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

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The years since 2002 have produced a surge in net capital flows from richer countries to the developing world. The International Monetary Fund estimates 2006 net private capital flows into developing countries at nearly $800 billion. A decade ago, an earlier surge of private capital to developing countries preceded a period of extreme financial turbulence, starting in Asia but spreading out to Russia and Latin America. The recent experience has been more tranquil, but against a particularly benign backdrop of strong economic growth, low world interest rates, and elevated commodity prices. Would a possible unraveling of these favorable macro conditions expose the developing world – and possibly industrial-country financial markets – to renewed crisis?

After the Asian debacle of 1997-98, prominent critics of financial globalization argued that its benefits were intangible and undocumented, whereas its risks were enormous and real. The years since the late 1990s have, however, seen concerted attempts, both at the national and supranational levels, to make the international financial environment more stable. Furthermore, the trend of financial evolution and opening in developing countries has continued. Accompanying the latter trend has been a seemingly successful bid, in many developing countries, to achieve stability in inflation and, to a degree, in the public finances. Once again, however, these achievements arguably have been facilitated by a generally benign global macroeconomy.

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This paper reviews the benefits and costs of having financial globalization embrace the developing countries. Both theory and evidence are covered, with emphasis on the supporting institutional and policy reforms that seem most likely to result in net gains, and the progress countries have made in achieving those reforms. I will argue that despite the meager direct evidence that developing countries gain from financial globalization, they should nonetheless proceed – albeit cautiously, in an incremental manner. There is strong evidence that *domestic* financial development spurs growth under the right conditions, and these conditions – plus domestic financial development itself – are likely to make capital inflows from abroad more productive. Furthermore, over the longer term, an internationally open financial system is likely to be more competitive, transparent, and efficient than a closed one. Finally, extensive domestic financial development makes it much harder to police and enforce binding financial-account restrictions, especially as international trade in goods and services expands.

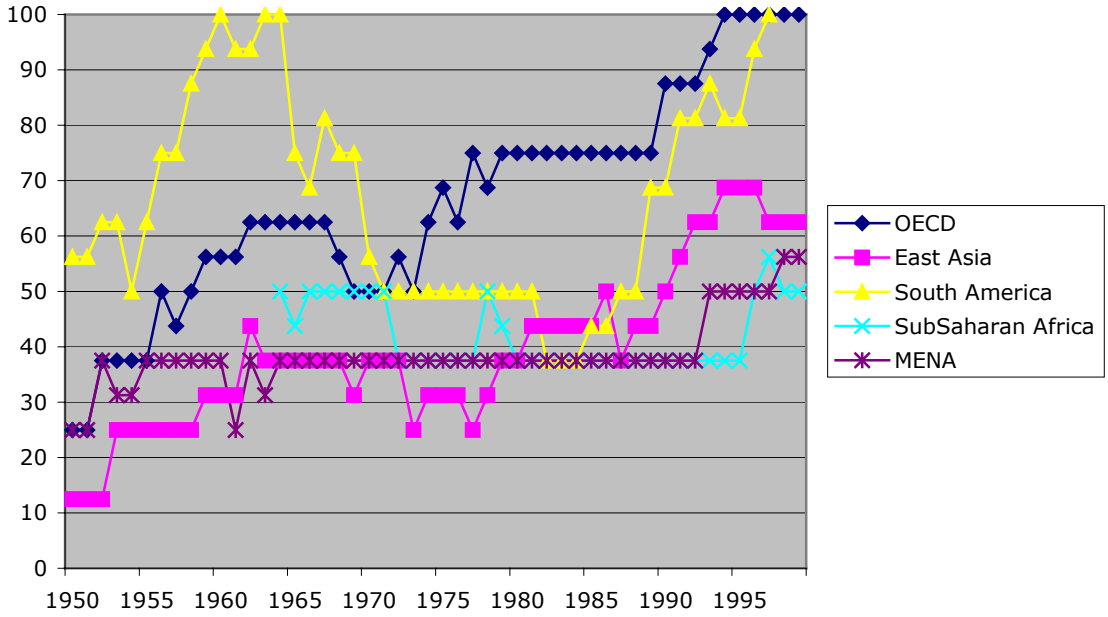
I start by describing the trend of financial opening as well as recent capital flows to developing countries, comparing the circumstances of the recent surge with those of the one that ended a decade ago with the Asian crisis.

Trends in financial integration and recent inflows to developing countries

Researchers have devised both *de jure* and *de facto* quantitative measures of a country's integration with global capital markets.[1] The former types of measures often are based on information from the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER), a prominent example being the measures devised by

[1] Stulz (2005) discusses the measures described below, as well as some others.

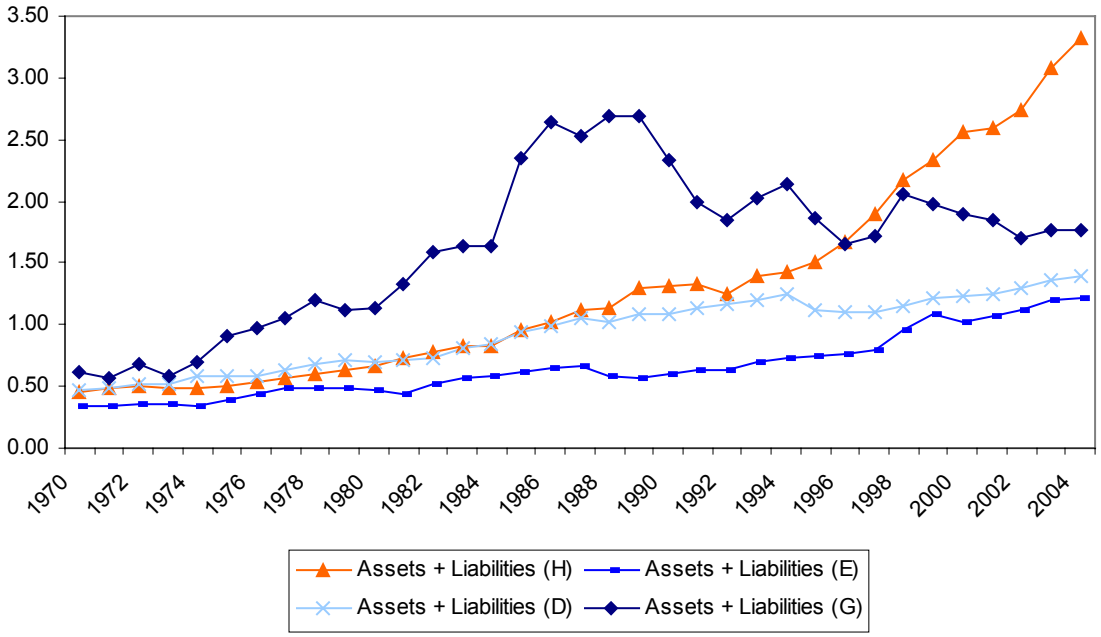
Figure 1: Quinn's de jure measure of capital account openness



Quinn (1997) and shown in Figure 1 for the period ending in 1999. For developing countries, these data indicate a trend of financial opening beginning in the late 1980s.

