also enters negatively and is highly statistically significant, suggesting that wealthier countries exhibit lower average inflation.\(^8\)

It can be seen that the variable of interest, $FinOpen_i$, is not robust to the inclusion of this variable. The $Pop_i$ and $Poli_i$ again enter with their negative and positive signs at statistically significant levels.

Models 4 through 6 report results for instrumental variable estimation of the same specifications, using $FinRem_i$ as an instrument for $FinOpen_i$. The variable of interest continues to enter negatively at a statistically significant level in the base specification, Model 4, and is even larger in size. This suggests that the base results are robust to instrumenting for observed levels of financial integration. Moreover, the coefficient estimate on the variable of interest in the instrumented specification is close to triple the level obtained under ordinary least squares (OLS). However, Models 5 and 6 demonstrate that the financial openness variable is not robust to conditioning for either the level of development of the domestic financial sector or country wealth.

Table 3 reports the results from the pooled and panel 5-year sample. Model 1 reports the results of 5-year panel estimation with time and country

\(^8\)I also examined the implications of including an OECD dummy into the cross-sectional specifications. Unsurprisingly, this variable acted similarly to conditioning for per capita income. Its inclusion knocked out the $FinOpen_{it}$ variable when it was introduced on its own. When introduced in the presence of the $GDPC01_i$ variable, these two variables tended to cancel each other out, with one entering positively and one negatively, which is not surprising as we would expect them to be quite collinear. These results were submitted to the referee and are available from the author upon request.
Estimation is again done using robust standard errors and I also allow for error clustering by country. It can be seen that the financial openness variable is almost completely insignificant. Indeed, the only conditioning variable that enters at any standard significance level is the Poli, which again enters at a 10 percent confidence level, suggesting again that increases in democracy are also associated with increased inflation. Model 2 adds the DomCrdi,t conditioning variable, with similar results. The financial openness variable coefficient estimate is close to 0 and very insignificant, and the only variable that enters at any standard significance level is again the polity variable. Model 3 adds the conditioning variable for

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Note: Dependent variable is log($p$). Five-year pooled sample estimation by ordinary least squares (OLS) with White’s heteroskedasticity correction and clustering by country. Standard errors in parentheses. Models 1 through 3 report OLS estimation, while Models 4 through 6 report IV estimation with financial remoteness used as an instrument for the FinOpen variable. Country fixed effects are included in Models 1 and 2. ***Significant at 1 percent confidence level; **significant at 5 percent confidence level; and *significant at 10 percent confidence level.

9 Coefficient estimates for fixed effects are suppressed in the tables, but are available upon request from the author.

10 The polity index is censored at a score of 10, and many of the most industrial countries, such as the G7 countries, earn a score of 10 through our sample. As such, this variable is not time-varying for these countries in panel estimation. As a robustness check, I ran the panel specification without the polity variable and obtained similar results. In particular, the coefficient estimate on FinOpeni,t is close to 0 and very insignificant.
country wealth, \( GDPC01_i \). As this variable is time-invariant, country fixed effects are dropped. It can be seen that the coefficient estimate on the financial openness variable remains close to 0 and is very insignificant. Concerning the conditioning variables, the \( Pol_i \) again enters with a positive sign at statistically significant levels, and the trade openness variable enters significantly with its expected negative sign. In addition, the GDP per capita variable is significantly negative, again suggesting that wealthier countries have lower median inflation levels.

Models 4 through 6 run the same instrumental variable specifications as in the previous table. Country fixed effects are dropped as the financial remoteness instrument is time-invariant, leaving this a pooled 5-year sample. I again allow for error clustering by country and report robust standard errors. The variable of interest, \( FinOpen_{i,t} \), enters with its expected negative sign in Model 4 at a 5 percent significance level. However, Models 5 and 6 demonstrate that this result is not robust to conditioning for either the level of development of the domestic financial sector or cross-country differences in income per capita, as this variable is very insignificant in both of these alternative specifications.

Overall, our results confirm a negative relationship between financial openness and median inflation levels in our base specification. Moreover, this relationship appears to be robust to instrumenting for financial openness with our measure of financial remoteness, in the sense that the financial openness variable retains its significance under the IV specification in both the cross-sectional and the panel exercises. However, the performance of the financial openness variable was shown to be sensitive to either adding variables to condition for cross-country differences in income or the sophistication of the domestic financial sector, or including country fixed effects in our panel specification. This raises the troubling possibility that financial openness may be just one of a number of features of low-inflation countries, leaving it difficult to assess empirically which of the features are crucial to achieving monetary stability.\(^{11}\)

Robustness Checks

This section examines the robustness of the results above. For each perturbation of the specifications or samples reported above, four models are considered. I run the base specification with and without instrumenting using the financial remoteness for the 11-year cross section and then run the

\(^{11}\)As a robustness check, I added lagged values of inflation, \( FinOpen_{i,t} \), and \( TrdOpen_{i,t} \), to the specifications in Table 3. The results were largely robust to the inclusion of these variables. For the OLS specifications, the \( FinOpen_{i,t} \) variable of interest remained insignificant, as did its lagged value. For the instrumented specifications, the results were actually somewhat stronger than those reported in the text, in the sense that the coefficient estimate on \( FinOpen_{i,t} \) continued to enter negatively at statistically significant levels in Model 4, but was also significantly negative in Model 5. The \( FinOpen_{i,t} \) variable again became insignificant after conditioning for GDP per capita. These results were submitted to the referee and are also available from the author on request.

