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**The Macroeconomic Implications of Financial Globalization:
A Reappraisal and Synthesis**

M. Ayhan Kose, Eswar Prasad, Kenneth Rogoff and Shang-Jin Wei¹

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¹ Kose, Prasad and Wei are in the IMF's Research Department. Rogoff is at Harvard University. The views expressed in this paper are those of the authors and do not necessarily reflect those of the IMF.

I. Introduction and Overview

The most recent wave of financial globalization got started in earnest in the 1980s, with rising cross-border financial flows among industrial economies and between industrial and developing economies. This was spurred by liberalization of capital controls in many of these countries, in anticipation of the benefits that cross-border flows would bring in terms of better global allocation of capital and improved international risk-sharing possibilities. The strong presumption was that these benefits ought to be large, especially for developing countries that tend to be relatively capital-poor and have more volatile income growth.

With the surge in financial flows, however, came a spate of currency and financial crises in the late 1980s and 1990s. Developing countries that opened up to capital flows have apparently been more vulnerable to these crises than industrial economies, and have been much more adversely affected by crises. These developments have sparked a fierce debate among both academics and practitioners on the costs and benefits of financial globalization, a debate that has intensified and become far more polarized over time, in contrast to the debate on trade liberalization that has more or less moved towards a consensus.²

Some academic economists view increasing capital account liberalization and unfettered capital flows as a serious impediment to global financial stability (e.g., Rodrik, 1998; Stiglitz, 2000), leading to calls for capital controls and the imposition of frictions such as “Tobin taxes” on international asset trade. Others argue that increased financial market liberalization has, by and large, proven essential for countries aiming to upgrade from lower to middle income status, while significantly enhancing stability among industrialized countries (e.g., Fischer, 1998). This is clearly a matter of considerable policy relevance and, while consensus may be too much to hope for, some clarity on what theory and data do tell us—and what they do not tell us—is important for informing the ongoing debate.

There has been an explosion of research in this area in recent years but this research has proceeded along a number of disparate paths, with the results from some of these strands seeming at odds with each other. Our main objective in this paper is to provide a synthetic perspective on this rapidly evolving literature. The synthesis leads us to a few organizing principles that may not only reconcile many of these results with each other, but also provide some important policy implications as well as directions for further research.

An early survey of the literature by Eichengreen (2001) concludes that there is no empirical substantiation of the fundamental theoretical tenets about the growth benefits of capital account liberalization. A subsequent survey by us (Prasad, Rogoff, Wei and Kose, 2003) deepens the puzzle. In that paper we conclude that, taken as whole, the vast empirical

² Frankel and Romer provide a nice analysis of the effects of trade openness on growth. Rodriguez and Rodrik (2002) present a contrarian view but, as summarized in a recent survey by Winters, the weight of the evidence supports the by-now conventional wisdom.

literature provides little robust evidence of a causal relationship between financial integration and growth. But we also find that, among developing countries, the volatility of consumption growth relative to income growth appears to be positively associated with the degree of financial integration. Thus, at least on the surface, and contrary to the implications of theory, financial integration appears to have dubious growth benefits and possibly an adverse impact on consumption volatility (which is what matters, rather than output or income volatility, in terms of welfare), at least at intermediate levels of financial integration.

What accounts for the discrepancy between the advertised benefits of financial globalization and the reality? In this paper, we argue that there are two principles that can provide a resolution of this apparent discrepancy and can also provide a cogent synthesis of the disparate strands of the existing literature on this topic.

Our first contention is that most macroeconomists may not have been searching for the right benefits that should be expected from capital account liberalization. There is now an extensive theoretical and empirical literature making the point that total factor productivity growth is the main contributor to long-term growth. For realistic parameterizations, the raw added capital accumulation that can be achieved via inflows of foreign finance is likely to have at best a relatively minor impact on the trajectory of output. A corollary of this point is that, if financial globalization leads to significantly improved growth, the main channel has to be by helping countries move closer to their production possibility frontiers. Thus, by focusing on GDP growth rather than productivity, the existing literature may be misdirecting its efforts.

We acknowledge that the notion that the benefits of financial integration should really be evident in TFP growth rather than GDP growth is not conclusively established at this stage. But we feel that this is the obvious direction in which the macroeconomic literature on financial integration should proceed, particularly given how it ties together various strands of the existing empirical evidence, as we discuss below.

This perspective about TFP being the proximate determinant of growth leads to our second point of departure from the traditional literature. What may be far more important than the direct growth effects is how capital flows generate a number of what we label the “potential collateral benefits” of financial integration. There is now an extensive literature showing that financial openness can, in many but not all circumstances, generate efficiency gains among domestic firms by exposing them to competition from foreign entrants, promote development of the domestic financial sector, impose discipline on macroeconomic policies, and unleash forces that result in better government and corporate governance. There are direct economic channels through which these collateral effects operate, although political economy considerations could play an important role as well. It follows that one can never guarantee that greater financial integration alone will improve growth, or that any one-size-fits-all policy can possibly yield reliable results.

The notion that financial globalization mainly influences productivity growth through indirect channels has an obvious implication for empirical analysis of its 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 of time, it is much easier to detect the costs but not the benefits of financial globalization. More fundamentally, even at long horizons, it may be very difficult to detect the productivity enhancing benefits of financial globalization in empirical work if one also includes structural, institutional and macroeconomic policy variables in regressions that attempt to explain growth of GDP or productivity. For then, by construction, there can be little added explanatory power left for the financial openness measure if it is these very variables through which its effects play out. Indeed, this could explain why simple correlations tend to show that financially integrated economies have higher growth rates on average than unintegrated economies, yet it has proven difficult to find a causal effect of financial integration on growth in these economies once other factors of the sort mentioned above are controlled for.

The approach we have outlined above makes a number of other pieces of the literature fit together as well. For instance, a majority of the papers looking at the effects of overall capital account liberalization have relied on de jure measures of capital account openness. 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 openness and de facto openness can be quite important. Many countries have capital controls that are quite strict on paper but toothless in practice so their de facto level of integration is quite high, which in itself could act as a disciplining device on the government and firms. Of course, such countries may get only limited benefits from their de facto openness since the controls would still impose distortionary costs on firms and households as they attempt to get around these controls. In contrast, many other countries are quite open to global capital markets on a de jure basis, but in practice capital flows are minimal. In our survey, we consider results based on both kinds of measures and argue that the choice of measure has important consequences for empirical analysis.

Our approach could help understand why recent research that focuses solely on equity market liberalization seems to find such strong positive effects on growth, in contrast to the broader literature on financial integration and growth. We will argue that this is essentially because equity market liberalizations typically take place in tandem with various other domestic reforms, and when national governments have confidence in their own policies and their ability to adequately supervise domestic financial markets. Besides, these inflows are precisely the ones that, along with FDI, are most likely to confer the sort of collateral benefits discussed above.

Our analysis also makes clear why the evidence on the microeconomic effects of capital controls suggests significant distortionary costs in terms of economic efficiency, which may not be apparent when looking at macroeconomic data on growth. Indeed, an economy with a closed capital account and financial repression can experience high saving rates, high levels of investment and high growth but without correspondingly large gains in economic welfare. Again, the fundamental point is that capital market restrictions and lack of access to global capital markets can lead to many welfare-reducing distortions that may not show up in raw

GDP numbers. In these contexts, GDP growth by itself may simply not be an ideal measure of welfare. Of course, GDP is a lot more tangible and easier to measure than foregone consumption, which is why the focus often remains on GDP.

The collateral benefits perspective also ties in to the literature on thresholds in the effects of financial globalization. It has become a nostrum in academic and policy circles that financial globalization can in principle be good for any country—in terms of delivering the benefits and minimizing risks—but that the benefits to cost calculus continually improves as the country develops more robust institutions and good macroeconomic policies. The set of prescribed requirements tends to be vast—encompassing sound monetary and fiscal policies, depth and sophistication of financial markets, the quality of financial sector regulation and supervision, transparency and good governance, and the list goes on.

It is clearly the case that most developing countries do not measure up to all of these desiderata and, for many of them, the length of this list makes things look hopeless at the outset. Does this imply that developing countries would do best to shield themselves from external influences while trying to improve the quality of their domestic policies and institutions to some acceptable level?

Alas, dear reader, we do not have a silver bullet to offer based on our reading of the literature. Our analysis suggests that the relationship between financial integration and these factors is a complex one and that there are inescapable tensions inherent in evaluating the risks and benefits associated with financial globalization. After all, given policy inertia and the presence of powerful vested interests, financial opening may in fact prove necessary to improve institutions, allow for transfer of good governance practices, generate macroeconomic discipline and so on. And these are precisely the conditions that seem to be associated with favorable outcomes of financial globalization.

A different threshold is related to the level of integration itself. Developing countries account for a far smaller share of cross-border capital flows than industrial countries, which have as a group experienced a marked increase in financial integration beginning in the mid-1980s. The latter group is clearly able to do better than emerging markets in terms of using international capital flows to efficiently allocate capital, using it to generate TFP gains and share income risk. One possible interpretation of this observation is that higher levels of financial integration may be needed for emerging market economies to see such benefits.

It is no doubt cold comfort for developing countries to be informed that what is needed to realize the full benefits is to attain high levels of financial integration similar to that of industrial economies and that the risks en route are unavoidable. Or that the possible short-run costs may be a necessary price to be paid for achieving long-run benefits. After all, if these short-term costs take the form of explosive crises, they could have persistent negative effects. Furthermore, the distributional effects associated with these short-term consequences can be particularly painful for low-income countries.

Some comfort may still be provided by a newly developing literature on how globalization affects volatility. While macroeconomic volatility does have a negative effect on growth, this relationship is substantially attenuated for more open economies. That is, economies that are more open to trade and financial flows are able to tolerate much higher levels of volatility--other things being the same--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 help to reduce volatility.

The reality is that developing economies may ultimately have little choice but to accept financial globalization since staying closed could become increasingly costly in terms of foregone long-term economic welfare, both in absolute and relative terms. There are some approaches that countries could adopt to try and acquire some of the benefits of globalization, say by opening up to trade flows and liberalizing trade-related capital account transactions. But trade integration inevitably spawns opportunities for broader financial flows, suggesting that this is at best a temporary solution. There may also be approaches to controlled capital account liberalization that allow countries to open their capital accounts in a carefully calibrated manner while still generating some of the domestic benefits. These policy issues point to some directions for further research, which we discuss in the concluding section of the paper.