There are well-known problems with the de jure measures, however; see Kose et al. (2006) for a thorough discussion. Aggregative de jure measures are quite subjective in some respects, for example. Moreover, capital controls that appear strict based on their statutory descriptions can, in reality, be quite porous. These limitations of the de jure measures motivate the consideration of various de facto measures of international financial integration.

Figure 2: Assets plus liabilities, 1970-2004 (ratio to group GDP)



One illuminating de facto measure is based on the data on total foreign assets and liabilities assembled by Lane and Milesi-Ferretti (2005); see Figure 2. The data shown are disaggregated as characterizing high-income, industrialized countries (H), middle-income emerging markets (E), generally poorer developing countries (D), and Gulf oil exporters (G). In all country groups (other than the Gulf group, which is a special case), the trend of de facto financial integration since the early 1990s is upward, most sharply in the high-income group, followed by the emerging markets.

Recent years have seen a surge of net financial flows from richer countries into the developing world. Table 1 provides documentation of some of its characteristics,

along with comparative data for the 1990s surge that preceded the Asian crisis.[2] Three contrasts stand out: In the recent period the developing world is in substantial current account surplus, whereas in the 1990s there was a net financial flow from rich to poorer countries. Second, the level of net inflow now is about double what it was then. Finally, one counterpart of the current account surplus *cum* financial inflow is a massive level of

Table 1: Two surges in financial inflows to developing countries (USD billions)

	1992-97 average	**2003-06 average**
Current account balance all developing countries	–89.3	335.9
Net external financing all developing countries	289.2	548.1
Increase in reserves all developing countries	66.9	481.2
Current account balance Ex China, Russia, Middle East	–91.0	–3.1
Net external financing Ex China, Russia, Middle East	218.2	272.0
Increase in reserves Ex China, Russia, Middle East	36.9	118.1

Source: IMF, WEO database (as of March 2007).

average annual reserve accumulation in the last four years, as compared with the more moderate pace seen in the period 1992-97. Of course, there has also been an accelerated rate of acquisition of claims on the industrial countries by developing-country private residents.

[2] "Net external financing" refers to the net resources foreign investors provide in order to finance a country's current-account deficit, its net international reserve accumulation, and its residents' own net

Recent data are dominated, however, by the substantial Chinese presence in international financial markets and by the commodity-price driven surpluses of the Russian Federation and Middle East. Stripping out those regions, we see that the level of financial inflows in recent years is (growth-adjusted) comparable to its level in the 1990s. However, the two other differences remain. The developing world, ex China, Russia, and the Middle East, is in approximate current account balance (the deficits of Central and Eastern Europe and Sub-Saharan Africa being matched by surpluses elsewhere). Furthermore, even outside of China and the oil surplus regions, reserve accumulation has been much more rapid recently. There are two implications for financial stability. First, countries running current account surpluses do not have an external borrowing need that might suddenly be eliminated by capital-market pressures. Second, a high reserve level provides a precautionary cushion of ready liquidity that can be drawn on in a crisis.

We may examine two other indicators of financial fragility. Average debt maturity levels, having fallen in the developing world through the Asian crisis according to World Bank data, have since then lengthened somewhat. See Figure 3. This development, taken alone, would tend to enhance stability by lowering the burden of a sudden capital flow reversal. The overall share of equity-like flows in net external financing (portfolio equity plus FDI) is little changed compared to the 1990s inflow experience, 58 percent in 2003-06 as against 59 percent in 1992-97.

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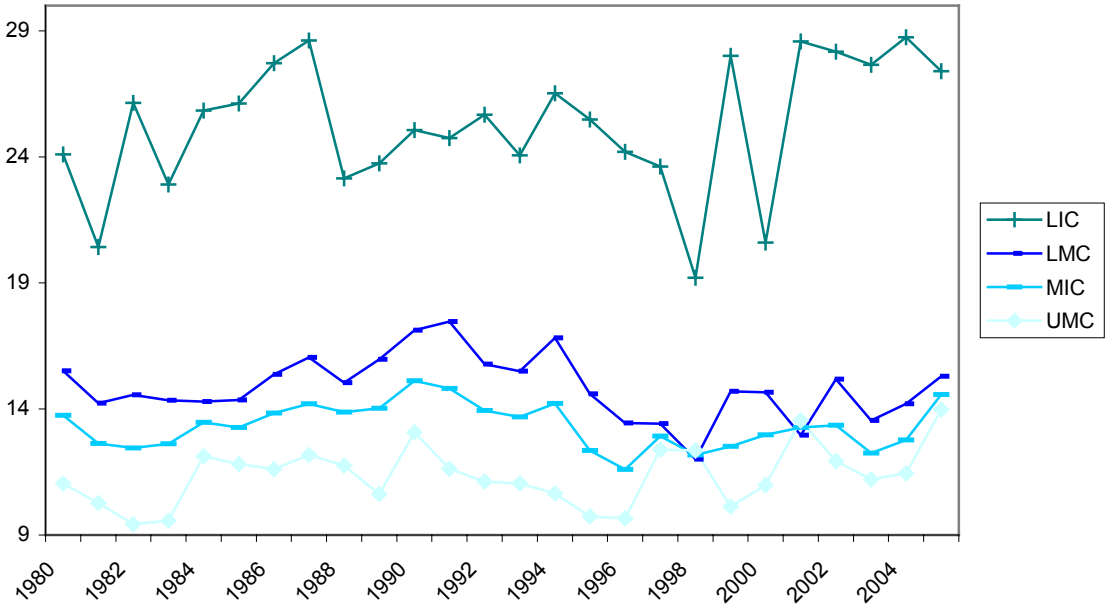
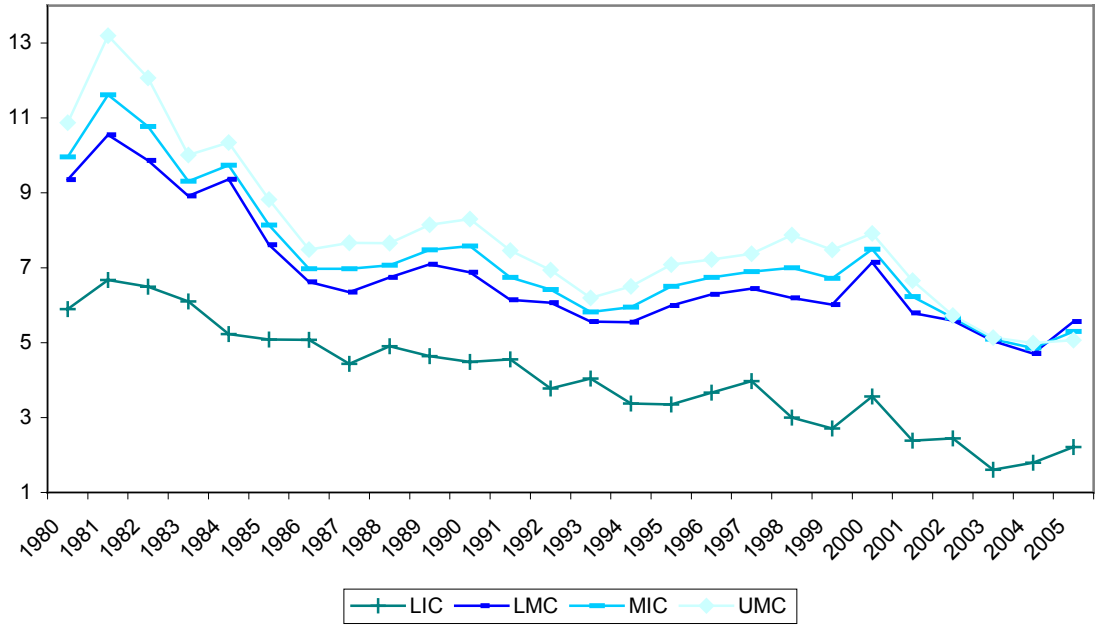
purchases of assets located abroad. The measure includes errors and omissions.