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panel 5-year sample with time and country fixed effects and then a pooled version of the 5-year sample without country fixed effects, but with instrumenting using the financial remoteness variable and allowing for error clustering by country. To save space, I only report the coefficient estimate on the variable of interest, $FinOpen_{it}$.

I first introduce a number of additional conditioning variables. First, I introduce a measure of de jure capital account openness. It can be seen that the financial openness variable enters at statistically significant levels with its expected negative sign for both specifications using the 11-year cross-section, and for the pooled IV specification. However, the variable is insignificant when country fixed effects are included (Model 3). Second, I introduce a measure of “trade remoteness”, measured as distance from the rest of the world weighted by GDP, and achieve similar results. The financial openness variable continues to enter negatively at statistically significant levels for models 1, 2, and 4, but enters positively at 5 percent statistical significance with fixed effects included in Model 3.

I next report the base IV specifications with an alternative instrument, namely proximity to the nearest offshore financial center. Rose and Spiegel (2007) demonstrate that proximity to offshore financial centers have an influence on domestic financial sectors, suggesting that distance from the nearest offshore financial center is an alternative measure of international financial remoteness. The financial openness variable fails to enter significantly in either IV specification, although it does obtain its expected negative coefficient estimate. However, this alternative instrument has a much lower correlation with the instrumented variable in our sample (−0.12). As such, its failure to enter significantly sheds little light on the importance of the financial openness variable for inflation.

I next examine the implications of a number of changes in the sample. First I exclude “rich” countries, proxied in our sample as the set of OECD members. It can be seen that the financial openness variable fails to achieve statistical significance for any of the four specifications. Next, I exclude “very big” countries, defined as those exceeding populations of 150 million. In this case, the results are similar to those in the base specifications: the financial openness variable enters significantly with its expected negative coefficient using the 11-year sample, with or without instrumenting. The variable also enters significantly with its expected sign for the pooled 5-year sample using financial remoteness as an instrument for financial openness (Model 4). However, it fails to enter significantly for the panel specification with fixed effects included (Model 3).

Similar results are obtained when very small countries, defined as those with populations of fewer than 10 million, are excluded. The financial openness variable enters negatively using the 11-year sample, although it marginally misses 10 percent significance under the IV specification. With the 5-year panel and pooled-IV samples, the variable of interest is again insignificant. However, the variable is close to 10 percent significance in the instrumented pooled specification.
Lastly, I drop some geographic groups. The cross-sectional results obtained in the base specification are robust to dropping sub-Saharan Africa, although the variable of interest only enters in the IV specification at 10 percent significance. Similarly, dropping countries from Latin America and the Caribbean does not markedly affect the performance of our variable of interest, as financial openness continues to enter negatively at statistically significant levels in our 11-year cross-section, or in the instrumented pooled sample, but is insignificant in our panel specification with country-fixed effects included.

Taking Table 4 as a whole, it appears that the base specification appears to be relatively robust to these additional conditioning variables or changes in samples for the 11-year cross-section, with the lone exception being the exclusion of the rich countries. The pooled IV specification (Model 4) also appears to be relatively robust to specification or sample changes. However, the financial openness variable is almost universally insignificant when country fixed effects are added, and indeed usually obtains an incorrect positive point estimate. Overall, these results are also sensitive to conditioning for levels of GDP per capita, and raise the concern that de facto measures of financial openness empirically are too closely linked to

<table>
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<th>Table 4. Robustness Checks</th>
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<tr>
<td>Add de jure capital controls</td>
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<td>Add trade remoteness</td>
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<tr>
<td>Use alternative instrument: ofcmingr</td>
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<td></td>
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<tr>
<td>Exclude rich countries</td>
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<td>Exclude very big countries</td>
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<td>Drop Latin America and Caribbean</td>
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Note: Dependent variable is log($p$). Table reports coefficient estimates for $FinOpen$ variable. Coefficient estimates for full specification available on request. Standard errors are shown in parentheses. Models 1 and 2 report results for 11-year cross section, while Models 3 and 4 report results for 5-year panel. Models 1 and 3 estimated by ordinary least squares while Models 2 and 4 by IV with financial remoteness variable used as an instrument for $FinOpen$ variable. Country fixed effects included in Model 3. ***Significant at 1 percent confidence level. **Significant at 5 percent confidence level, and *significant at 10 percent confidence level.
country income levels or other cross-country discrepancies to isolate their role in such a specification.