II. Measuring Financial Openness

To set the stage for our analysis, we first discuss some crucial measurement issues. Measuring capital account liberalization has long been a challenge. The early literature looking at the effects of capital controls relied on a 0/1 dummy variable based on the IMF's Annual Report on Exchange Rate Arrangements and Exchange Restrictions (AREAER) (e.g., Grilli and Milesi-Ferretti, 1995). In order to get a better measure of the intensity of controls, Quinn (1997) uses narrative descriptions in the AREAER and develops a five-category classification based on a 0 through 4 scale.³

After the expansion of the set of categories reflecting the existence of capital controls in the 1997 issue of the AREAER, there have been several refinements of the earlier measures. Quinn (2003) and Quinn and Toyoda (2003), for example, develop a much finer index of capital account openness taking values between 1 to 100. Johnston and Tamirisa (2000), Mody and Murshid (2002) and Miniane (2004) use the expanded set of categories in the AREAER and country-specific data from the IMF to design new measures. Raising the level of technical sophistication a notch, Chinn and Ito (2005) develop an index of capital account restrictions (scale of 0-100) based on principal components extracted from disaggregated capital account restriction measures in the AREAER. Edwards (2005) combines the measures

³ Klein and Olivei (200?) use the data in the AREAER and construct a measure reflecting the fraction of years in which a country's capital account was open.

in Mody and Murshid (2002) and Chinn and Ito (2005) with information from country-specific data sources and proposes a new index (scale 0 to 100).⁴

All of these measures, despite their increasing sophistication and fineness, suffer from a variety of similar shortcomings. First, they do not accurately reflect the degree of openness of the capital account because they are based on various restrictions associated with foreign exchange transactions in addition to controls specific to capital flows. Second, they do not capture the degree of enforcement of capital control regulations (or the effectiveness of that enforcement) which can change over time even if the legal restrictions themselves remain unchanged.⁵ Third, and most importantly, these measures are unable to reflect the actual degree of integration of an economy into international capital markets. For instance, many capital-poor African economies with no obvious capital controls have been unable to attract inflows of capital. On the other hand, a number of Latin American economies have often not been able to limit capital flight despite apparently tight controls on outflows. Similarly, despite its extensive regime of capital controls, China has not been able to limit large inflows of speculative capital in recent years (see Prasad and Wei, 2005).

This suggests that the distinction between *de jure* financial integration--as measured by (the lack of) legal restrictions on capital movements--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 want to be (or want not to be) but how integrated they are in practice.⁶ But how does one go about measuring *de facto* integration?

⁴ Other authors such as Edison and Warnock (2002) have constructed parallel measures of capital account restrictions related to just equity flows. These and other recently-developed measures based on equity market liberalization announcements as well as net equity flows (Bekaert and Harvey, 2000; Henry, 2000a) may be somewhat more reliable, but their value is limited by the fact that only a small fraction of international financial flows has been intermediated through stock markets.

⁵ Frankel (2005) notes that binary measures suggest similar levels of capital account restrictiveness in Chile, Mexico and Brazil during the period 1992-1994. In fact, Mexico had a rather open capital account, Brazil employed a complex set of controls on capital flows, and there were some controls on short-term flows in Chile.

⁶ Collins (2005) argues that *de facto* and *de jure* measures are both relevant in measuring the effects of financial integration. She also notes that *de facto* indicators are likely to be endogenous in growth regressions, making it difficult to pin down causal effects. As we discuss below, *de jure* measures also have a strong element of endogeneity to them, in addition to their various other deficiencies. Aizenman and Noy (2004) report that *de jure* measures of capital account liberalization have differential effects on *de facto* measures of trade and financial integration. They find that *de jure* restrictions on current account transactions adversely affect the extent of *de facto* trade openness while *de jure* restrictions on capital account transactions have no impact on *de facto* financial integration. Similarly, Magud and Reinhart (2005) survey a number of studies on the effectiveness of capital controls and conclude that capital controls on inflows do not reduce the volume of net flows.

One approach has been to look at price-based measures of asset market integration. The logic is that, irrespective of the volume and direction of flows, true integration of capital markets should be reflected in common prices of similar financial instruments across national borders.⁷ While this is a logically sound approach, there are serious practical problems in using such measures for emerging markets and even more so for low-income developing economies. Returns on financial instruments in these economies may incorporate risk premia that are difficult to measure. And domestic financial markets may simply not be deep or liquid enough to allow for efficient arbitrage of price differentials. Other measures of capital market integration include saving-investment correlations and, related to the price-based approach discussed above, various interest parity conditions (see Frankel, 1992). However, these measures are also difficult to interpret and to operationalize for an extended period of time and for a large group of countries.

This leaves quantity-based measures of integration based on actual flows which, in our view, provide the best available measure of a country's integration with international financial markets. One issue is whether to measure integration using net or gross capital flows. Gross flows provide a relatively less volatile and more sensible picture of integration. Indeed, this measure has the advantage of capturing two-way flows which one would expect to see if economies were in fact sharing risk efficiently in a world with multiple financial instruments and agents with different risk profiles. Using the sum of gross inflows and outflows as a ratio to national GDP also yields a nice symmetry with the widely-used measure of trade openness, which is the sum of imports and exports as a ratio to GDP.

However, such annual flows tend to be quite volatile and are prone to measurement error. To mitigate these problems, we use a measure of the sum of gross stocks of foreign assets and liabilities as a ratio to GDP. These stocks are essentially just a refined cumulated version of the underlying flows corrected for valuation effects. This preserves the spirit of measuring de facto integration and obviates many of the problems associated with flow data.

The measures of financial integration that we use in our analysis draw upon the work of Milesi-Ferretti and Lane (2005). These authors have carefully constructed an extensive dataset of stocks of gross liabilities and assets for a large group of industrial and developing economies. This dataset has the virtue of accounting for valuation effects and other problems that typically plague raw country-level data, and also corrects for cross-country differences in data definitions and variable construction.

Measures of de facto integration based on these data clearly show a surge in financial globalization over the last two decades (Figure). While the level of integration into global capital markets is clearly highest for industrial economies, emerging market economies have accounted for the bulk of the integration experienced by developing economies.

⁷ This is of course a simplistic description of a sophisticated approach (see Karolyi and Stulz, 2002, for a survey).

III. The Big Picture: Theory and Evidence

We begin by reviewing the basic implications from theoretical models about how financial globalization should affect growth and volatility. We then review the evidence from cross-country studies based on macroeconomic data.

III.1 Theory

The benchmark neoclassical framework suggests that financial globalization should lead to flows of capital from capital-rich economies to capital-poor economies since, in the latter, the returns to capital should be higher.⁸ These 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.

There are also a number of indirect channels through which financial globalization could enhance growth. It could help promote specialization by allowing for sharing of income risk, which could in turn increase productivity and growth as well.⁹ 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 some of these channels later in the paper.

The effects of financial integration on output volatility are not obvious in theory. In principle, financial integration allows capital-poor countries to diversify away from their narrow production bases that are often agricultural or natural resource-dependent. This should reduce macroeconomic volatility. At a more advanced stage of development, however, trade and financial integration could simultaneously allow for enhanced specialization based on comparative advantage considerations. This could make countries more vulnerable to industry-specific shocks. Indeed, Imbs and Wacziarg (2003) have shown that the degree of diversification has an inverted U-shaped relationship with per capita income level.

⁸ Indeed, the fact that the actual volumes of such flows don't come anywhere near what might be predicted by neoclassical growth models has been characterized as a puzzle by Lucas (1990), with many subsequent papers trying to resolve this puzzle.

⁹ Concerns about potential increases in volatility arising from a specialized production structure may discourage countries from taking up growth-enhancing specialization activities; higher volatility could also reduce investment rates. Financial globalization could facilitate international risk sharing and thereby help reduce countries' consumption volatility. Among developed countries and across regions within developed countries, there is indeed some evidence that better risk sharing is associated with greater specialization—see Kalemli-Ozcan, Sorensen, and Yosha, 2001; Obstfeld, 1994a; and Acemoglu and Zilibotti, 1997).

Theory does have a strong prediction, however, about the relationship between financial integration and consumption volatility. Since 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. Indeed, the theoretical benefits of international risk-sharing are quite large (Lewis, 1996; van Wincoop, 1994, 1999), especially so for developing economies (Pallage and Robe, 2003).

In summary, there is a strong presumption in theory that financial integration is good for growth and, although its effects on output volatility are unclear, it should unambiguously lead to reductions in the relative volatility of consumption.

III.2 Evidence: Effects on Growth

Perceptions about the growth benefits of financial integration owe much to the fact that emerging market economies have, as a group, experienced far higher growth rates over the last two decades than other developing countries or even industrial countries, despite the crises that some in the former group have experienced (Figure 3). But economists are of course not such easy pushovers, especially when it comes to making causal statements.

Eichengreen (2001) provides an early comprehensive survey of the literature on financial globalization. He notes that, while a handful of studies find strong positive or negative effects of capital account liberalization on growth, most find no strong effects and that, by and large, empirical analysis based on cross-country regressions has failed to find conclusive results.

The rapidly growing literature on this topic is covered in an updated survey by Prasad, Rogoff, Wei and Kose (2003). These authors summarize their main findings as follows:

- In spite of an apparently strong theoretical presumption, it is difficult to detect a strong and robust causal relationship between financial integration and growth.
- Contrary to theoretical predictions, financial integration appears to be associated with increases in consumption volatility in some developing countries, at least in the short run.
- There appear to be threshold effects in both of these relationships that may be related to absorptive capacity.

Consider first the relationship between financial integration and growth. Figure 4 highlights this discrepancy between popular perception and fact. The first panel shows that there is a strong positive association between changes in financial openness and growth. The second panel shows that, once other growth determinants are controlled for, the relationship vanishes. There is of course a great deal of endogeneity embedded in a regression of this sort, but it does clarify the point taken from the literature based on cross-country growth regressions that financial integration by itself may not be the key to high growth.

Prasad, Rogoff, Wei and Kose (2003) tabulate fourteen major studies looking at the effects of capital account liberalization on growth and also conduct their own empirical analysis, all of which points to the conclusion that, once the usual determinants of growth are controlled for,

there isn't a robust *causal* relationship from financial openness to growth. Since that survey, there have been a number of new papers re-examining this relationship. Table 1 provides an updated version of the literature survey table incorporating many of these new papers. While 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 for developing countries. This suggests that, if financial integration has a positive effect on growth, it is apparently not robust, 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? A key issue that we noted earlier is related to the measurement of financial integration. Some widely used *de jure* measures are quite coarse and may not capture the true extent of international financial integration. For example, in an influential paper, Rodrik (1998) finds that capital account liberalization has no significant effect on economic growth. His analysis is based on a binary measure of the existence (or lack thereof) of capital controls. Employing a finer and presumably more informative version of the same openness measure, Quinn (1997) documents a positive association between capital account liberalization and economic growth. As discussed by Edison, Klein, Ricci, and Slok (2004), empirical studies using finer (more informative) *de jure* measures of capital account openness appear to reach more positive results about the impact of financial integration on economic growth than those that employ binary *de jure*.

Among the 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 (see Kraay, 1998; O' Donnell, 2001; Edison, Levine, Ricci, and Slok, 2002; and Garcia and Santana, 2004).