Figure 3: Average maturity by income level (years)



In both cases of capital inflow surge, low global interest rates have been an initial driving force. However, the level of nominal dollar interest rates (and real dollar rates) is lower now than in the 1990s, for reasons that remain under debate. Figure 4 shows average nominal dollar borrowing costs for different income classes within the developing world. It remains to be seen if the recent upturn in borrowing costs will eventually become problematic, as happened during the 1990s (and as some prescient observers at the time, in the wake of Mexico's crisis, suggested might occur – see, for example, Calvo, Leiderman, and Reinhart 1996).

Figure 4: Average borrowing cost by income level (per cent)



Fear of financial opening

Most economists agree that, despite some controversy and caveats, greater openness to *trade in goods* is beneficial to the growth performance of developing countries. The case for *financial* openness is much more controversial. Jagdish Bhagwati's celebrated 1998 article on "The Capital Myth" in *Foreign Affairs* demonstrated that even those committed to free international trade in goods need not support unfettered international trade in assets, given that some dimensions of economic globalization hold potentially devastating perils. At the time Bhagwati wrote, the recent Asian financial disaster, surely exacerbated by the crisis countries' access to global capital, provided an immediate example of the risks. As discussed below, however, concrete evidence of gains from financial globalization – at least gains of the type

traditionally claimed on the basis of simple economic theory – have proven hard to document in any definitive way. On these grounds, critics of financial globalization such as Bhagwati, Rodrik, and Stiglitz have all made cases against broad, willy-nilly financial opening.

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

In practice, however, the lump-sum redistributions that would be necessary are *never* made. And it is easy to see why. In a dynamic market economy, change, and with it, shifts in economic fortunes, is constant. Government cannot possibly eliminate all the ex post losses – and if it did, the resulting adverse economic incentives would seriously impair economic efficiency and growth. Europe and the United States, for example, find themselves on different portions of the equity-efficiency spectrum as result of Europe's greater propensity to provide social insurance in various ways. Regarding trade: outside of a laboratory setting, it is difficult (indeed impossible) to isolate empirically the income redistributions attributable to international trade per se – and therefore impossible to calculate the appropriate compensation. Witness the difficulty economists have had in determining the role of trade versus technological change on the U.S. wage structure.

And if we cannot somehow isolate effects of trade, we are back, in effect, to a regime of continually making transfers to offset all kinds of market-induced redistributions.

So even international trade in goods is a two-edged sword. That is not to deny that the rapid and widespread devastation associated with financial crises overshadows the more gradual effects of changes that originate in the trade accounts. The potential destructive power of financial meltdown is also present, however, in a purely domestic context – that is, even in an economy completely closed to trade and capital movements. Financial collapse can propagate more quickly and destructively, even in autarky, than more run-of-the-mill shocks to goods markets that do not impact the financial system significantly. The interesting question is how these intrinsic problems of financial markets are exacerbated once those markets are opened to the outside world. An answer to this question, in turn, requires an explanation of precisely how dollar markets in general differ from widget markets.

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

eventual crises. Domestic financial systems evolve – and are regulated by governments – so as to contain the effects of these distortions.

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

Every country faces the challenge of coping with the potential distortions in financial markets, and they do so through some combination of insurance, prudential policy, transparency requirements, and market discipline. Even leaving aside the international aspects of financial transactions, the ramifications of home-grown crises can be severe in terms of forgone GDP – witness the S&L crisis in the U.S., the Nordic banking problems of the early 1990s following deregulation there, and the drawn-out post-bubble sclerosis of Japan's banks. Right now a crisis among U.S. subprime mortgage lenders is rattling markets.

Often these crises arose in the aftermath of deregulation – typically the removal of financial-sector restrictions inherited from the Great Depression and World War II, or, in developing countries, a move from the centralized allocation of savings to a more market-oriented system. In many cases, the particular mode of deregulation, driven in general by political imperatives rather than by a sound vision of financial-sector optimality, induced additional moral hazards and abuses. There has clearly been a learning process in coping with these problems, yet new versions of the misuse of other people's money (e.g.,

Enron) emerge, and most likely always will. Most countries reckon that the advantage of a market-oriented system, even when subject to some political pressures, outweighs the inefficiency and blatant abuses that characterized centralized systems of credit allocation. The hope is that the safeguards to the system can gradually be enhanced as result of experience, while avoiding systemic meltdowns. In general, in most of the industrial countries, this approach has done tolerably well so far – though there are clearly recent areas of financial excess, such as the home equity market in the United States.

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

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

There are at least three basic aspects in which the international margin raises potential new problems:

1. Sovereignty. The potential involvement of two (or more) governments as implicit parties to international contracts (Tirole 2002).
2. Regulatory end-run. International transactions can sometimes be used to evade domestic supervision.
3. Currency mismatch. The potential for unbalanced currency positions – for example, dollar liabilities versus domestic-currency assets – creates a significant additional systemic risk.

The realization of potential net gains from international financial trade relies on containing the risks raised by these three factors. If the domestic financial system is not fairly sound on a stand-alone basis, the additional channels for malfeasance provided by financial-account opening can greatly increase the potential for instability. And these channels, if not plugged by international regulatory cooperation and other measures (such as sufficient exchange-rate flexibility), may pose new risks even for a sector that would be quite stable otherwise. The threat of government intervention or expropriation, subtle or not, is an additional risk factor. Empirically, it seems that most crises have resulted from the opening of unsound systems to capital flows – with the resulting levering-up of existing risks – and there are certainly cases (e.g., Japan) where financial problems seem to have little or no connection to international financial flows.