V. Conclusion

The relatively large literature reviewed above suggests that financial openness, while increasing the exposure of nations to foreign shocks, has provided an additional source of market discipline and has encouraged central banks to place greater emphasis on stabilizing prices relative to output. This change in policy appears to have contributed to the benign conditions observed in financial markets over the past 15 years, as nations have experienced decreased output volatility, lower inflation rates, and reduced borrowing costs worldwide.

While neither the positive aggregate performance of the recent past nor the explosion of gross holdings of international assets over the same period can be denied, it must be granted that it has proven to be challenging to establish a link between financial globalization and macroeconomic stability. Sadly, it appears that establishing a robust connection between financial openness and monetary policy will be challenging as well.

This paper examines the relationship between inflation levels and financial globalization in both a cross-country cross-section and a panel sample, and introduces financial remoteness as a plausibly exogenous instrument for financial openness. By and large, I confirm the findings in the previous literature of a negative relationship between financial openness and median inflation levels in my base specification. Moreover, these basic results appear to be largely robust to instrumenting for financial openness using the financial remoteness variable. However, financial openness almost universally became insignificant in the presence of conditioning for country fixed effects in panel specifications, or for cross-country discrepancies in national income, either by explicitly introducing per capita income as an additional conditioning variable, or by excluding the set of OECD countries from our sample.

It therefore appears to be the case that financial openness is one of a number of characteristics of countries that exhibit monetary policy stability, and that it would be difficult to isolate the “crucial” policy characteristic in this framework. Indeed Kose and others (2006) recently concluded that the primary benefits of financial globalization may precisely be “collateral benefits,” such as the possibility of enhanced monetary policy outcomes examined here, that may resist empirical detection in cross-country studies, or even in medium-length panels, such as those examined above.

Finally, it should be noted that the recent “subprime” financial turmoil warrants reassessment of the relatively benign characterization of the impact of financial globalization in the literature reviewed above. One of the primary causes of the rapid increase in financial globalization over the past years has been the innovations in financial vehicles for hedging global investment positions. The recent subprime crisis has highlighted the downside of this
increased sophistication: as asset bundles became more diversified, they also tended to become more opaque, and it became more difficult to assess underlying asset quality of investment positions, and indeed ultimate exposure positions as well.

While the implications of the current crisis are beyond the scope of this survey, the crisis does raise the question of whether losses incurred from investment vehicles increasingly used in the globalization period will lead investors to avoid these types of vehicles in the future, and in the process reduce the pace of financial globalization. At this point, the implications of the current crisis are uncertain, but it seems unlikely that the pace of financial globalization will quickly diminish. Increased internationalization of investment portfolios is still associated with reduced overall portfolio risk, holding all else equal, as investors worldwide still appear to be excessively exposed to home assets. However, it seems likely that investors will be more hesitant to hold such opaque bundles of investment vehicles in the future.

REFERENCES


FINANCIAL GLOBALIZATION AND MONETARY POLICY DISCIPLINE


Measuring Financial Integration: A New Data Set

MARTIN SCHINDLER

This paper describes a newly constructed panel data set containing measures of de jure restrictions on cross-border financial transactions for 91 countries from 1995 to 2005. The new data set adds value to existing capital control indices by providing information at a more disaggregated level. This structure allows for the construction of various subindices, including those for individual asset categories, for inflows vs. outflows, and for residents vs. nonresidents. Disaggregations of this kind open up new ways to address questions of interest in the field of international finance. Some potential research avenues are outlined. [JEL C82, F21, F36]


The magnitude of cross-border financial assets holdings has grown in recent years at rising speed, from under 50 percent of world GDP in 1970 to over 300 percent in 2006, and doubling over just the last 10 years (Figure 1). A more financially integrated global economy brings many opportunities, such as improved access to capital and more potential for

*Martin Schindler is an economist in the Research Department of the IMF. The author gratefully acknowledges the contributions by Lore Aguilar during the initial stages of this project. An early version of the data was used in Dell’Ariccia and others (2008)—all collaborators on that project also contributed in some form to the data effort presented here. The author also benefited from discussions with Enrica Detragiache, Peter Blair Henry, Ayhan Kose, Gian Maria Milesi-Ferretti, Jacques Miniane, Eswar Prasad, Dennis Quinn, and Frank Warnock. Gian Maria Milesi-Ferretti and Dennis Quinn kindly provided their updated data sets. Patricio Valenzuela and Ermal Hitaj provided outstanding research assistance. The data set described in this paper can be downloaded from the IMF Staff Papers website.
risk-diversification, but the increased ease at which capital can flow into and out of countries may also carry risks: reversals of capital flows, for example, have contributed to financial crises, and more recently, large net capital flows into the United States may have contributed to the U.S. housing bubble. The ensuing recent subprime mortgage crisis underscored the fact that financial integration binds different parts of the world in good times and bad—in a financially integrated world, market participants in one part of the global economy are no longer sheltered from events emanating in another.