There are also materially important differences in the coverage of countries across studies. Some studies exclusively focus on advanced countries, some consider developing and emerging market countries, and others use a combination of all three groups. While Quinn (1997) and Garcia and Santana (2004) find that capital account liberalization tends to have a positive impact in all countries, Edwards (2001) and Edison, Klein, Ricci, and Slok (2004) argue that its effect is very limited in less developed countries. Arteta, Eichengreen and Wyplosz (2001), on the other hand, find no relationship between the level of development and the growth effects of capital account liberalization.

The time period covered by different empirical analyses is another source of variation in results. Some studies use data going back to the early 1950s (Alesina, Grilli, and Milesi-Ferretti, 1994), while others limit their examination to the post-1986 period (Klein and Olivei, 2001). Longer time spans are presumably more appropriate for studying the impact of international financial integration on economic growth. At the same time, one must be cognizant of the fact that capital flows to developing countries have really taken off only in the last two decades. The choice of sample period appears to make a big difference. For example, comparing the studies by Rodrik (1998) and Quinn (1997) which arrive at diametrically opposed conclusions, Eichengreen (2002) observes that Quinn's sample

coverage begins in 1960 and Rodrik's in 1975. Even though both studies use a sample ending in 1989, the impact of the debt crises of the 1980s receives a higher weight in Rodrik's study since the span of his dataset is much shorter.

There are also differences in empirical methodologies that could account for some of the variations in results across papers, especially given the large number of potential pitfalls in reduced-form cross-country regressions. Edison, Levine, Ricci, and Sløk (2002) claim that they employ a variety of statistical methodologies that allow them to deal with several econometric problems, including possible reverse causality—i.e., the possibility that any observed association between financial integration and growth could result from the mechanism that faster growing economies also more likely to choose to liberalize their capital accounts. After a battery of statistical analyses, they conclude that, overall, there is no robustly significant effect of financial integration on economic growth.

Our reading of this rapidly expanding literature is that it remains difficult to find 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 towards finding positive effects on growth, especially when financial integration is measured correctly and when certain supportive conditions are in place. But more on that later.

III.3 Evidence: Effects on Volatility

Capital account liberalization is believed to have played an important role in fomenting financial crises and has been indicted by various observers as the proximate cause for the crises experienced by various emerging markets over the last decades. What does the evidence say about the role of open capital accounts in contributing to crises? More generally, what effects has financial integration had on macroeconomic volatility?

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.¹⁰ The relationship 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) re-examines this issue using a more sophisticated measure of *de jure* financial openness that attempts to incorporate some notion of the intensity of capital

¹⁰ Glick, Guo and Hutchison (2004) 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. But they use a 0/1 openness indicator based on the IMF's AREAER. Whether this relationship holds up with de facto measures, which we have argued are better measures of integration, remains to be seen.

controls. He looks at two manifestations of external crises—sudden stops of capital inflows, current account reversals. He finds no systematic evidence that countries with higher capital mobility tend to have a higher incidence of crises, or tend to face a higher probability of having a crisis, than countries with lower mobility. But, once a crisis occurs, countries with higher capital mobility may face a higher cost in terms of a decline in growth.

Turning to volatility more broadly, 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. The IMF's World Economic Outlook (2004) argues that trade and financial integration tend to reduce output volatility even in developing countries.¹¹

However, Kose, Prasad and Terrones (2004) find that, during the 1990s, average declines in output growth volatility were smaller for emerging markets than for either industrial or low-income developing economies. More importantly, they find that the ratio of consumption growth volatility to income growth volatility increased during the recent period of globalization for emerging market economies (while it remained flat for the other two groups). In other words, it's not just that the volatility of consumption rose because of crises and the associated output volatility, but it increased by *more* than output volatility. This is a striking result in that it runs exactly counter to one of the presumed theoretical benefits of financial integration—that it allows countries to share income risk and smooth consumption.

These authors also find that the relative volatility of consumption growth increases with the degree of financial openness, but only up to a certain threshold level of integration. At higher levels of financial 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 financial integration while most industrial economies are above the threshold.

A number of recent theoretical papers have attempted to explain this puzzling positive association between financial integration and the relative volatility of consumption growth. For instance, Levchenko (2004) considers a general equilibrium endowment economy where only some agents have access to international financial markets and domestic financial markets are underdeveloped because of limited contract enforcement. When agents face purely idiosyncratic endowment risks--i.e., risks which are perfectly insurable domestically in the case of autarky—capital account liberalization leads to an increase in the volatility of aggregate consumption since agents with access to international financial markets stop participating in risk-sharing arrangements with those who do not have such access.¹²

¹¹ Buch, Dopke and Pierdzioch (2005) find that, among OECD economies, there is no clear relationship between financial integration and output volatility.

¹² In a similar vein, Leblebicoglu (2005) considers a model where firms in the traded goods sector and worker-households have access to international financial markets, but firms in the non-traded goods sector do not. With international financial integration, worker households use international

III.4 Growth and Volatility

One way to tie together the growth and volatility results is suggested by the work of Kose, Prasad and Terrones (2005). These authors analyze the relationship between GDP growth and its volatility in a large sample of industrial and developing economies. They find that, consistent with earlier evidence (e.g., Ramey and Ramey, 1995), the relationship between the growth and volatility of GDP at low frequencies (five- or ten-year periods) is negative even during the recent period of globalization. But the results are not homogeneous across countries grouped by level of development. The unconditional relationship between growth and volatility is positive for industrial economies and negative for developing economies. For emerging market economies, this relationship is negative before trade and financial liberalization and weakly positive after liberalizations have taken place in both dimensions.

Formal econometric analysis shows that, in a standard growth regression framework, the negative relationship between growth and volatility is preserved for the full sample of industrial and developing countries even after controlling for a number of standard determinants of growth. The results also suggest that the negative growth-volatility relationship is substantially weakened by trade openness and financial openness, although the result for financial openness is weaker in terms of both magnitude and robustness than that for trade openness.¹³ The authors interpret this result as indicating that, even if globalization exposes an economy to more volatility (especially from external shocks), this volatility has less of an effect on growth in economies that are more open to trade and financial flows. Indeed, numerous other pieces of evidence (discussed in detail below) suggest that openness to trade helps economies bounce back more quickly from large external shocks, although the evidence on how financial openness affects recoveries from shocks is more mixed.

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?

financial markets to smooth the effects of productivity shocks, leaving the owners of nontraded firms without a partner to share their consumption risk. Thus, the volatility of aggregate consumption could increase under international financial integration.

¹³ The coefficients on trade openness and on the interaction between GDP volatility and trade integration are both found to be robustly and significantly positive, indicating that a higher level of trade integration enhances growth and also reduces the negative effect of volatility on growth. The coefficient on the interaction between financial integration and volatility is generally positive but not stable across specifications.

IV. Matters of Composition

An alternative line of inquiry into the effects of financial openness is based on the notion that not all types of capital flows are equal. Why should the composition of capital flows matter? Flows that have equity-like features—including FDI and portfolio equity flows—are not only presumed to be more stable and less prone to reversals (Wei, 2001), but are also believed to bring with them many of the benefits of financial globalization such as transfers of managerial and technological expertise. On the other hand, portfolio debt flows have rapidly acquired black sheep status, especially since currency and maturity mismatches related to external debt are seen as proximate determinants of many emerging market crises. So what does the evidence show? We examine the literature on the macroeconomic effects of each of these types of flows in turn.

IV.1 Portfolio Equity Flows

There now appears to be a consensus that equity market liberalizations are positively associated with increases in growth. The influential work of Bekaert, Harvey and Lundblad and Henry has been at the forefront of this literature. Bekaert, Harvey and Lundblad (2005) have carefully constructed dates for equity market liberalizations in a large group of developing countries and, using these data, have shown that such liberalizations have a positive effect on growth in both the cross-country and time-series dimensions. They conclude that equity market liberalizations increase GDP growth by as much as 1 percentage point.¹⁴ Controlling for overall capital account liberalization (which turns out not to have a statistically significant effect on growth) leaves this result intact.

A potential concern related to this work based on cross-country work regressions is that many emerging markets undertook equity market liberalizations at about the same time that they instituted numerous other policy and structural reforms. The paucity of cases where equity market liberalizations were reversed also makes it difficult to disentangle these liberalizations from various other developments that took place around the same time. The authors cited above make a concerted effort to control for numerous other determinants of growth and the potential endogeneity of equity market liberalizations. They find that controlling for factors such as macroeconomic policies, financial development and quality of legal institutions dampens the magnitude of the growth effects of equity market liberalizations, but the effect is still positive and statistically significant.

Henry (2000a, 2000b, 2003) presents cross-country evidence that stock market liberalizations lower the cost of equity capital, lead private investment booms (although the direction of causality is not clear), and temporarily raise the growth rate of labor productivity. Henry's

¹⁴ The measures of equity market liberalization used in this study include official liberalization dates; dates of "first sign" of liberalization based on certain other outcomes such as a launching of a country fund or American Depository Receipt announcement; and a measure of intensity of equity market liberalization along the lines of Edison and Warnock (2003).

research also suggests that the equity market liberalizations may be associated with other simultaneous reforms that raise productivity growth and, therefore, it may not necessarily be these liberalizations per se that enhance growth. Alternative possibilities are that equity market liberalizations are undertaken as part of a broader package of structural reforms (such as trade liberalization) or that equity market liberalizations are seen as a signal of future macroeconomic reforms.

An interesting example of this line of work using firm-level data is that of Chari and Henry (2002). They argue that stock market liberalizations should reduce the cost of capital, drive up Tobin's q and increase investment. Using data from five emerging markets—India, Jordan, Korea, Malaysia and Thailand—they find some evidence in favor of this “allocative efficiency” hypothesis in the time-series dimension. That is, equity market liberalization does appear to facilitate the transfer of capital to high-return countries. However, they do not find evidence to support the cross-sectional implication of theory—that one should observe relatively more investment by firms whose systematic risk falls and relatively less investment by those whose systematic risk rises. This suggests that the cross-sectional distribution of new capital across firms within a given country may not be entirely efficient. On net, the first effect may dominate, implying that countries that undertake stock market liberalizations may be better off. But the small and highly selective sample of countries leaves open the question of how broadly applicable the results are.

Gupta and Yuan (2003) find that stock market liberalizations (based on binary indicators of liberalization) lower the incremental cost of external capital. So industries that depend more on external finance experience higher growth following liberalizations. But they conclude that there is no evidence of a uniform shift in industrial growth across all sectors following stock market liberalizations--i.e., channel through which these liberalizations raise growth is not by lowering of overall cost of capital in the economy.