Some crisis mechanisms

The literature has identified numerous mechanisms that can lead to currency and financial crisis. For emerging markets in particular, there is a potentially explosive multidirectional interaction among the currency market, the government finances, the banking sector, and the corporate sector.

Shaky government finances – as in Argentina, 2001 – can lead to a widening of government borrowing spreads to an extent that default becomes inevitable. In that case, with central-bank reserves drawn down through capital flight, the previously fixed currency is inevitably allowed to depreciate. Banks and corporates with foreign currency liabilities then are squeezed – and they are squeezed even if they have lent foreign currency to domestic corporates that are themselves forced into default due to mismatched assets and liabilities. At the same time, government finances may be strained further by explicit or implicit bailout promises, and by the ultimate need to restructure the financial system. When the financial system is at an early stage of development and firm borrowing is heavily constrained by balance sheet considerations, currency depreciation can cause investment to crash, The problem can, at some level, begin anywhere in the chain, with for example, devaluation fears sparking bank withdrawals and financial distress as part of the stampede into the safety of foreign currency.

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

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

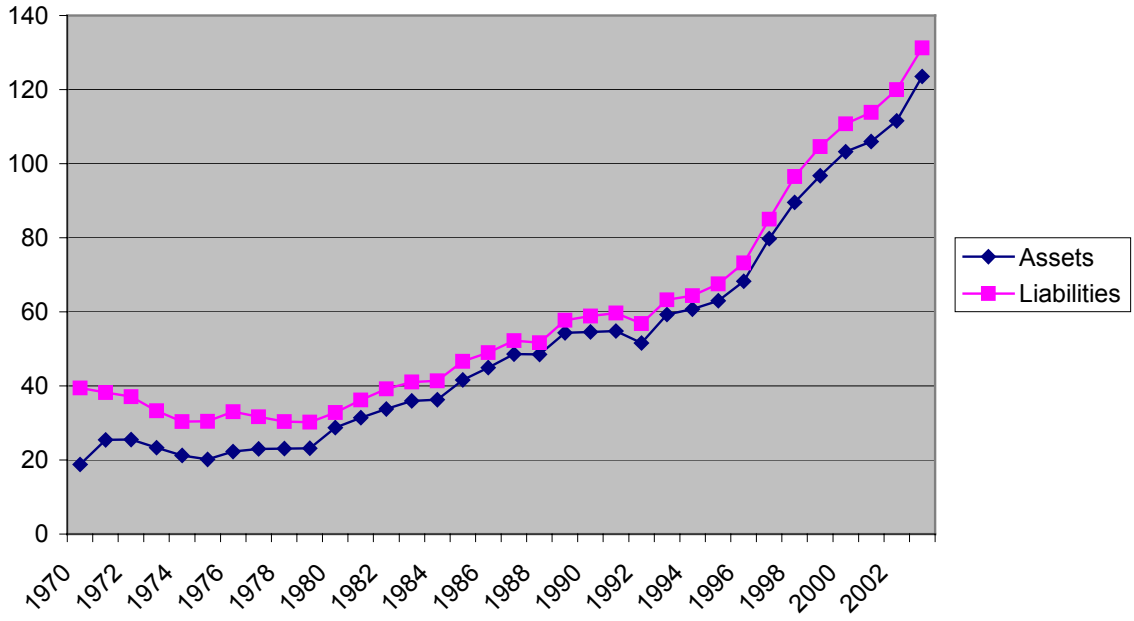
Of course, while crises may sometimes be driven by expectations, their possibility presupposes some weakness in various "fundamentals" of the economy. These may be institutional fundamentals, such as the quality of bank supervision, the quality and transparency of corporate governance, the state of domestic financial development, and the strength of the domestic judicial system. Or they may be more traditional macro fundamentals, such as a competitive real exchange rate and a sustainable trajectory for public debt, the level of liquid international reserves, and the term and currency composition of external debt.

Among richer countries that have addressed the most serious domestic financial-sector problems and have flexible exchange rates, private financial flows have not entailed significant additional financial instability in recent years. Thus, there is at least the potential for creating an environment within which trade in financial assets can yield net welfare gains. Outside of a few exceptional cases, these generalizations do not yet apply, however, to most developing countries, which have suffered quite harshly in financial crises.

At a global level there has been an explosion in gross foreign asset positions in recent years. The averages shown in the figure below, which are based on the data of

Lane and Milesi-Ferretti (2005), conceal the fact that for some countries – smaller countries and major financial centers – gross foreign assets and liabilities now stand at three or four times GDP. The rapid expansion of gross asset positions, far beyond the minimum asset trade that would be needed to settle current account imbalances, is certainly driven in part by enhanced risk sharing between countries. But it certainly also reflects transactions that, while they do not create additional trade in underlying economic risks, do raise the risk of counterparty failure. Since leveraged international portfolios generally are not balanced in currency terms – for example, the U.S. borrows

Figure 5: World foreign liabilities and assets (percent of world GDP)



overwhelmingly in dollars, but balances its assets more evenly among dollars, euro, yen, and other currencies – exchange rate changes have the potential to redistribute large sums internationally in minutes. So far, however, the international financial system does not

seem to have been overly stressed, although, as always, the precise source of the next crisis may not be evident except with hindsight. One cause for current concern is the proliferation in international financial markets of unregulated nonbank actors managing huge portfolios.

External financial deepening does not yet extend to most of the developing world, with a few emerging exceptions, of which Chile is one of the most notable. Chile has, however, learned from its troubled past, and both institutional reform and a flexible exchange rate regime have contributed to its apparent ability to engage relatively safely in world capital markets (Cowan and De Gregorio 2005). Other of the poorer countries have not yet reached this stage, and still face difficulties in finding a comfortable reconciliation of open capital markets with the exchange rate regime, as is discussed further below.

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

opportunities. For example, if financial globalization brings a fall in the cost of capital, the agency problem may limit the firm's investment response.

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

Empirical evidence on the effects of financial opening

What do the data tell us about the gains developing countries might attain from financial globalization? There is an extensive literature trying to assess the gains from financial globalization, both at the macro level and at the level of firms. There are several excellent comprehensive studies of the empirical gains to emerging markets from financial liberalization – among them, Eichengreen (2001), Prasad et al. (2003), Collins (2004), Kose et al., (2006), and Henry (2006). Theoretically, there are some major *direct* channels through which financial opening could benefit developing countries that pursue it.

One theoretical channel of gain is improved risk sharing. In principle, countries can use equity or derivatives markets to trade the risks of income fluctuations with foreigners. This risk sharing process, in principle, could reduce the level of consumption relative to output volatility.