As a consequence, there is great interest in both the academic and the policy community in studying the determinants of financial globalization and its consequences for economic welfare. For example, policymakers averse to the risks of increased financial integration may consider imposing restrictions on cross-border capital flows. Assessing the optimality of such restrictions requires answering (at least) two questions: First, do the risks from increased financial integration outweigh their benefits and, therefore, should one attempt to restrict them in the first place? And second, even if the answer to the previous question is yes, are capital controls an effective tool? It is probably fair to say that economists do not yet have clear answers to these questions. Although a large and growing literature exists on the first question, less work has been done on the second.1 A key reason for this is the

1Even so, however, no clear consensus has emerged on the effects of financial cross-border flows on economic growth and other outcome variables, unlike, for example, the literature on the cross-border trade of goods and services. For recent reviews of the state of the financial globalization literature, see, for example, Kose and others (2006) and Dell’Ariccia and others (2008).
paucity of detailed and reliable measurement of countries' financial globalization strategies, that is, of data on countries' *de jure* policies.

By contrast, *de facto* measures of financial globalization, such as those by Lane and Milesi-Ferretti (2007) (Figure 1), are publicly available for a large number of countries and years. Which type of measure is preferable depends on the research context: for the purpose of policy analysis, *de jure* measures, which are under the policymaker's direct control, are more relevant, whereas in other applications, only outcome (*de facto*) measures may matter. In still other situations, both may be necessary, for example, if one wants to study the extent to which *de jure* controls affect *de facto* outcomes. However, given the limited availability of detailed *de jure* data—available data are often too coarse, have limited time and/or country coverage, or are unavailable to the public—many authors have resorted to using *de facto* measures even when they were interested in studying policies. This paper documents, and makes publicly available, a detailed panel data set on countries' disaggregated *de jure* measures, in the hope that it will allow more progress to be made in answering some of the important questions in this field.\(^2\)

**I. The Data Set**

**Methodology**

The data set is a balanced panel, covering 91 countries on an annual frequency during the time period from 1995 to 2005. It provides novel detail on the various dimensions in which countries impose restrictions on financial transactions, and the sample of countries is diverse in terms of regions and income levels, covering 35 high-income countries, 42 middle-income countries, and 14 low-income countries (see Table 1 for the full country list by region).

Common to nearly all existing *de jure* capital control indices is their reliance on information contained in the *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER) published by the International Monetary Fund (IMF). Thus, although drawing on the same source, these indices differ in how, and to what extent, they extract the information provided in the AREAER. Until 1995, the AREAER summarized a country’s openness to capital flows using a binary dummy variable, where 1 represents a restricted capital account and 0 represents an unrestricted capital account. Since 1995, the AREAER has utilized a more structured approach, providing detailed information on restrictions on capital transactions in a number of subcategories.

\(^2\)Taking a disaggregated approach appears to be promising. As Henry (2007) notes, existing evidence suggests that opening equity markets to foreign investors may avoid some of the problems associated with the liberalization of debt flows, and so “[a]t a minimum, the distinction between debt and equity is critical” (p. 889). The data set documented here allows researchers to investigate such differences.
### Table 1. List of Countries in the Data Set

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<td>Tunisia</td>
</tr>
<tr>
<td>South Asia</td>
<td>Sri Lanka</td>
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<tr>
<td>Sub-Saharan Africa</td>
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<td>South Africa</td>
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<tr>
<td></td>
<td>Swaziland</td>
<td></td>
</tr>
</tbody>
</table>
The data set documented here contains information from a subset of these subcategories in broad correspondence to the standard presentation of de facto assets and liabilities (as, for example, in Lane and Milesi-Ferretti, 2007). The asset categories covered constitute the lion’s share of global cross-border asset holdings; thus, focusing on these categories allows for the construction of a data set that broadly reflects the structure of global de facto financial integration. The main categories covered in this data set are as follows:

(1) Shares or other securities of a participating nature [eq]:
   (i) purchase locally by nonresidents [eq_plbn];
   (ii) sale or issue abroad by residents [eq_siar];
   (iii) purchase abroad by residents [eq_pabr];
   (iv) sale or issue locally by nonresidents [eq силн];

(2) Bonds or other debt securities [bo];
   (i) purchase locally by nonresidents [bo_plbn];
   (ii) sale or issue abroad by residents [bo_siar];
   (iii) purchase abroad by residents [bo_pabr];
   (iv) sale or issue locally by nonresidents [bo силн];

(3) Money market instruments [mm];
   (i) purchase locally by nonresidents [mm_plbn];
   (ii) sale or issue abroad by residents [mm_siar];
   (iii) purchase abroad by residents [mm_pabr];
   (iv) sale or issue locally by nonresidents [mm силн];

(4) Collective investments [ci];
   (i) by residents to nonresidents [cio];
   (ii) by nonresidents to residents [cii];

(5) Financial credits [fc];
   (i) by residents to nonresidents [fco];
   (ii) by nonresidents to residents [fci];

---

3Not all categories reported in the AREAER are coded here, given their limited importance in the composition of de facto flows and resource constraints in the data collection process. These categories include derivatives and other instruments, credit operations (except for the subcategory financial credits, see main text), real estate transactions, and personal capital transactions.