We are very sympathetic to this entire line of empirical work on the effects of equity market liberalization, especially since more such disaggregated evidence on the effects of different dimensions of capital account openness is likely to be informative. But we should note that virtually the entire literature on the effects of equity market liberalization has relied on measures of *de jure* liberalization, which are subject to the same caveats as the broader literature on capital account liberalization using *de jure* measures that we discussed earlier.

This raises a bit of a puzzle. Why is it that, using similar *de jure* measures, the growth effects of broader capital account liberalization are found to be quite weak while those of equity market liberalization are remarkably and uniformly strongly positive? As discussed before, one possibility is that equity market reforms may take place only when governments feel they have supportive conditions in place. We also note an interesting fact--virtually all of the papers in the latter literature have been published in finance journals. One cannot but entertain the mischievous possibility that finance professors and finance journals are predisposed towards a positive view of what equity markets can deliver. Perhaps macroeconomists are just more accepting of weaker or inconclusive results in the relationships that they analyze!

IV.2 FDI

We turn next to the presumed poster child for the benefits of financial globalization, FDI, which has become the dominant form of capital flows to developing countries.¹⁵ There is a strong presumption in theory that FDI should have maximum benefits as it tends to be the least volatile of different types of capital flows and should bring with it transfers of technological and managerial expertise, generate the right sorts of incentives for foreign and domestic investors etc.

Yet, it is not easy to detect positive effects of FDI at the macroeconomic level. The growth regression approaches of Borensztein, De Gregorio and Lee (1998) and Carkovic and Levine (2003) find little evidence that FDI has an exogenous positive effect on economic growth, although the first set of authors do find that a positive effect is more likely to turn up in countries with relatively high levels of human capital. De Mello (1999) finds that FDI has generally positive effects on growth of output and TFP but the results are not robust across specifications. He suggests that the results depend on the degree of complementarity and substitution between FDI and domestic investment. Alfaro, Chanda, Kalemli-Oczan and Sayek (2004) find that, in general, FDI plays an ambiguous role in contributing to economic growth. However, countries with well-developed financial markets do appear to gain significantly from FDI. All of these studies show that FDI seems to have its predicted effects only in economies where the conditions are right.

It has not been easy to detect positive effects of FDI even in micro data. For instance, using firm-level data from Venezuela, Aitken and Harrison (1999) find that the net effect of FDI on productivity is quite small—FDI raises productivity within plants that receive the investment but lowers that of domestically-owned plants. This result puts in doubt the spillover effects theory. More recent work has, however, begun to come up with evidence of the benefits of FDI. Using a cross-country firm-level dataset, Harrison, Love and McMillan (2003) find that FDI eases financing constraints on domestic firms, with the effect being stronger in low-income countries.

One possibility is that researchers have been looking for FDI spillovers in the wrong place. Since multinationals have an incentive to prevent information leakage that would enhance the performance of their local competitors, but at the same time might want to transfer knowledge to their local suppliers, spillovers from FDI are more likely to be vertical rather than horizontal in nature. In other words, spillovers are most likely to take place through backward linkages--between domestic suppliers of intermediate inputs and their multinational clients--and thus they would not have been captured by the earlier studies.

¹⁵ Albuquerque, Loayza and Serven (2004) document that the relative importance of FDI flows has been rising in recent years, making it by far the most important form of private international financing for emerging market economies.

Blalock (2001), Schoors and van der Tol (2001), and Javorcik (2005) have provided evidence of positive FDI spillovers through backward linkages.¹⁶ Javorcik's paper--the most carefully executed of the lot--finds that, in enterprise-level data from Lithuania, there is evidence of positive spillovers from FDI taking place through backward linkages but no indication of spillovers occurring through horizontal channels.¹⁷ The magnitude of the effect is economically meaningful--a ten percent increase in foreign presence in downstream sectors is associated with a 0.38 percent rise in output of each firm in the supplying industry. Javorcik also finds that the productivity effect is larger when the multinationals in the sourcing sector are oriented towards supplying the domestic market rather than focusing mainly on exporting.

IV.3 Portfolio Debt Flows

If there is anything close to a consensus in the literature on financial globalization, it is that debt flows generate the greatest risks from financial openness. Countries with unfavorable conditions tend to rely more on short-term external debt denominated in foreign currencies as their primary source of foreign capital.¹⁸ This creates substantial vulnerabilities, especially when the domestic financial system through which this capital is intermediated is underdeveloped, poorly supervised and subject to governance problems.

Even conceptually, debt flows don't have the positive attributes of equity-like flows. They doesn't solve 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).

Furthermore, opening up to debt flows can give profligate governments and weakly supervised financial sectors a lot more room to increase their vulnerability to shocks. For instance, McKinnon and Pill (1997) describe the problem of overborrowing by banks in the event of financial liberalization without adequate supervision. They show in a theoretical model that moral hazard in domestic financial markets and unrestricted capital flows can together create a potential for disaster. In McKinnon and Pill (1998), they extend the model

¹⁶ See Alfaro and Rodriguez-Clare (2004) for further evidence along these lines as well as a useful review of the evidence on FDI spillovers in developing countries.

¹⁷ She finds that firm productivity is positively correlated with the extent of potential contacts with multinational customers but not with the presence of multinationals in the same industry. Focusing on a transition economy such as Lithuania seems suitable for exploring this issue since the endowment of skilled labor enjoyed by transition countries makes them a particularly likely place where productivity spillovers could manifest themselves.

¹⁸ The "original sin" literature (Eichengreen, Hausmann, Panizza) argues that this is the only form of international capital inflows available to certain countries so they may have little say in this outcome.

to show that open capital accounts can 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 entire literature on early warning systems generates a clear result that high levels of short-term external debt denominated in foreign currencies substantially increase vulnerability to financial crises. We do not review this literature in detail here but note that currency and maturity mismatches of debt structures have been shown to tip countries over into crises very frequently (references to be added here).

IV.4 Synthesis

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 while portfolio bond flows and official flows don't. They also find that foreign bank lending—both short-term and long-term—is negatively associated with growth, except in countries where local banks are well capitalized. Durham (2003) finds that total foreign portfolio flows (bond and equity taken together) don't enhance growth. He also finds that other foreign investment, which includes cross-border bank lending, has a mildly negative effect on growth. This result turns out to be rather fragile and, in any event, the negative effect of bank lending is mitigated by initial financial and/or legal development.

V. Where Do We Stand?

The literature that we have summarized thus far suggests that, in the macroeconomic data, it is difficult to find robust causal evidence that financial integration boosts growth. But there is apparently strong indication that equity market liberalizations boost growth. The evidence that FDI increases growth is less conclusive although more recent work using micro data has begun to come up with increasingly clear evidence of the benefits of FDI. A theme begins to emerge here that many of the benefits of financial openness seem to be masked in cross-country analysis using macroeconomic data but is more apparent in disaggregated analyses using micro data. Before we take this thought further, we review additional microeconomic evidence on the effects of financial openness.

V.1 Additional Microeconomic Evidence

The approach of examining the effects of financial openness using microeconomic evidence from individual countries has the advantage of being able to provide more detailed analyses of how capital account opening affects the allocation of capital and overall efficiency. The downside is that it is difficult to separate out the effects of capital account liberalization from various other reforms that may be taking place in a country. Nevertheless, this literature has the potential of allowing for a closer look at how capital account liberalization affects life in

the corporate trenches—how firms are affected and what some of the distributional consequences might be.

One strand of the literature using micro data has focused on estimating the costs of capital controls, an enterprise that is very complicated in aggregate data due to endogeneity, timing and other problems. Forbes (2004) provides a comprehensive survey of this literature and concludes that capital controls have significant efficiency costs. She notes that capital controls can cause widespread 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 also reduce market discipline.¹⁹ In addition, the administration of capital controls imposes a significant cost on the government, especially since the controls often have to be continually updated in order to close loopholes and limit evasion.

Forbes (2005) argues further that capital controls may reduce vulnerability to crises but have large costs not just in terms of efficiency losses and less market discipline but also reduced capital flows. She acknowledges that these effects are difficult to detect at the macroeconomic level but notes that they are apparent in microeconomic data. 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. The wedge arises because capital controls typically result in costs of avoidance of those controls as well as higher domestic interest rates. They conclude, based on the cross-country investment patterns of multinationals, that FDI is adversely affected by capital controls.

Using industry-level data, Vanassche (2004) finds that *de jure* financial openness (based on IMF and Quinn measures of capital account openness) has a positive effect on growth of all industrial sectors, although sectors that use external financing do even better. The effects are weaker if domestic financial sector development is controlled for.

In short, the existence of capital controls appears to result in significant efficiency costs at the level of individual firms or sectors. We find this evidence plausible although, as before, the fact that this strand of the literature largely uses *de jure* measures of integration gives one pause. But a mitigating circumstance is that some of the papers noted above (including many in the survey by Forbes, 2004) are based on data from individual countries or small groups of countries where the capital controls really had a bite.

¹⁹ For instance, Johnson and Mitton (2002) argue that capital controls reduced market discipline among Malaysian firms and created a screen for cronyism.

VI. Two Organizing Principles

To put together the disparate strands of evidence that we have assembled thus far, we now introduce two organizing principles that, in our view, help see all of these pieces of evidence as part of a whole.

VI.1 TFP as the Key Determinant of Growth

The question of what determines the large cross-country differences in output growth has motivated an extensive literature. Recent history on this topic can be traced to an important paper by Mankiw, Romer and Weil (1992) which came down strongly on the side of factor accumulation as the key determinant. The influential paper of Hall and Jones (1999) changed the terms of the debate and it has now come to be accepted as conventional wisdom that TFP growth is far more important than factor accumulation.²⁰

This has important implications for analyzing how international capital mobility can affect growth. The classical theoretical notion that capital mobility allows capital-poor countries to grow faster by allowing them to increase investment has been challenged, for instance, by Gourinchas and Jeanne (2003), who argue that the welfare gains from capital mobility are likely to be small. Their key proposition is that capital controls are in effect a transitory distortion since even a financially closed economy eventually accumulates capital domestically, so the distortion vanishes over time. Hence, viewing the benefits of capital account liberalization as those resulting from a permanent reduction in this distortion (as captured, for instance, by the wedge between domestic and international interest rates) is an overstatement of the benefits. These authors conclude (as do Hall and Jones, 1999) that less developed countries have lower per capita income because they are less productive or have more distortions; not because they are capital scarce. In more recent work, Caselli (2005) and Gourinchas and Jeanne (2005) provide further theoretical support (and some evidence based on parameterizations of growth models) for the notion that it is TFP growth rather than capital accumulation that is crucial for long-term growth.

Indeed, this literature may provide a useful guide to where one should be looking for the benefits of financial integration. 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 etc.

²⁰ The debate is far from fully settled, of course. Bosworth and Collins (2003) argue that many previous studies over-estimate the importance of TFP growth; they argue that factor accumulation and TFP growth are both very important, even for long-run growth. By contrast, Jones and Olken (2005) present evidence that TFP growth fluctuations constitute the primary determinant of not just long-term but also short-term growth. In the context of the Asian newly industrialized countries, Young (1995) argues that capital accumulation was the main driver of rapid growth in those countries during the miracle years, a view subsequently disputed by Hsieh (2002).