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

A more formal econometric approach to assessing how liberalization affects volatility is taken by Bekaert et al. (2006). Theirs is an exhaustive multi-country panel study of the effects of equity market liberalization and more general capital-account opening on aggregate volatility, especially the volatility of consumption growth. In a very detailed paper, the authors link consumption-growth volatility over five-year windows to

official liberalization indicators, a measure of liberalization intensity based on the ratio of investable to total equity market capitalization, and measures of capital account openness. The pervasive sense from the empirical estimates is that in a 90-country sample including industrial countries that were already liberalized throughout the entire 1980-2000 sample, equity-market liberalization has a significantly negative effect on volatility. In the restricted sample of 40 (mostly) developing countries that liberalized within the sample period, the volatility-reduction effect of equity-market liberalization, while often negative, tends to be much smaller and statistically insignificant. The results generally are weaker for more general capital-account opening measures. These results incorporate traditional control variables of the type typically included in the cross-country economic growth literature (such as human capital measures), as well as measures of macro-policy quality and institutional quality (which often themselves are estimated to reduce consumption growth volatility, or to enhance the beneficial effect of liberalization).

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

A further difficulty in this work is the seeming use of consumption data that are not adjusted to reflect deviations from purchasing power parity. Because there have been huge real exchange rate fluctuations, particularly in crisis situations, the welfare significance of the results is open to question.

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

One strand of empirical literature on trade gains is the study by Gourinchas and Jeanne (2006), who show that the gains to developing countries from borrowing abroad to attain their steady-state capital stocks are very low. The basic problem is that the polities of the poorer countries generally offer such low protection of property rights that steady-state capital stocks are themselves low. There is no great incentive to invest, and thus no great incentive for capital inflow from richer lenders.

Prasad et al. (2006) emphasize that over the 2000s, capital has tended to flow from poor to rich countries, rather than from rich to poor as theory might lead one to expect. This compounds the paradox of small capital flows to poor countries raised by Lucas (1990). Only FDI seems to follow the conventional pattern of traveling from rich to poor countries (and there is more FDI these days from richer to poor within the developing country group). Prasad et al. show further that growth is significantly positively correlated with the net capital *outflow* (current account surplus) for nonindustrial countries, whereas the opposite correlation prevails for industrial countries

– only for the latter group does greater net use of foreign capital appear to be associated with higher growth. Aizenman et al. (2004) reach related conclusions.

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

Even though developing countries as a group have been in current account surplus in recent years, it is still possible that there are gains from the swapping of different assets on a *gross* basis, with, for example, the benefits of inward FDI on the one hand spurring growth through various spillovers, while the surplus allows the luxury of reserve accumulation and the resulting liquidity insurance.

What is the econometric evidence on financial opening, growth, and investment? Researchers have pursued a variety of empirical approaches.

One of the most popular has been the cross-sectional approach, which builds directly on the copious growth-regression literature. Typically studies investigate empirical regressions of long-period average growth on theoretical determinants, including variables measuring the extent of capital-account openness. From the many studies that have been conducted, one gleans the conclusion that there is no robust cross-

sectional relationship between liberalization and growth; see Prasad et al. (2003, table 3.2) for a summary of extant research. A typical cross section study finding no effects is the widely cited one by Edison et al. (2002).

A problem in interpreting the findings of this literature, however, is the absence of a clearly specified theoretical framework within which openness will affect growth. In a recent survey, Henry (2006) presents a persuasive critique of the cross-section approach. To take an example from his paper, assume a standard Solow growth model in which long-term growth is determined by an exogenous rate of TFP growth, whereas in the transition to a steady state, growth will also reflect capital deepening. Assume also that rich countries have fully open capital accounts over the sample period, while poorer countries have initially closed capital accounts but open up at some point in the period. One frequently used measure of financial openness is the variable *SHARE*, measuring the fraction of years in the period for which the capital account is open according to the IMF's dichotomous AREAER measure. The assumption in the example is that $SHARE < 1$ for poor countries, $SHARE = 1$ for rich countries.

If all countries are initially in steady state, then the financial opening that occurs in the sample period for the poorer countries will induce a capital movement from rich to poor. Transitionally, this shift in capital stocks will reduce growth in rich countries while raising growth in poor countries. But notice the implication: cross-sectionally, growth is *negatively* correlated with *SHARE*. This negative correlation is found despite the fact that, in the model, capital is moving from richer to poorer countries as a result of the latter countries' opening, raising the growth rate of per capita output in the poor countries just as the neoclassical paradigm predicts. Examples such as this one call into question the

usefulness of the cross-sectional approach to testing the growth effects of financial opening.

A different approach exploits the temporal dimension in the data, linking financial opening to subsequent economic events. Henry has extensively explored the event-study approach to financial liberalization. In a series of papers, he finds that equity-market liberalization leads to substantial equity-market appreciation and an implied fall in the cost of capital (2000a), to a large increase in the growth rate of private investment (2000b), and to an increase in the growth rate of the capital stock (2003). Other researchers have found similar effects.

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

These results are striking, but there are a number of pitfalls in interpreting them. One is simply that the methodology often requires a precise stand on the date of liberalization, which may be tricky, in part due to the distinction between de facto and de jure situations. A second major issue is endogeneity. Countries may liberalize when growth prospects turn favorable, or when future macro volatility is expected to be low. In addition, liberalization may be spurred by political factors that simultaneously spur additional reforms, be they of policies or institutions. Thus, Henry (2206) suggests that the extremely large growth effect found by Bekaert et al. (2005) cannot be accounted for quantitatively unless equity-market opening is accompanied by an increase in TFP growth. Various controls can be added in an attempt to correct for some of the policy reforms that might accompany opening, and in some instances these somewhat reduce the liberalization effect. However, it is always questionable that the control variables adequately capture the nature of the economic reforms, so the endogeneity issue remains. This endogeneity critique is perhaps *the* major reason for being skeptical of *all* the econometric work suggesting that financial opening, in and of itself, spurs more rapid aggregate economic growth (or reduces macroeconomic volatility).

In some cases, *microeconomic*, firm-level data may be useful in circumventing some of the endogeneity problems that plague the more aggregative studies. For example, suppose the reforms that accompany liberalization affect all firms in a sample similarly, yet liberalization's effects are concentrated in a subset of the firms. In that case, a comparison of firm performance across the treatment and control groups allows identification of the effect of liberalization. Of course, this conceptual identification

framework is valid in theory, but the strong maintained assumptions it requires may make it difficult to implement in practice.

Henry (2006) and Kose et al. (2006) survey the recent micro-level literature, but a discussion of two selected studies illustrates the favor of the results that have been obtained.

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

Chari and Henry (2004) study a data sample of 430 firms from 8 countries, finding an average 15 percent firm-level equity appreciation (in real dollar terms) following liberalization. They are able to tie about a third of this appreciation to a factor suggested by the CAPM model, the covariance of firm-level equity returns with those on a broader market portfolio. Before liberalization, a firm's equity price depends on the covariance of its return with the local stock market. After, it depends on the lower covariance with the world stock market. Thus, it is possible to identify a firm-specific effect of equity-market liberalization on the cost of capital.