4The labels in square brackets correspond to the variable names used in the published data set.

5Restrictions on bond transactions were not recorded in the AREAER in 1995 and 1996.

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(6) Direct investment [di]:

(i) outward investment [dio];
(ii) inward direct investment [dii];
(iii) liquidation of direct investment [ldi].

To allow for a flexible use of the data, the information contained in the AREAER is coded at the level of resident/nonresident restrictions, in binary form, taking a value of 0 (unrestricted) or 1 (restricted) (see below for the slightly different cases of restrictions on collective investments, financial credits, and direct investment). In each case, restrictions on capital transactions are coded as a 0 if there are none in a given year, or if they consist merely of registration or notification requirements. They are also coded as 0 if a country is generally open but imposes restrictions on investments in only a small number of selected industries, for example, for national security purposes, or on financial transactions with only a small number of countries, typically for political reasons.

Given that capital account restrictions are coded at the level of individual transactions, the data can be aggregated in different ways, providing information along different dimensions. In particular, the coded data allow for the construction of capital control subindices by asset category, by residency, and by the direction of flows (inflows vs. outflows). The simplest way of aggregating subindices, and the one followed here, is by taking unweighted averages of the appropriate subcategories. Thus, for example, a country’s restrictiveness of individual asset categories would be captured by averaging across each asset category’s various subcomponents to obtain:

\[
\text{Controls on asset category } i = \frac{i_{plbn} + i_{siar} + i_{pabr} + i_{siln}}{4}
\]

for \( i \in \{eq, bo, mm\} \). Given that each of the subcategories is coded as a binary variable, the resulting asset-specific aggregate can take on five different values. For collective investments and financial credits, where the AREAER provides less disaggregated information on restrictions, the aggregated index
is simply the average of the two subcategories, implying that each of these can take on only three different values, 0, 0.5, and 1.

For direct investment, in addition to information on inward and outward restrictions, the AREAER provides a third category regarding the “liquidation of direct investment.” To maintain symmetry to other categories in terms of the values the subindex can take on, $d_{ii}$ in the published data set is calculated as the average between $dio$ and the maximum of $dii$ and $ldi$. This aggregation recognizes that liquidation restrictions make reversals more costly, and thus indirectly impose costs on direct investment inflows. However, different aggregations will be appropriate in different contexts, such as a simple average of all three subcategories, and the modular structure of the data set provides researchers with the option of exploring these alternatives.

Variables summarizing controls according to residency can be obtained by calculating the average of “sale or issue abroad by residents” and “purchase abroad by residents” for resident restrictions, and the average of “purchase locally by nonresidents” and “sale or issue locally by nonresidents” for nonresident restrictions. In this context, controls on direct investment inflows can be interpreted as nonresident restrictions, and those on direct investment outflows as resident restrictions.10

In each asset category, indicators can also be grouped according to the direction of flows. With the exception of direct investment, collective investment and financial credit (see footnote 10), the direction of flows is unrelated to the transacting individual’s residency status. For example, a capital inflow may arise from a nonresident purchasing domestic assets (increasing the country’s stock of external liabilities), or from a domestic resident’s sale of assets abroad (decreasing the country’s stock of external assets). Thus, inflow restrictions are calculated here as the average of the restriction dummies on “purchase locally by nonresidents” and “sale or issue abroad by residents,” whereas outflow restrictions are calculated as the average of the restriction dummies on “purchase abroad by residents” and “sale or issue locally by nonresidents.”11

Further aggregation across asset categories yields broader indices of a country’s restrictiveness of capital account transactions. Again, the modular

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10 This view follows the Balance of Payments Manual, which notes that “[d]irect investment is classified primarily on a directional basis—resident direct investment abroad and nonresident investment in the reporting economy” (IMF, 1993, p. 81). Thus, unlike the other categories, direct investment inflows and outflows can be equated with nonresident and resident transactions, respectively. For symmetry, the analogous approach is taken for the collective investment and financial credit categories.