The hypothesis that financial integration raises TFP growth has not yet been investigated carefully in the literature. One exception that we are aware of is a paper by Edwards (2001), who looks at this issue rather cursorily and concludes that, while there is some evidence that financial integration increases TFP growth, the evidence is not robust. Some of the literature on the effects of equity market liberalization and FDI flows discussed above does show, using micro data, how capital inflows result in efficiency gains at the micro level. Clearly, there is more work to be done and this seems to us an important dimension of the future research program on the macroeconomic effects of financial integration.

VI.2 Collateral Benefits

The second part 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. There is considerable evidence, as we discuss below, that financial integration generates a number of benefits, which we term collateral benefits since those may not be the primary motivations for countries to undertake financial integration. These collateral benefits could include improvements in institutions (defined broadly to include governance, the rule of law etc.), better macroeconomic policies, development of the domestic financial sector etc. These collateral benefits then result in higher growth, usually through efficiency gains.

The empirical implications of this perspective are very powerful. First of all, it suggests that the beneficial impact of financial integration on growth may take a while to show up because it operates through these indirect channels rather than directly through investment. More importantly, it suggests that, in a regression framework, it may be difficult to disentangle the effects of financial integration if one includes measures of institutional quality, financial sector development, quality of macroeconomic policies etc. After all, it is these very channels through which financial integration generates growth benefits. This problem can not be resolved simply by using a technique such as instrumental variables estimation since that would entirely miss the logic of our scheme since our interest is in how financial integration affects growth through all channels, direct and indirect.

To summarize, there are two main pieces to our argument. The first is that financial integration should generate a number of side benefits; the second is that these conditions should then boost growth. The fact that well-developed and efficient financial sectors, good institutions, and sound macroeconomic policies help raise growth are, in our view, relatively non-controversial (although there may not be a consensus about the magnitude of these causal relationships). Hence, we turn our attention next to building the case for the former piece of our argument—that financial globalization has significant collateral benefits. The third part of our argument is of course that these benefits should show up in TFP growth; this we leave to future research.

VI. Collateral Benefits of Financial Globalization

Although financial globalization is in theory supposed to work most of its magic through increased capital flows, there are, as discussed in Sections III and V, some potentially important indirect benefits to undertaking financial globalization. We review the evidence for some of these benefits here.

VI.1 Financial Sector Development

While domestic financial sector development seems to improve the macroeconomic outcomes of globalization, there is evidence that openness to trade and financial flows is essential to trigger financial market development in the first place.

There is a large body of theory and evidence suggesting that foreign ownership of banks generates a variety of benefits (on the theory side, see Levine, 1996, and Caprio and Honohan, 1999). First, foreign bank participation makes domestic country's access to international financial markets easier. Second, foreign bank participation helps improve the regulatory and supervisory framework of the domestic banking industry. Third, foreign banks introduce a variety of new financial instruments and techniques, and technologies which can increase the competition in the market. This, in turn, has a positive impact on the quality of financial services and on the allocative efficiency. Fourth, foreign bank participation could also improve the quality of loans as the impact of government on the financial sector diminishes in financially integrated economies. Moreover, the domestic financial sector could become more stable in the presence of foreign banks since depositors could move their funds to the foreign-owned banks rather than transferring them to the financial institutions abroad during financial crises.

Empirical studies using a variety of techniques, including country case studies, have shown that removing restrictions on foreign ownership of domestic banks has positive effects (see McFadden, 1994; Demirguc-Kunt, Levine, and Min, 1998; and Claessens, Demirguc-Kunt, and Huizinga, 2000). The results of these studies suggest that foreign penetration into the domestic banking sector reduces both bank overhead costs and bank profits while increasing competition and making banking industry more efficient.²¹

Some recent studies consider the impact of international financial integration on the broader development of the domestic financial sector. Klein and Olivei (2001) and Bailliu (2000) find that, in financially integrated economies, the degree of domestic financial sector development is higher than in countries that maintain restrictions on capital account transactions. WEO (2001) reports that capital account liberalization has a large and significant impact on

²¹ A less benign view of foreign bank entry is provided by Detragiache and Tressel (2005) who find that, in very low income countries, the entry of foreign banks could in fact wipe out domestic banks and thereby have detrimental effects on financing available to small and medium enterprises.

financial sector development. In particular, it finds that while both the impact of portfolio flows and FDI are positive on the financial sector development, only portfolio flows seem to be statistically significant. Goldberg (2004) notes that financial-sector FDI, which is becoming important in some of the more advanced emerging market economies, is similar in some respects to the more widely-studied manufacturing sector FDI. She argues that financial-sector FDI from well-regulated and well-supervised source countries can support emerging market institutional development and governance. In a cross-country regression framework, Vanassche (2004) reports some evidence that financial openness has a positive effect on financial development.

Levine and Zervos (1998) and Henry (2000) find that stock market liquidity increases after liberalization of capital account transactions. Chinn and Ito (2005) also find that financial openness contributes to equity market development, but only when a threshold level of general development of legal systems and institutions has been attained (this level of development is more prevalent among emerging markets than among other developing countries). They report that, among emerging markets, the overall level of finance-related legal and institutional development increases equity market depth and enhances the effect of financial openness on equity market development.

Political economy considerations enter into the picture as well, with financial integration sometimes seen as a tool for shaking loose power structures that allow certain interest groups to thwart financial sector reforms. For instance, Rajan and Zingales (2002) propose an interest group theory wherein financial development is obstructed by incumbents who could be hurt by the competition that it fosters. When an economy allows cross-border trade and financial flows, it weakens incumbents' opposition and facilitates financial sector development. These authors find some support in both the cross-sectional and time-series dimensions of historical data to support this theory.

VI.2 Governance

Stulz (1999) discusses some specific channels through which globalization improves governance and thereby reduces cost of capital.²² First, new shareholders who invest in local firms have better skills and information gathering/processing technologies that allow them to monitor management better than local investors. Second, globalization creates competition among suppliers of capital. This reduces the cost of capital in that it reduces the rents that would otherwise accrue to domestic capital providers and also reduces transaction costs. Third, globalization transforms the market for corporate control—it increases the monitoring of managers both by existing shareholders and from potential external bidders. Fourth, globalization gives firms access to financial technology that enables them to raise funds using new securities and to manage their financial risks more effectively.

²² Bonaglia, Braga de Macedo and Bussolo (2001) report some cross-country evidence on the negative relationship between trade openness and corruption levels. They use IV estimation and conclude that there is in fact a causal relationship between trade openness and quality of governance.

Stulz (2005) argues that financial globalization decreases the importance of certain agency problems. It does this by reducing the cost of outside finance for firms. Consequently, if it is costly for firms to improve their governance, they are more likely to do so when they use more external finance. Ergo, financial globalization creates incentives for firms to improve governance. A missing step in this logic, however, is that improved governance gives firms more access to external capital. Doidge, Karolyi and Stulz (2004) note that financial globalization may lead to higher investment in governance for a different reason, namely that it reduces the cost of such investments.

VI.3 Macroeconomic Policies

It is widely believed that capital account liberalization imposes discipline on macroeconomic policies. The logic is that financial integration increases the potential costs associated with poor macroeconomic policies. Sudden stops and reversals of capital flows due to investor concerns about weak fiscal policies, for instance, can have devastating consequences for a developing economy. Thus, capital account liberalization is seen as a way to signal commitment to better macroeconomic policies (Bartolini and Drazen, 1997).²³ Even skeptics of the benefits of financial integration such as Stiglitz (2002) have accepted that this is likely to be one of the most important potential benefits of capital account liberalization. For an issue on which there is such a glorious meeting of minds, the available empirical evidence is remarkably sparse.

One paper that does provide a systematic examination of the disciplining effect of capital flows on domestic macroeconomic policies is Tytell and Wei (2004). These authors use an instrumental variables approach to account for potential endogeneity of observed capital flows in any given country with respect to macroeconomic policies in that country. They find that countries with greater exposure to financial globalization are more likely to generate better monetary policy outcomes in terms of delivering lower inflation. Their instrumental variables regression suggests that the effect is likely to be causal. However, there is no evidence of any systematic relationship between greater exposure to financial globalization and better fiscal policies. Tytell and Wei conjecture that this difference reflects the greater political costs, in terms of resistance from elite groups in power, of policies to reduce fiscal deficits compared to policies to reduce inflation. These results suggest that the strength of the discipline effect varies across different government policies.

One important idea we would like to leave the reader to take away from this section's review of the collateral benefits of globalization is the element of endogeneity—the domestic conditions that seem essential to generate favorable outcomes from financial globalization are in turn favorably influenced by financial globalization.

²³ Indeed, many countries have received significant capital inflows upon removing restrictions on capital outflows (see Mathieson and Rojas-Suarez, 1993, and Laban and Larrain, 1997).

VII. Improving the Cost-Benefit Calculus

We turn now to a fuller discussion of five sets of structural and policy-related features that appear to interact with financial globalization in important ways to determine the eventual macroeconomic outcomes and also influence the short-run tradeoffs. This list includes the macroeconomic policy framework, overall institutional quality, financial sector development, exchange rate regime and trade integration. Each of these factors 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 of financial integration.

VII.1 Governance

Institutional quality appears to play an important role in determining not just the outcomes of financial integration but the level of *de facto* integration itself. Going back to the traditional framework for looking at capital mobility, Alfaro, Kalemli-Ozcan and Volosovych (2003) analyze why capital doesn't flow from rich countries to poor countries. They conclude that institutional quality is the most important factor determining capital flows to developing countries, although human capital and information asymmetries (proxied by distance variables) also play a role.

Faria and Mauro (2005) find that better institutional quality helps tilt a country's capital structure towards equity-like liabilities (FDI and portfolio equity) which, as noted earlier, tend to bring more of the collateral benefits of financial integration. These authors find that, in a cross-section of emerging markets and other developing countries, equity-like liabilities as a share of countries' total external liabilities (or as a share of GDP) are positively associated with indicators of institutional quality (and also educational attainment and natural resource abundance). Wei also finds that the quality of domestic governance is positively associated with more stable flows such as FDI.²⁴

²⁴ Hausmann and Fernandez-Arias (2000) provide a contrarian view on the determinants and implications of the composition of flows to developing countries. They argue that countries that are riskier, less financially developed, and have weaker institutions tend to attract less capital, but more of it in the form of FDI (share of flows that take the form of FDI falls with level of development, so FDI is an inferior good). Capital flows go to countries that are more developed, more open, more stable, financially more advanced and with better institutions. However, these factors tend to reduce the share of FDI in capital flows. Thus, a larger share of FDI in capital flows is typical of countries that are poorer, more closed, riskier, more volatile, more distant, less financially developed, with weaker institutions and with more natural resources. Hence, a declining share of FDI in the context of rising overall flows may be a sign of good health. In related work, Albuquerque (2005) argues that financially constrained countries are likely to get more FDI than other types of flows since it is harder to expropriate—not because it is more productive or intrinsically less volatile—and has better risk-sharing properties. Using measures of creditworthiness and credit risk ratings as measures of financing constraints, he finds some evidence in support of this hypothesis.