The key importance of the structural setting

I noted above the finding of Bekaert et al. (2005) that the positive effect of liberalization on growth is largest when the quality of institutions and the level of financial development are high. In another study, Alfaro et al. (2004) find that FDI has a stronger growth-promoting effect when the local financial sector is better developed. The literature examining such hypotheses more generally is somewhat fragmentary, but it suggests the importance of certain structural preconditions in order that financial inflows have the maximal beneficial effect on an emerging market economy. This conclusion seems plausible in light of the anecdotal evidence on emerging-market crises and the literature on institutions and growth. Indeed, there is some evidence that the institutional and regulatory setting is important even for reaping the benefits of opening to merchandise trade (Bolaky and Freund 2004).

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

In South Korea prior to its 1997-98 crises, the fundamental institutional distortion was the political power of financially shaky chaebols, which effectively manipulated the financial system to obtain access to cheap foreign funding. Moral hazard – a government bailout mentality – was pervasive. The financial fragility was compounded by the

government's decision, earlier in the 1990s, to open the economy to short-term but not long-term foreign lending.

In Argentina prior to its 2001-02 crisis, the structural problems included an inflexible labor market, fiscal excess (in part due to the spending autonomy of provincial governments), a regulatory structure for the banks that did not adequately account for the losses they would incur in the event that convertibility collapsed, and, eventually, changes in bank regulations designed to induce banks to hold more government debt.

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

We have already seen how distortions in the financial system have historically helped give rise to financial crises. Lax supervision of financial markets may allow currency or term mismatches that can render banks and other actors insolvent in the event of a crisis. Moreover, in an international environment, regulators must conduct a comprehensive "value at risk" analysis for all the economy's interlinked sectors, as stressed by Dornbusch (2002). Consider an emerging-market bank that notionally has matched currency positions on its books, because its dollar liabilities are matched by dollar lending to domestic corporates. If those corporates, however, have revenue streams denominated in won and that currency falls sharply against the dollar, the corporate bank loans may go into default, throwing bank lenders into crisis themselves. In this case, the currency risk taken on by the corporates – perhaps so they can enjoy lower dollar interest

rates – is passed back to the banks in the form of credit risk. The regulatory framework must take a comprehensive view of the risks and ensure that moral hazard due to expected bank bailouts does not give banks the wrong incentives when making loans.

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

Various institutions also matter for the effects of financial inflows. These include protection of property rights, political stability, judicial effectiveness and impartiality, the degree of corruption, and corporate governance standards. A number of empirical studies indicate that better institutions lead to a higher proportion of equity investment relative to debt in financial inflows (especially of FDI, which may entail positive spillovers to the economy through technology transfer and learning-by-doing effects). Weak institutions also reduce the overall level of private financial inflows to an economy.

The framework for macroeconomic policy is also important, and I return to it later on. The case of Argentina indicates how fiscal imprudence can generate unstable government debt dynamics, in which government borrowing rates rise to reflect higher default probabilities, inducing further borrowing, further rate rises, and eventual crisis.

Institutions to limit fiscal excess, including strictly circumscribed bailout promises, restrictions on subnational governments, and legislated fiscal limits and transparency (as in Brazil's 2000 fiscal transparency law; see Singh et al. 2005) can all contribute to the stability of capital flows.

The exchange-rate regime is a key aspect of the policy environment. Most financial crises have occurred in setting of fixed, or inflexibly managed, exchange rates. A key tenet of macroeconomic policymaking, the open-economy trilemma, holds that no country can simultaneously enjoy all three of: free capital mobility, a fixed exchange rate, and a monetary policy directed toward domestic goals (such as an inflation target). Countries that have attempted to maintain a rigidly fixed currency, such as Argentina in its 1991-2001 decade of legislated convertibility, have faced harsh tradeoffs in sacrificing a monetary policy that might help combat unemployment, external imbalances, and real appreciation of the currency due to internal inflationary pressures. Even China, which maintains capital controls, faces such a situation now. Moreover, market participants may pay inadequate attention to the risks of an exchange-rate collapse, relying on the government either to provide forward cover (as the Thai central bank did, at considerable fiscal cost, in 1997) or to mount a defense of the parity long enough that short-term funds can be withdrawn or repaid. Adjustment of a current account deficit is always more problematic under a fixed rate. For these reasons, it seems likely that a flexible exchange rate rather than a fixed one is more likely to enhance the benefits from financial globalization. Exchange-rate volatility in itself could conceivably be costly to growth, but Aghion et al. (2006) find that this effect seems to operate only for countries at low levels of financial development, which tend to have closed capital accounts. For more

financially advanced developing countries, there is little obvious association between the flexibility of the exchange rate regime and growth (or other standard measures of financial development), but exchange rate pegging does seem to raise the probability of a crisis; see, e.g., Husain et al. (2005).

Central bank independence may also contribute to financial stability. Prohibitions on central bank financing of fiscal deficits can stabilize expectations. Moreover, a history of inflationary instability is a prime contributor to the dollarization of liabilities, a factor that makes it more difficult to operate a floating exchange rate, even a managed float. Thus, institutional changes that help stabilize inflation expectations (central bank independence, but also fiscal controls) can help make exchange rate flexibility feasible.

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

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

nominal exchange rate, can make the economy especially vulnerable to volatile bi-directional capital flows.

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

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

Often the preceding four structural areas overlap. For example, bailout guarantees, while promoting moral hazard, also can reduce the credibility of commitments to maintain a prudent fiscal stance.

Of course, inferring causality from the empirical associations can, as always, be perilous. For example, fiscal rectitude, labor market flexibility, and trade openness

typically reflect endogenous government policies, which can be driven by "deeper" political factors that, in themselves, make the economy better able to live productively with an open financial account. It is hard to believe, however, that a favorable configuration of conventional fundamentals will not make an independent contribution to financial stability.

Endogeneity of institutions

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

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

Attempts at structural estimation are, for the moment, few. One study is that of Chinn and Ito (2005), who present a panel analysis, 1980-2000, for 108 countries. They find that, once a critical level of "legal and institutional development" (measures taken

from the International Country Risk Guide and other sources) has been reached, further development in that dimensions directly fosters the development of equity markets, but also interacts positively with financial openness to promote equity markets. Development of the banking sector, they find, is a precondition for equity-market development. In another study, Tytell and Wei (2004) find a disciplining effect of financial openness on monetary policy (but not on fiscal policy). There is some supportive anecdotal evidence as well, Brazil's experience under President Lula da Silva being a case in point.