11 Matching these inflow/outflow aggregates with their de facto counterparts is nontrivial: capital flows data are typically reported as the net changes in external assets (outflows) and liabilities (inflows), which mixes different types of transactions. For example, a reduction in liabilities due to nonresidents selling domestic bonds is effectively counted as a negative inflow, while it would be considered a (positive) outflow in the de jure aggregation discussed here. Transforming the de facto data by defining Outflows $= \max(\Delta Assets,0) - \min(\Delta Liabilities,0)$ and Inflows $= -\min(\Delta Assets,0) + \max(\Delta Liabilities,0)$ is a possible solution.
nature of the data set provides flexibility for a variety of different aggregations—researchers using these data will have to make a determination as to which aggregation is most appropriate given the research question at hand. It is also worth noting that although the basic coding at the level of individual transactions consists of a binary indicator, the cross-sectoral and time variation that results from aggregating indices along various dimensions can be interpreted as a measure of the intensity of a country’s capital controls, because such aggregations effectively “count” how many subcategories are restricted, and within each category, how many types of transactions.12

Comparison with Existing Indices

A comparison of the new index with existing indices highlights the trade-offs one faces in their construction. Between a broad country coverage, long-time coverage, and detailed information on the types of restrictions, typically only two can be achieved. As discussed in the previous section, the new index documented in the previous section strikes a relatively favorable balance regarding country coverage and the level of detail, but is constrained by a relatively short-time series dimension due to the limited information provided by the AREAER prior to 1995. Authors of other capital account indices have made different choices.

Most closely related to the data set presented here is the work done by Tamirisa (1999) who followed a similar methodology. Although her index has a broad country coverage, it covers only one year.13 By contrast, Miniane (2004) aimed to extend the time series dimension, at the cost of more limited country coverage and less detail. His sample includes 34 countries covering the period 1983–2000. Given the more limited information available in the AREAER prior to 1995, his index cannot distinguish between inflow and outflow restrictions.

Other authors have aimed to maximize time and country coverage, at the expense of less detail at the country level. Four binary indicators that were reported in the AREAER prior to 1995 include (1) the openness of a country’s capital account, (2) the openness of the current account, (3) the stringency of requirements for the repatriation and/or surrender of export proceeds, and (4) the existence of multiple exchange rates for capital account transactions. Many authors simply use the capital account dummy under (1) as a measure of a country’s capital account openness. Given its binary nature, this is a crude approximation of a country’s capital account openness.

12This is only one aspect of intensity. A broader intensity measure would reflect the different types of restrictions (such as approval vs. taxation vs. prohibition) as well as the degree to which de jure restrictions are actually enforced in practice. Quinn (1997) attempts to tackle the former aspect, described in more detail in the next section.

restrictiveness, although it has the advantage of a broad country and time coverage, being available for up to 184 countries at an annual frequency starting in 1966.

Mody and Murshid (2005) extend these dummies into the years after 1995, thus covering the years 1966–2000 and 184 countries. They calculate a “financial integration index” as the sum of the four binary variables ranging from 0 to 4, with 4 denoting the least restricted. Chinn and Ito (2008) also construct a composite measure from these four dummy variables taking a principal components approach. In an updated version of their data set, they apply this procedure to 182 countries for 1970–2006. Although the Mody-Murshid and Chinn-Ito measures provide more finely graded information than the simple IMF dummy, it is less clear to what extent these indicators are measures of capital account openness in a narrow sense, given that three of the four indices underlying these indicators represent information that is not directly related to capital account transactions. By contrast, some authors have chosen a narrow approach. For example, Bekaert, Harvey, and Lundblad (2005) focus on only equity controls and attempt to date equity liberalization episodes for a sample of 42 countries during 1960–2006. Edison and Warnock (2003) focus on \textit{de facto} equity restrictions for a sample of 31 countries during 1989–2006 at a monthly frequency, by measuring the fraction of a country’s market capitalization that is open to foreign investment.

None of the above indices captures the intensity of controls or distinguishes between asset categories, inflows and outflows, or residents and nonresidents. For example, regarding the intensity of restrictions, whether a financial transaction is prohibited, limited, taxed, or only requires notification/registration, is likely to have different economic consequences. Quinn (1997) constructs a data set that contains information on the intensity of controls and covers 94 countries during 1950–99. He captures the intensity of controls by ranking different control instruments by their (assumed) economic importance, and his is the only index doing so for a large number of countries and years. His index also distinguishes between restrictions on

\footnote{This is not to say, however, that these other three variables have no bearing on capital account restrictiveness; for example, multiple exchange rate practices may make capital account transactions more costly even in the absence of other, more direct restrictions on capital account transactions.}

\footnote{Such a ranking is difficult as the relative importance of restrictions likely depends on the specific context. For example, whether “approval required but frequently granted” is equally restrictive as “approval not required, but heavily taxed” (as assumed in Quinn, 1997) will depend on the level of the tax rate and the precise definition of “frequently granted.”}

\footnote{A possible exception is Brune (2006) who, as described in Brune and Guisinger (2007), constructed a data set covering 187 countries during 1965–2004 and containing separate information on inflow and outflow restrictions in 5 categories. She reports high correlations with the IMF dummy and the indices by Tamirisa (1999), Miniane (2004), and Quinn (1997); however, Brune’s data set has not been available to the author.}
residents and nonresidents. A recently updated version extends the data coverage through 2005. Similar to Miniane, given the less structured nature of the AREAER prior to 1995, consistency and comparability requirements across country-years imply that Quinn’s (1997) index cannot distinguish between inflows and outflows (see the discussion in the previous section) or between different asset categories.