Stulz (2005) argues that financial globalization has had a limited impact on growth and sometimes led to capital flight and financial crises because of two agency problems: 1. corporate insiders taking advantage of outside investors 2. sovereign states expropriating foreign investors. When expropriation risks are large, corporate ownership tends to become more concentrated. Fortunately, financial globalization increases firm incentives to reduce the agency costs of corporate insider discretion, and provides tools firms can use to do so.

Acemoglu, Johnson, Robinson and Thaicharoen (2003) note that countries with distortionary macroeconomic policies—including high inflation, large budget deficits and misaligned exchange rates—appear to have suffered more macroeconomic volatility (and experienced lower growth) during the postwar period. They argue that distortionary macroeconomic policies are simply symptoms of underlying institutional problems including the absence of institutions that restrain rent-seeking political elites, ineffective enforcement of property rights, widespread corruption, and political instability. They find that, once institutional variables are controlled for, macroeconomic policies have only a minor impact on volatility and crises.

VII.2 Trade Openness

Recent research indicates how the interactions between trade and financial integration could determine macroeconomic outcomes. First, trade integration decreases the likelihood of financial crises associated with sudden stops in capital flows and current account reversals. For example, Calvo, Izquierdo, and Mejia (2004) and Cavallo (2005) develop models predicting a negative relationship between openness to trade flows and the probability of sudden stops. The mechanism is that less open economies experience larger real exchange rate depreciations for a given degree of required current account adjustment, face more severe balance sheet effects stemming from these depreciations, and, as a result, are more likely to default on their debt obligations. This creates a direct link between the probability of sudden stops and the likelihood of default, implying that more open economies are less vulnerable to sudden stops because of their lower probability of default.

Is the impact of trade openness on the likelihood of sudden stops empirically important? Calvo, Izquierdo, and Mejia (2004), Frankel and Cavallo (2005), and Cavallo (2005) show that trade openness indeed makes countries less vulnerable to financial crises, including sudden stops and currency crashes; controlling for the endogeneity of trade strengthens this effect. Frankel and Cavallo (2005) and Cavallo (2005) find that a 10 percentage point reduction in trade openness reduces the probability of a sudden stop by about 30 percent.

Moreover, recent studies suggest that trade integration should play an important role in mitigating the adverse growth effects of financial crises and in facilitating recoveries from crises. In theory, the real costs of financial crises depend on the degree of openness of an economy since less open economies have to go through larger contractions in terms of reducing aggregate demand and/or in terms of the extent of real exchange rate adjustment in response to external shocks (Calvo, Izquierdo, and Mejia, 2004, and Cavallo, 2005).

The predictions of these theories are supported by recent empirical research. Edwards (2004, 2005), Desai and Mitra (2005), and Guidotti, Sturzenegger and Villar (2004) find that, among countries that have experienced sudden stops and current account reversals, those that are more open to trade suffer much smaller adverse growth effects.²⁵ Calvo and Talvi (2005), Kose, Meredith, and Towe (2005), Desai and Mitra (2005), and Guidotti, Sturzenegger and Villar (2004) analyze this issue in the context of different countries/regions and argue that trade integration could help a developing economy to export its way out of a recession since a given exchange rate depreciation would have a larger impact on its export revenues than in a less open economy.²⁶ Export revenues could also help service external debt, which is quite substantial in a number of developing countries (Catão, 2002).

While trade integration can apparently proceed well even in the absence of financial integration, financial integration in the absence of trade integration poses risks and could lead to a misallocation of resources. Eichengreen (2001) points out that, under these circumstances, capital inflows may be directed to sectors in which a country does not have a comparative advantage.

Indeed, trade integration in general seems to be less risky than financial integration. To highlight this point, Martin and Rey (2005) construct a model in which trade integration has a positive growth effect, but financial integration can lead to asset price crashes and financial crises in developing countries. While the earlier models in the literature emphasize the roles played by various types of market failures--including credit constraints and moral hazard problems--as the main culprits of financial crises, these authors argue that trade costs associated with international trade in goods and assets alone could increase the vulnerability of developing countries to such financial crises. The model works through the existence of home bias in financial markets, which can generate self-fulfilling financial crashes. The crisis mechanism in the model is on the demand side, in the sense that negative shocks trigger downward spirals in asset prices, domestic income, investment and growth. Relatively high trade costs in the goods market, which make profits and dividends very dependent on domestic demand, worsen the problem. In this model, there is a clear implication that developing countries should liberalize trade in goods before trade in financial assets.

²⁵ Edwards (2005) reports that a decline in trade openness by roughly 30 percentage points increases the negative effect of a current account reversal on growth by approximately 1.2 percentage points. He finds that capital account restrictiveness, on the other hand, does not affect the intensity with which current account reversals affect real economic activity. As an aside, his results also show that capital account restrictions do not affect the probability of experiencing current account reversals in the first place.

²⁶ Calvo and Talvi (2005) show that this is why the collapse of capital flows to Argentina and Chile in the 1990s had a much smaller impact on Chile. Kose, Meredith, and Towe (2004) analyze the impact of NAFTA on Mexico and argue that trade integration has made the Mexican economy more resilient to shocks and may have contributed to its faster recovery from the 1994–1995 peso crisis than from the 1982 debt crisis.

VII.3 Exchange Rate Regime

Fixed exchange rate regimes in principle provide a transparent and credible monetary anchor, a consideration that is especially important for developing economies. But it comes at a significant cost—the loss of monetary independence. The tradeoff between monetary stability and independence is of course one where it is difficult to draw general prescriptive conclusions. What the evidence does show is that an open capital account puts an even greater burden on other policies and structural features of the economy (product and labor market flexibility) in order to support a fixed exchange rate. In particular, for economies with weak financial systems, financial openness and a fixed exchange rate regime do not make an auspicious combination.²⁷

This argument has been emphasized in the context of China by Prasad, Rumbaugh and Wang (2005) (also see Eichengreen, 2005). These authors argue that moving toward greater exchange rate flexibility would give China some degree of monetary independence from the U.S. But they note that capital account liberalization should be a lower priority given the weak state of the domestic banking system. They also survey a number of industrial and developing country experiences (Appendix I of that paper) showing that capital account liberalization and a fixed exchange rate regime have often proven to be an unhappy combination, ending in messy exits to more flexible exchange rate regimes.

Using the de facto approach to classifying exchange rate regimes developed by Reinhart and Rogoff (2004), Husain, Mody and Rogoff (2005) find that pegged exchange rate regimes confer some advantages such as lower inflation upon developing countries that do not have much exposure to international capital. For emerging markets, standard measures of macroeconomic performance are not systematically associated with the nature of the exchange rate regime, but the likelihood of financial crises is higher for countries with pegged or nearly pegged exchange rates. Husain, Mody and Rogoff attribute the latter result under a regime with “hard commitment” to the inability to adapt to changed circumstances, the incentives of economic agents including entrepreneurs and financial intermediaries to undertake risky activities on the presumption that exchange rates will not change, and speculative pressures from investors who seek to test the commitment.²⁸

Wyplosz (2004) highlights the difficulties and risks associated with maintaining currency pegs when the capital account is open. As a short-term strategy for developing economies, he

²⁷ Citrin and Fischer (2000) suggest that a country that seeks to remain integrated into international capital markets should either float or seek a hard peg such as a currency board—this is the bipolar view of exchange rate regime choice.

²⁸ These authors also find that that banking crises are more likely under rigid exchange rate regimes. They note that this result is opposite to that of Ghosh, Gulde and Wolf (2003) and trace the differences to the latter authors’ use of de jure exchange rate regime classification.

recommends a combination of a soft peg or managed exchange rate regime along with well-designed limits on capital mobility. Maintaining either a free float or a hard peg along with capital account openness requires a strong commitment to fostering good institutions, especially with respect to financial market regulation and supervision.

VII.4 Financial Sector Development

To be completed.

VII.5 Macro Policies

To be completed.

VIII. Threshold Effects and Composition of Inflows

Our discussion of the factors that improve the cost-benefit calculus of financial globalization leads to the question of whether there are some basic supporting conditions—thresholds—that determine where on the continuum of potential costs and benefits a country ends up. The literature in fact reveals evidence of threshold effects in a variety of dimensions.

For instance, Klein (2005) finds some evidence of a non-monotonic interaction between institutional quality and the responsiveness of growth to capital account liberalization. Interestingly, he finds that there is a statistically significant and economically meaningful effect of capital account openness on growth among countries that have better (but not the best) institutions. He notes that there is a strong correlation between institutional quality and income per capita, implying that countries that get the most growth benefits from capital account liberalization are upper-middle-income countries.

Chanda (2005) finds that the cross-country relationship between capital controls and growth depends on the degree of ethnic heterogeneity, which he interprets as a proxy for rent-seeking and common pool problems. For countries with more heterogeneity (more competing groups), capital controls lead to greater inefficiencies and lower growth. For countries with high degree of homogeneity, capital controls have a net positive effect on economic growth.

[More references to be added]

A different way of posing the question about thresholds is to ask if there is any direct evidence that capital account openness is bad for growth in countries with underdeveloped financial markets, weak institutions, severe macroeconomic imbalances or closed current accounts. For instance, Eichengreen (2001) conjectures that capital account liberalization can be counterproductive if it takes place before severe policy-related distortions have been removed and before domestic financial markets, institutions and administrative capacity are strong enough to ensure that capital inflows can be channeled productively.

Arteta, Eichengreen and Wyplosz (2005) look at this question explicitly and, somewhat comfortably, find no evidence to support this proposition. But they do report some evidence

that is consistent with the importance of threshold effects in generating *positive* growth effects of financial openness. They find that these positive effects are present only when macroeconomic imbalances that lead to inconsistencies between the administered exchange rate and other policies have first been eliminated (i.e., if there is no large black market premium). While trade openness has a positive impact on growth in their regressions, the effect of capital account openness is not contingent on openness to trade. They find no evidence that the effects of capital account liberalization vary with financial depth, but somewhat more evidence that its effects vary with the rule of law.

IX. Discussion

Our synthesis of the literature on financial globalization, which is still preliminary at this stage, points to some major complications in dealing with financial globalization.