There are some plausible and even persuasive theoretical arguments, however. For example, the analysis of Rajan and Zingales (2003) suggests that financial opening may promote competition and thereby weaken the power of obstructive incumbents to block reforms that are counter to their interests. Emerging-market firms that list on industrial-country stock exchanges may be forced to import higher governance standards. Once a country or firm becomes dependent on international investors, it may be more amenable to their demands for better governance and transparency. Foreign financial actors (such as foreign banks) may, through a competitive effect, promote the spread of more efficient and prudent practices. Governments that see themselves as dependent on foreign finance may hesitate before embarking on excessively expansionary or populist policies (at least when the next election is sufficiently distant). Stulz (2005) suggests that the fall in the cost of capital and the expanded financial opportunities attendant upon financial opening makes it more attractive for entrepreneurs to lobby the government for measures that increase shareholder protection. These measures, if implemented, can make it easier for firms to reap the gains from financial trade. He further argues (p. 1633) that

financial opening can restrain the predation of the state and hasten institutional reforms, because crises will be more probable otherwise:

> [F]inancial globalization reduces the ability of those in control of the state to extract rents. If they attempt to do so, resident investors can put their money elsewhere, foreign investors can go home, and local firms will become uncompetitive. From this perspective, it is not surprising that financial crises will sometimes occur in those countries in which investor protection is weak and respect for property rights suspect.
>
> Rather than viewing financial crises as the downside of financial globalization, this view suggests the possibility of such crises intrinsic to the benefits from financial globalization. Free capital flows make it harder for the state to expropriate investors because it gives investors an exit (Stulz 2005, p. 1633).

In light of the skimpy empirical evidence, one must hesitate to jump to the tempting policy conclusion that, if only the capital account is opened, all will eventually work out for the best. At least some sequencing is called for (as indicated by a classic literature), with greater trade-account openness, a reliably good degree of macro stability, and a viable exchange-rate arrangement (to be discussed in the next section) as minimal prerequisites for successful financial opening. For countries not already open, a phased approach, opening first to FDI and portfolio equity flows, is prudent. Steps that might promote the development of a market in local-currency bonds (also to be discussed in the next section) should be taken in preparation of further opening.

The macro-monetary framework

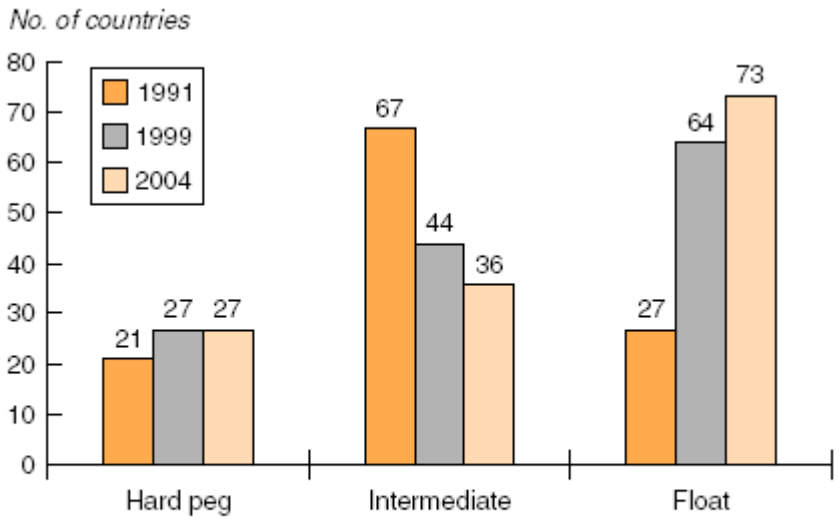
I have alluded at a couple of points above to the importance of the exchange rate system. Indeed, a distinct argument in favor of capital controls is a pure "macro" argument not directly motivated by issues of financial stability. Through capital controls, a country can simultaneously attain exchange rate *and* domestic monetary policy targets.

Clearly the revealed preference of the main industrial regions has been to embrace open capital markets, along with whatever gains they bring, and to trade away exchange rate stability in favor of a monetary policy oriented toward domestic objectives. It is not clear that the alternative of capital controls would even be feasible for the industrial countries, given the extent of domestic financial development and the growth of world trade – even in the early 1970s industrial-country capital controls were hard to enforce. Interestingly, the preceding pattern seems to hold also in emerging markets – greater exchange rate flexibility, financial sector reform, fiscal and monetary frameworks conducive to moderate and stable inflation – but as Fischer (2003) observes, no generalized retreat from open capital markets (and this in the absence of the type of foreign pressures for financial opening seen in the 1990s). For a number of countries, of course, we also see increasing self-insurance through the acquisition of sizable foreign reserves. It seems that reform and restructuring efforts are driven in part by a belief among emerging-market policymakers that integration with the world economy, in finance as well as in trade, is eventually a necessary concomitant of graduation to higher income status. Domestic financial development seems firmly recognized as a prerequisite of economic growth – see, for example, the studies collected by Demirguc-Kunt and Levine (2001) – and a sophisticated, deep financial system is hard to insulate from the rest of the world, especially given the reality of growing merchandise trade.

But what macroeconomic/monetary framework is most suitable in this setting? The available choices are delimited by the trilemma. Given a degree of capital-account openness, monetary policy can be deployed to set the exchange rate, or to reach a domestic policy objective (such as inflation control), but not both. In order credibly to fix

the exchange rate in a world of highly fluid capital mobility, however, it is not enough to renounce domestically-oriented monetary policy through words alone. The authorities' hands must effectively be tied through far reaching institutional change. This is why the longevity of conventional "fixed" exchange rates has been so limited (Obstfeld and Rogoff 1995). Even Argentina's radical convertibility plan collapsed after a decade as the political pressures undermining it became irresistible. If the institutional scaffolding is weak, as it was in Argentina, then credibly fixed exchange rates will require giving up a national currency altogether, as in dollarization or through membership in a currency union such as the euro zone. The empirical evidence seems to support the movement toward a bipolar world in which governments eschew adjustable or heavily managed pegs; see Figure 6.

Figure 6: Changes in exchange-rate flexibility, 1991-2004



Sources: IMF Annual Report on Exchange Arrangements and Exchange Restrictions and World Bank staff estimates.

(Figure taken from World Bank 2006)

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

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

day exchange-rate uncertainty is a useful preventive measure against currency mismatch and crises.

An attractive conceptual framework is that of "managed floating plus," proposed by Goldstein (2002). This framework combines substantial exchange rate flexibility, a credible inflation targeting regime (preferably buttressed by credible central bank instrument independence), and, crucially, measures to limit currency mismatch, both within the economy and with respect to the external investment position. Goldstein and Turner (2004) discuss practical measures for monitoring and limiting currency mismatch. The limitation on currency mismatch is intended to reduce the balance sheet repercussions of exchange rate fluctuations, freeing the monetary authority to tolerate exchange rate movements that are a byproduct of inflation-oriented policies (and thereby reducing the fear of floating). It might be added that a healthy financial system is also a prerequisite, and for a similar reason: central-bank credibility requires the ability to make significant and possibly abrupt interest-rate changes in the face of an inflation scare.