Table 2 shows pairwise correlations of the various indices at their most aggregated levels. The correlations are reassuringly high, and particularly so between the new index and those by Miniane and Tamirisa—this is not surprising given that these indices employ similar methodologies. By contrast, the equity liberalization index by Edison-Warnock is based on a rather different methodology, and effectively is a de facto measure, but, at around 0.47, the correlation is still relatively high.17 Overall, the high correlations with other indices at the aggregate level instill confidence that the new index also captures meaningful information at more disaggregated levels that existing indices cannot provide.

II. Empirical Applications

The new index can be used to study a broad range of questions of interest that could not be examined previously. In particular, by exploiting novel features of the index, specifically the possibility of separately considering controls by asset categories, resident status, and direction of flows, new research avenues open up. This section highlights some of these features and outlines possible directions for future research.

Trends and Cross-Country Comparisons

Although other indices with longer time coverage are better able to present long-term trends, the new index extends into 2005 and thus can capture more recent trends. Figure 2 plots average trends for some of the main indices: Miniane’s, Chinn-Ito’s, the IMF dummy, Quinn’s, and the new index. The various indicators are all fairly consistent in their time series variation and all document a broad trend toward increased de jure liberalization of financial flows over most of the past decade. All of the indices also point toward a slowdown in the pace at which countries are liberalizing their capital accounts. In fact, the indices point to a possible reversal in 2005, although additional time coverage will be necessary to draw more meaningful conclusions. While there were, in nearly all regions, countries increasing and countries decreasing their average degree of restrictiveness in 2005, many European countries were among those with the highest increases in capital

17The correlation with the binary equity liberalization index by Bekaert, Harvey, and Lundblad (2005) (switching from 1 to 0 when equity markets are liberalized) is statistically insignificant as their data set reports only six liberalization episodes for the sample of the new index: Côte d’Ivoire, Kenya, and Tunisia in 1995, South Africa in 1996, and Oman and Saudi Arabia in 1999.
account restrictions, such as Austria, Belgium, Czech Republic, Kyrgyz Republic, and Uzbekistan. Compared with previous indices based on the IMF’s binary capital controls dummy, the new index also allows for a more meaningful comparison of the levels of capital account restrictiveness across regions and income groups. Considering sample averages of the IMF dummy is equivalent to counting the number of countries that exceed a certain (undefined) threshold of capital account controls, without quantifying how restrictive individual countries in a group are, making cross-country rankings of capital account restrictiveness difficult to interpret. Figure 4 provides regional averages for 1995 (the last year the IMF dummy was officially reported) and illustrates that these differences in indices may indeed lead to different rankings. The simple dummy overstates restrictiveness in most regions, particularly in Asia, sub-Saharan Africa, and Latin America, whereas it understates average capital account restrictiveness in North America and, to a lesser extent, Europe. Thus, the new index arguably provides a more realistic and meaningful comparison across regions and countries.

Compositional Changes

A key strength of the new index is its ability to provide information on a country’s composition of capital account restrictions in addition to simply measuring the country’s overall restrictiveness. Figure 3 shows a decomposition by asset categories, by the direction of flows, and by residency. The figure exhibits substantial changes in the relative importance of controls across asset categories, with an overall trend of convergence across asset groups. This convergence may be a response to growing market sophistication which increasingly enables market participants to circumvent differential treatment of different asset categories—equal restrictions across asset categories may thus facilitate their enforcement. Although the relative levels of resident/nonresident and inflow/outflow restrictions have been fairly stable during most of the decade, the 2005 data points to a divergence in relative inflow and outflow controls, with countries imposing more restrictions on outflows than on inflows.

Recent research has started to take advantage of the information on the composition of capital controls. For example, Prati, Schindler, and Valenzuela (2008) exploit the inflow/outflow distinction in combination with firm-level credit ratings data to identify the channel through which

---

18The 2005 reversal is also reflected in individual asset categories except for foreign direct investment where the trend toward fewer restrictions continues even into 2005; inflow restrictions on average also continued to decrease (Figure 3).