Developing countries can't live without it since it appears important for generating a wide array of collateral benefits that seem to be essential for enhanced growth and welfare. At the same time, there is plenty of evidence that premature opening of the capital account without good institutions and policies in place can hurt a country by making the structure of inflows unfavorable and by making it vulnerable to sudden stops or reversals of flows. There is a fundamental tension here that may, in some sense, be inescapable.

A number of papers have taken a different tack at attempting to reconcile the disparity between theory and facts on the benefits of financial globalization by suggesting that the costs—including crises—are in the nature of growing pains that will recede once globalizing economies achieve fuller integration. For instance, Krugman (2002) has argued that "...growing integration does predispose the world economy toward more crises, mainly because it creates pressures on governments to relax financial restrictions that in earlier decades made 1990s-style financial crises much less likely." He goes on to say that "In the long run, integration may solve the problems it initially creates." This lines up with our view about financial integration generating collateral benefits and thereby eventually benefiting growth. Similarly, Tornell, Westermann and Martinez (2004) argue that crises are the price that must be paid to attain rapid growth in the presence of contract enforceability problems. These authors present some evidence that developing economies that have registered higher growth rates have typically experienced boom-bust cycles.

These papers reflect the notion that financial globalization carries a short-run cost—one that must inevitably be paid if a developing country, which typically has weak institutions and a fragile financial sector, wants to move on to a high-growth path. And, putting this together with the literature that finds that financial globalization is a key instrument for improving domestic institutions, it appears that developing countries face a Hobson's choice. Globalize and improve growth prospects at a cost of vulnerability to painful crises. Or not globalize and bear the cost of being stuck in a low-growth environment. Is there a way out?

The options may be limited. Trade integration may deliver some of the benefits of globalization, including preparing the ground for financial integration. But this has its limits since trade integration delivers fewer benefits and also creates channels for *de facto* financial integration. Another possibility, especially for countries experiencing favorable external circumstances such as large external inflows, may be able to adopt some form of controlled capital account liberalization to turn circumstances to their advantage (Prasad and Rajan, 2005). This approach would help a country get some of the benefits of capital account liberalization without too much exposure to risk from capital flow volatility during the early stages of integration. In future versions of this paper, we intend to discuss other possible sequencing options.

An additional complication is that there is just so much that developing countries can do to buffer themselves from the vagaries of international capital markets. In principle, as financial markets become more sophisticated and information costs decline, problems such as the incompleteness of markets and information asymmetries should decline. For instance, the absence of instruments for sharing macroeconomic risk—such as GDP-linked securities/bonds—has severely limited the scope of risk-sharing possibilities for developing economies. As new financial instruments and markets are developed, these problems and the risks associated with them may be mitigated. But this may be far too sanguine a view. It is not obvious that reductions in information costs can alleviate herding and contagion effects. The increasingly cross-border and sophisticated nature of financial market players and the complexity of financial instruments may simply make it harder to maintain effective regulation and supervision even at the national level.

A challenging time lies ahead.

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[To be completed]

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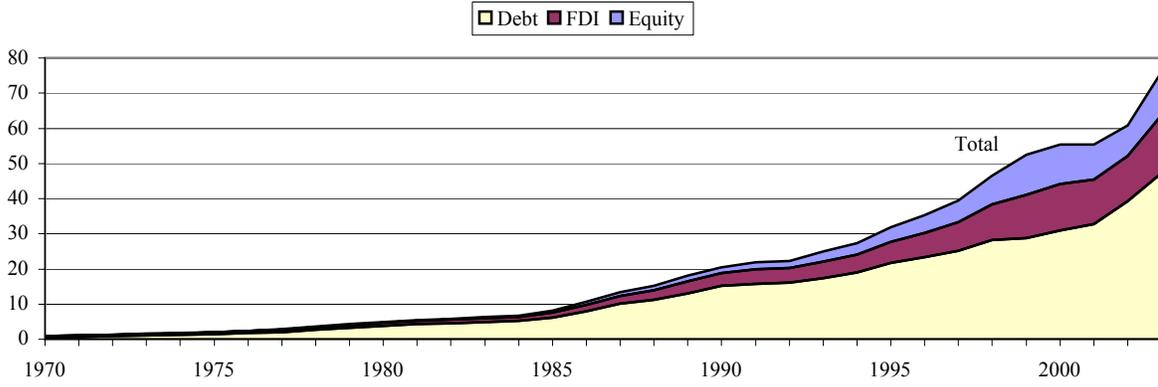
Table 1
Summary of Empirical Studies on Financial Integration and Growth

Study	Number of Countries ¹	Period	Regression Methodology	Financial Openness Measure	Effect on Growth
Alesina, Grilli, Milesi-Ferretti (1994)	20, 19, 1	1950-89	OLS	De jure	No effect
Grilli and Milesi-Ferretti (1995)	61, 21, 40	1966-89	Panel IV	De jure	No effect
Quinn (1997)	64, 24, 40	1960-89	OLS	De jure	Positive
Kraay (1998)	117, NA, NA	1985-97	OLS, Cross Sectional IV	De jure/De facto	Mixed
Rodrik (1998)	95, NA, NA	1975-89	OLS	De jure	No effect
Klein and Olivei (2000)	92, 21, 71	1986-95	Cross Sectional IV	De jure	Positive
Arteta, Eichengreen and Wyplosz (2001)	61, 23, 38	1973-92	OLS, 2SLS	De jure	Mixed
Edwards (2001)	65, 20, 45	1980s	Cross Sectional WLS, 2SLS, SURF, Weighted 3SLS	De jure	Mixed
McKenzie (2001)	NA, NA, NA	1960-89	GMM Panel Estimation	De jure	Positive
O'Donnell (2001)	94, NA, NA	1971-94	OLS	De jure/De facto	Mixed
Quinn, Inclan and Toyoda (2001)	76, 24, 52	1960-98	OLS	De jure	Mixed
Reisen and de Soto (2001)	44, NA, NA	1986-97	GMM Panel Estimation	De facto	Mixed
Edison, Levine, Ricci, and Slok (2002)	57, 21, 36	1980-2000	OLS, Cross Sectional IV, GMM Panel Estimation	De jure/De facto	No Effect
Eichengreen and Leblang (2003)	47, 22, 25	1975-95	GMM Panel Estimation	De jure	Mixed
Edison, Klein, Ricci, and Slok (2004)	89, NA, NA	1973-95	OLS	De jure	Mixed
Fratzschler and Bussiere (2004)	45, 13, 32	1980-2002	GMM Panel Estimation	De jure/De facto	Mixed
Garcia and Santana (2004)	51, 19, 32	1970-2000	GMM Panel Estimation	De jure/De facto	Positive
Chanda (2005)	116, NA, NA	1976-95	OLS	De jure	Mixed
McLean and Shrestha (2002)	40, 20, 20	1976-95	OLS, Panel, IV	De facto	Mixed
Klein (2005)	71, NA, NA	1976-95	Cross Sectional IV	De jure	Mixed

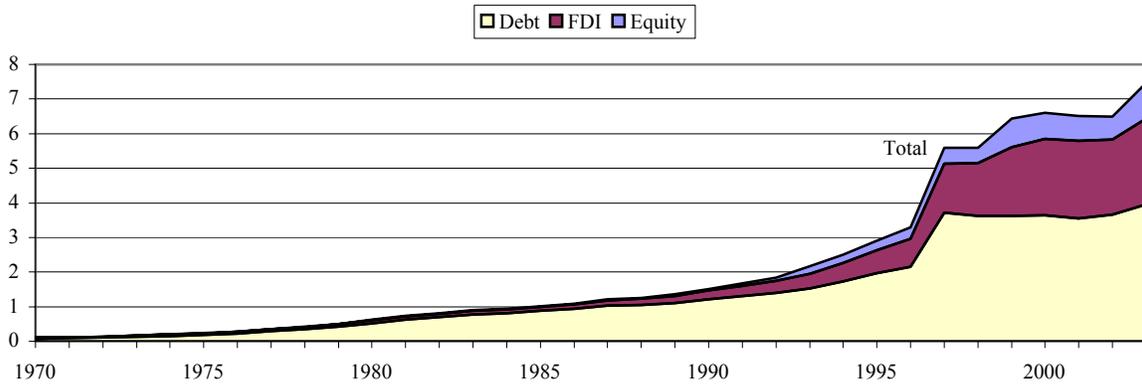
¹ The first number is the total number of countries, the second (third) number is the number of developed (developing) countries.

Figure 1. Gross Financial Assets and Liabilities
(trillions of U.S. dollars)