Useful in implementing such a program is the development of a local-currency bond market. Such markets not only mitigate the problem of currency mismatch, they facilitate the conduct of monetary policy and enhance the economy's ability efficiently to channel resources to investors. In this context, a major development of recent years has been the growth of local-currency bond markets in a number of emerging markets. There has also been increasing external placement of local-currency bonds in some cases. The World Bank (2006, p. 66) reports that East Asian bond markets grew from $400 billion in 1997 to $1.6 trillion by end-September 2005. This growth was partly a result of governments issuing local-currency bonds in connection with financial and corporate

restructuring after the Asian crisis. With the major exceptions of China and India, these bond markets are much more open than in 1997. This development has been supported by innovations in contingent contracting, notably, the increasing use of credit default swaps and nondeliverable forward transactions.

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

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

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

Burger and Warnock also find that a high rating on a "rule of law" measure promotes the size of the local bond market relative to GDP, whereas strong creditor rights promote a high share of local currency bonds. Claessens et al. likewise find a role for institutional variables. Further corroboration comes from two studies of emerging bond markets by Eichengreen and Luengnaruemitchai (2004, 2006), who focus on Asia's relative success. They find that bond-market capitalization (2004) and foreign participation in the domestic bond market (2006) both depend positively on aspects of institutional quality and domestic financial development.

While these results are intriguing, they must be interpreted with caution. There is a possibility of endogeneity, of course, which Burger and Warnock try to address through the timing of regressors and various instruments. Conceptually, however, why should creditor rights influence local-currency borrowing, but not the total extent of bond market development, as Burger and Warnock find? To what extent do the results simply capture

that the industrial countries, being richer, have deeper bond markets and a more rigorous rule of law? The regressions show a strong *negative* effect of economic growth on bond market development, which surely captures the fact that Asian countries grew more rapidly than the industrial world over the 1990s, yet still had more limited bond markets in 2001. Hopefully future work will throw further light on policies and reforms that promote local bond market development and the escape from original sin, both of which can greatly ease the implementation of a macro framework that includes extensive exchange rate flexibility and can safely support an open financial account.[3]

A full managed float may be impractical at the early stages of financial opening and market liberalization, when capital controls still are in place and somewhat effective. China, for example, is in this position now. As a transitional measure, some system such as the "basket, band, and crawl" (BBC) suggested by Williamson (2001), can be appropriate. Roughly speaking, the basket peg helps maintain multilateral competitiveness, the crawl offsets differential inflationary trends, while the bands place limits on excessive volatility or misalignment. The bands, of course, would not long be viable absent capital controls.

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

On the currency side, from the mid-1980s the Chilean peso's USD exchange rate was kept within a crawling band, the central parity of which was adjusted daily to reflect

[3] A very interesting discussion of the Australian experience is in McCauley (2006).

the inflation difference between Chile and its main trading partners. The goal of the crawl was to maintain competitiveness – though there is a danger in any such system that expectations feed into inflation, resulting in accommodation of the expectations via the exchange rate. Partly for this reason, no doubt, as well as due to pervasive indexation, inflation remained relatively high in Chile for a decade, dropping below double digits only in the mid-1990s. (In 1998 lagged domestic inflation was replaced by an inflation target in the definition of the crawl, a key reform in bringing inflation down further.) Although the top end of the band (weak peso) was tested frequently prior to 1991, 1991-97 was a period similar to the recent past in China, with the peso near the strong edge of the band and attempts by the authorities to resist capital inflows and to sterilize. (Estimates of the quasi-fiscal costs of sterilization run about 0.5% of GDP per year, a huge number. Net international reserves peaked at 25 percent of GDP.)

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

On the financial account, prior to liberalization, Chile channeled transactions through a formal foreign exchange market consisting of the central bank, commercial banks, and specially authorized exchange trading houses. An informal (but completely legal) informal foreign exchange market existed for non-financial transactions; it had a floating exchange rate. Initially, however, exporters and importers of capital were obliged to sell foreign exchange proceeds in the formal market. The non-financial private sector

was allowed to acquire foreign exchange informally. The strength of enforcement sometimes reflected balance of payments pressures. Only by the mid-1990s had the discrepancy between formal and informal exchange rates essentially disappeared. Chile still maintained, for some years afterward, its *encaje* or unremunerated reserve requirement on foreign capital inflows, but this was scrapped in the late 1990s. Prior to full financial liberalization and, shortly afterward, free floating, Chile extensively restructured its domestic financial system and imposed extensive regulation and supervision, with special attention to currency mismatches on balance sheets. There was also a substantial development of domestic forward exchange trading after 1995, allowing a better allocation of exchange rate related risks.

Conclusion

Particularly at the macro level, it is hard to find unambiguous evidence that financial opening yields a net improvement in economic performance for emerging countries. The major problems in empirical evaluation are the bundling of financial opening with a potential host of other growth-friendly reforms, and the endogeneity of the liberalization decision itself. Microeconomic evidence may provide less ambiguous evidence, but even in the micro context identification problems can remain.

Nonetheless, policymakers in emerging markets have displayed a remarkable revealed preference for financial openness, and the trend is likely to continue (perhaps with occasional seizures when global economic conditions sour). Why? *Domestic* financial development is attractive from several perspectives – it promotes growth, can enhance welfare more generally, allows easier government borrowing, and eases the

conduct of a domestically oriented monetary policy. Such domestic financial deepening, along with merchandise trade expansion, makes capital controls ever costlier to enforce. Furthermore, financial opening is likely to promote, through several channels, a more competitive and resilient domestic financial system.

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

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

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

Conversely, a stable and sound macro-monetary framework seems likely to promote complementary structural developments in the economy. One instance is the possibility, suggested by the evidence, that inflation stability promotes domestic-currency bond markets. In general, financial liberalization itself can yield "collateral" institutional benefits for the economy, benefits that both spur growth and make an open financial

account less crisis-prone (Kose et al. 2006). Determining the extent to which this has been reliably true in practice is an urgent item on the research agenda for growth and development economists.

The conclusion that financial integration is inevitable, and eventually even helpful, is in line with a classic insight from the trade policy literature: the efficient way to correct a distortion is to attack it at to its source. In the present setting, domestic financial market imperfection and institutional weakness, not financial openness, is the primary problem. The ideal response would be a correction of domestic imperfections plus intervention to address the specific additional issues raised by the international margin. Only if this approach is unworkable might a closed financial account be the answer.

A hopeful aspect in this picture is that the financial and institutional reforms developing countries need to carry out in order to make their economies safe for international asset trade are *simultaneously* reforms they need to carry out anyway so as to curtail the power of entrenched economic interests and liberate the economy's productive potential. Taken all alone, capital mobility is not a panacea – and it could be poison. The empirical record suggests that its benefits are most likely to be realized when complementing a range of domestic policies to enhance stability and growth.

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