19The capital controls index for the United States, for example, is coded as nonzero in the new index because of restrictions on foreign mutual funds (“sale or issue locally by nonresidents”) under the Investment Company Act (see IMF, 1996).
<table>
<thead>
<tr>
<th></th>
<th>New Index</th>
<th>IMF Dummy</th>
<th>Bekaert and others</th>
<th>Chinn-Ito</th>
<th>Edison-Warnock</th>
<th>Mody-Murshid</th>
<th>Miniane</th>
<th>Tamirisa</th>
<th>Quinn</th>
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<td><strong>New index</strong></td>
<td>1</td>
<td>—</td>
<td>—</td>
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<td>1</td>
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<td>—</td>
<td>—</td>
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<td>—</td>
</tr>
<tr>
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<td>0.222</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td></td>
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</tr>
<tr>
<td><strong>Chinn-Ito</strong></td>
<td>0.767</td>
<td>0.843</td>
<td>0.359</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>954</td>
<td>4,746</td>
<td>1,511</td>
<td>5,290</td>
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<tr>
<td><strong>Edison-Warnock</strong></td>
<td>0.465</td>
<td>0.269</td>
<td>0.322</td>
<td>0.285</td>
<td>1</td>
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<tr>
<td>(0.000)</td>
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<tr>
<td><strong>Mody-Murshid</strong></td>
<td>0.622</td>
<td>0.758</td>
<td>0.367</td>
<td>0.951</td>
<td>0.252</td>
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<tr>
<td>(0.000)</td>
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<tr>
<td><strong>Miniane</strong></td>
<td>0.911</td>
<td>0.751</td>
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<td>0.808</td>
<td>0.381</td>
<td>0.773</td>
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<td><strong>Tamirisa</strong></td>
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<td>0.832</td>
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<td>(0.368)</td>
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<td><strong>Quinn</strong></td>
<td>0.886</td>
<td>0.728</td>
<td>0.471</td>
<td>0.789</td>
<td>0.379</td>
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<td>(0.000)</td>
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</table>

Note: The indices and their sources are described in the text. All indices are normalized to the unit interval, with higher values indicating higher restrictiveness. For each pair, the table lists the correlation coefficient, the level of significance (in parentheses), and the number of pairwise observations.
capital account liberalization affects an economy. Dell'Ariccia and others (2008) investigate the link between de facto financial integration and de jure capital account restrictiveness using a gravity approach. To do this, they combine a country’s outflow controls with its partner country’s inflow controls to construct a measure of bilateral capital controls.

Event Studies

Another important feature of the index is its relatively fine gradation, allowing researchers to identify large changes in de jure regimes, thus being able to date reform events. This type of approach has been advocated by Henry (2007). For example, in assessing the existing literature on effects of capital account liberalization on economic growth, he argues that attempting to find long-term growth benefits is ill-conceived, as simple growth theory would predict only temporary growth effects during the transition to a new steady state. Event studies focusing on the immediate period around liberalization episodes may, therefore, be a more appropriate framework for testing for growth effects.

An application of this approach to the effects of de jure liberalization on de facto financial integration is illustrated in Figure 5, where large capital account reforms and reversals are identified both in the aggregate and by asset category. The dating of such events can, for example, help answer questions regarding the effectiveness of controls in enabling or reducing de facto capital movements. The figure suggests that there may indeed be an
association. The strength of this association varies between asset categories and also between reform and reversal episodes. Broadly speaking, countries’ de facto integration jumps up substantially around the time of reform.
Figure 4. Regional Averages of De Jure Financial Openness, 1995

Note: The debt category in panel (a) is defined as the average of the bond and money market restrictions indices.

Figure 5. Changes in De Facto Financial Integration Following Large De Jure Reforms/Reversals (In percent)

Note: Based on Lane and Milesi-Ferretti (2007) and the new de jure index. The figure plots the percent difference between countries’ average financial integration, defined as the ratio of external assets and liabilities to GDP, three years before and after reforms (reversals). Reforms (reversals) are defined as annual changes in the new de jure index exceeding the median positive (falling below the median negative) annual change in the index.
episodes. De facto integration also increases following reversal episodes, but to a much lesser extent. One interpretation is that liberalizing the capital account can substantially help a country attract foreign capital, but that the reverse is not true: that is, countries may not be able to completely insulate themselves from financial flows by imposing restrictions.

Figure 5 is also suggestive of another result, namely, that capital controls for some asset categories are more effective than for others. For example, lifting equity controls (and, to a lesser extent, debt controls) coincides with dramatic increases in de facto integration, whereas there is virtually no such association for foreign direct investment. Although such correlations do not establish a causal relationship, they are suggestive of a link and warrant more careful investigation.

III. Conclusion

This paper has presented and documented a new data set of countries’ de jure restrictions on cross-border financial transactions. Like any measure of capital account restrictions, its construction required striking a balance between various features of the data, such as breadth (information by assets, direction of flows, and residency), depth (the intensity of controls), and country and time coverage. Besides a fairly broad country coverage, the distinguishing feature of the data set presented here is its level of disaggregation, not found in other indices. By coding the data at the level of individual types of transactions, the data set has a modular setup that allows researchers to “mix and match” by averaging across the various subcategories in ways that best fit their research objectives. The paper also outlined several research avenues that the new index makes possible and that could help make progress in better understanding the many facets of financial globalization.

REFERENCES


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