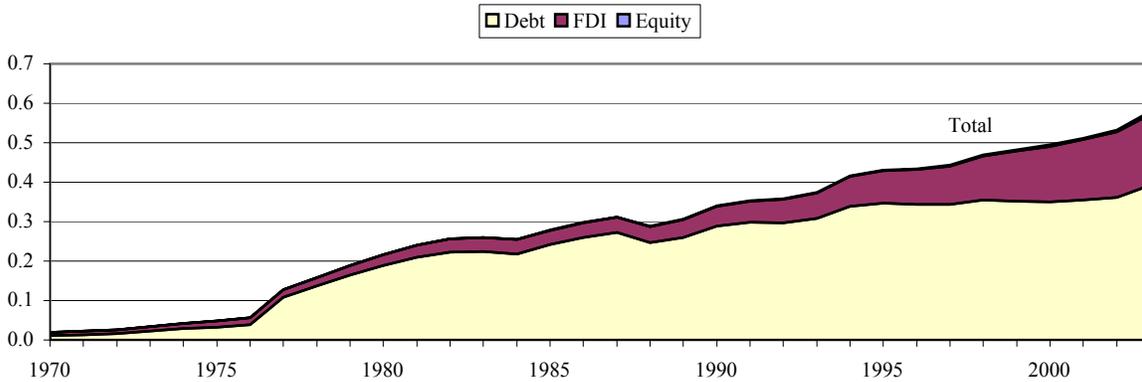
Advanced Economies



Emerging Markets



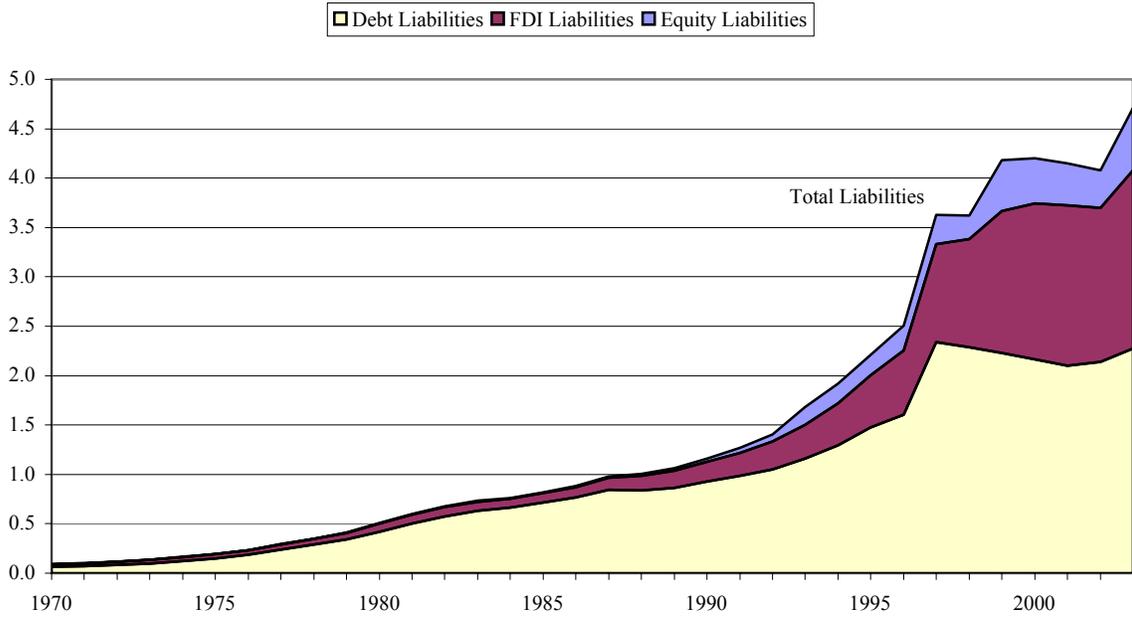
Other Developing Economies



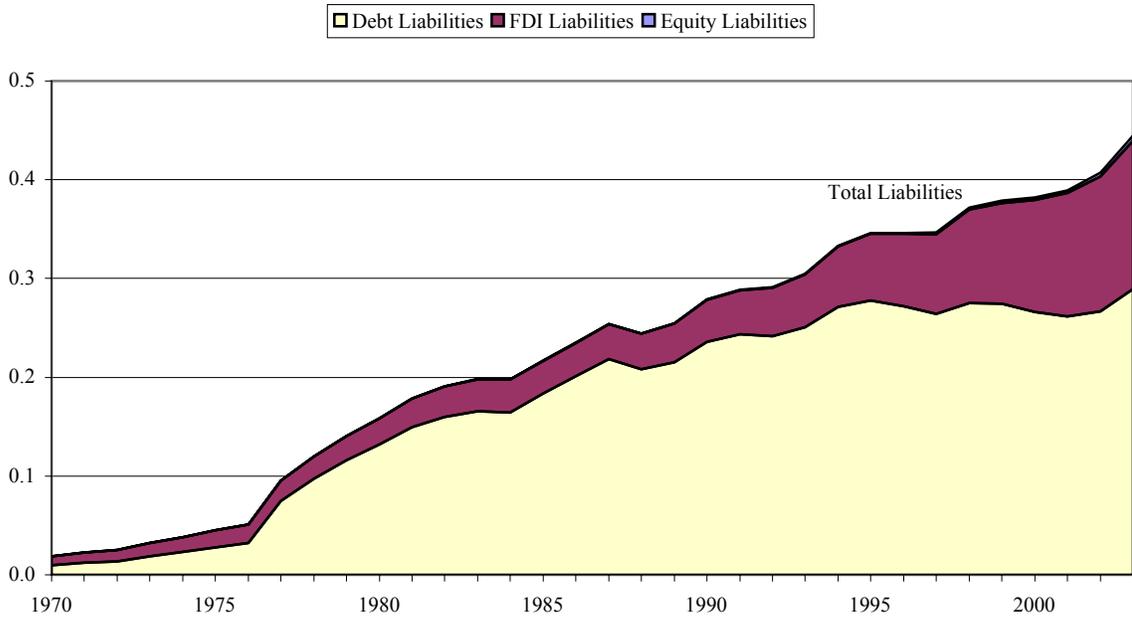
Notes: The financial integration data are based on a dataset constructed by Lane and Milesi-Ferretti (2005). The charts show how the components add up to the total integration measure in each period. Debt includes both official and unofficial debt. The definition of Emerging Markets is based on the MSCI index.

Figure 2. Gross Financial Liabilities
(trillions of U.S. dollars)

Emerging Markets



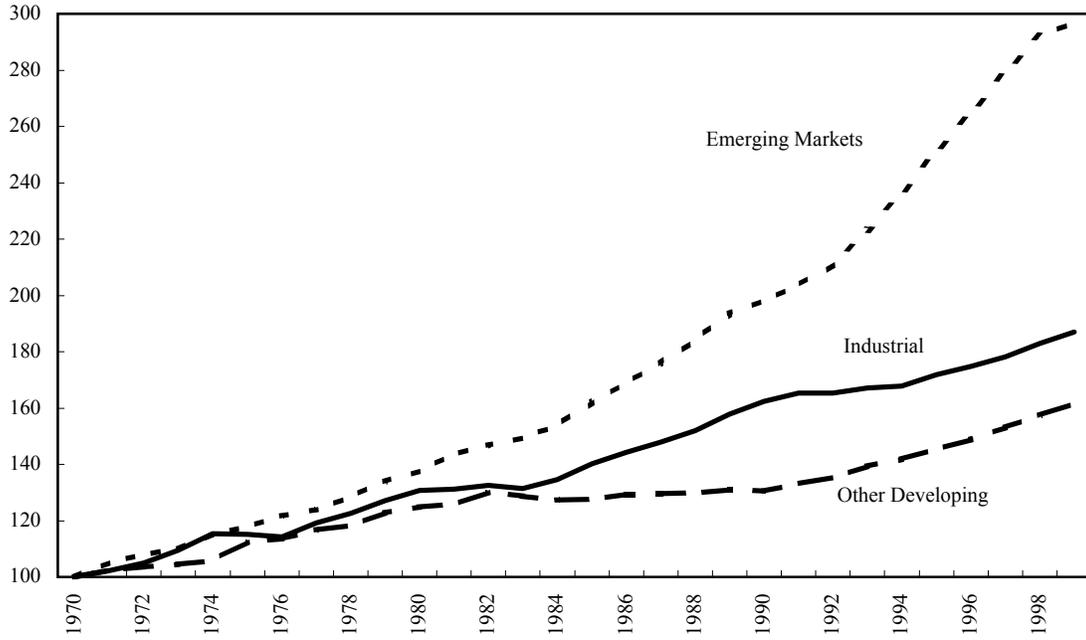
Other Developing Economies



Notes: The financial integration data are based on a dataset constructed by Lane and Milesi-Ferretti (2005). The charts show how the components add up to the total integration measure in each period. Debt includes both official and unofficial debt. The definition of Emerging Markets is based on the MSCI index.

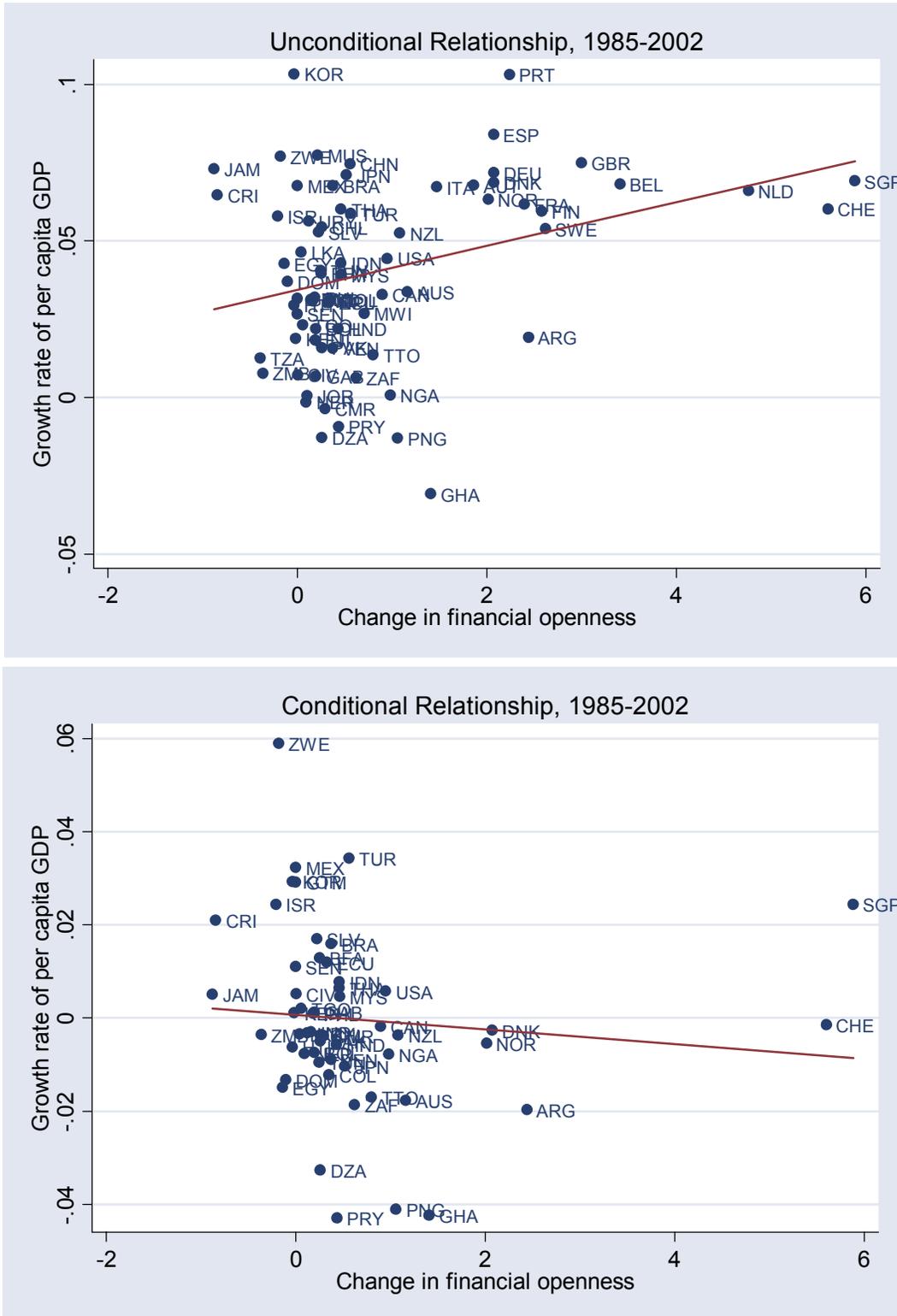
Figure 3. GDP (per capita, PPP weighted)

1970-1999



Notes: This plots shows the weighted average growth within each group of countries with per capita income in the cross section indexed to 100 in the base period.

Figure 4. Financial Openness and Growth of real per capita GDP



Notes: Data on financial integration are based on Lane and Milesi-Ferretti (2005). The second panel uses residuals from a cross-section regression of growth on initial income, population growth, human capital, investment rate, ethnolinguistic fractalization, ICRG composite risk rating, inflation rate, government balance (%GDP) and M2.