Inter-American Development Bank
Banco Inter-Americano de Desarrollo

What's Wrong with International Financial Markets?

By
Eduardo Fernández-Arias
Ricardo Hausmann

Paper presented at the
Tenth International Forum on Latin American Perspectives
Paris, November 25-26, 1999
Jointly organized by the Inter-American Development Bank
and the OECD Development Center

REVISED DECEMBER 15, 1999

WHAT'S WRONG WITH INTERNATIONAL FINANCIAL MARKETS?

Financial liberalization and integration have not worked out as advertised and have generated disappointing results. They were supposed to set up a win–win situation: Capital would flow from capital-abundant, low-return, aging industrial countries to capital-scarce, high-return, young emerging countries. Growth in receiving countries would accelerate, and both giver and receiver would be happier since everyone's diversification opportunities would be improved. As a bonus, emerging-market policymakers would be disciplined by losing access to a captive local financial market.

Instead, emerging markets have been rattled by financial turmoil, especially during the past 2 or 3 years. Depending on one's viewpoint as optimist or pessimist, financial integration and globalization have either generated excessive volatility or run amok. In either event, political support for liberalizing policies is harder to achieve, and the prospect of long-run growth has not compensated for these new headaches. While growth in Latin America has accelerated from 1 percent per year in the 1980s to some 4 percent in the 1990s, it has not reached the levels of the 1960s when capital flows were an order of magnitude smaller.[1] This perception is felt all the more strongly these days as Latin America is undergoing its worst growth year since the early 1980s prompted by a sudden and large collapse in the volume of capital inflows. The degree of financial volatility and the frequency of panics, crises, and contagion have made the current state of affairs socially costly and politically disappointing in emerging economies.

By contrast, industrial countries, and especially the G-7, view the increasing volume of financial rescue packages as a source of concern. Fearing that the current strategy to deal with financial turmoil may involve a self-fulfilling explosion of their quasi-fiscal liabilities to the International Financial Institutions, they have reacted with an agenda to scale back the magnitude of official support. As a result, reform of the international financial architecture has become a booming industry.

What's wrong with the world? There is no shortage of "solutions." Several reports have been, are being, and will be produced by multilateral organizations, think tanks, academics, and G-n task forces, with *n* taking values between 7 and 33. But the connection between proposed solutions and the problems that are important to solve is not as well developed. In fact, we would argue not only that the depth of the diagnosis is shallow but also that the implicit diagnosis underlying many of the most popular proposals is misleading.

This paper discusses different views about what is wrong with the world, or as an economist would say, the principal distortions that are present. The intent is to clarify the logic behind the proposals for reforming the international financial architecture and provide a means of assessing them. (The actual assessment is performed in the companion paper "Getting it Right: What to Reform in International Financial Markets." Fernández-Arias and Hausmann 1999)

An overview suggests that these different views can be classified into three groups. The first identifies the main financial problem as an excess of capital flows due to moral hazard, which causes private returns to exceed social returns. This generates too

[1] Rodrik (1998) finds no relation between capital account liberalization and growth.

much lending and distorts its allocation.[2] Proposed remedies involve limiting moral hazard whenever possible and, as a fallback when this is not possible, discouraging capital flows through sand-in-the-wheels policies. One can think of this cluster of viewpoints as "Theories of Too Much."

The second alternative cluster of views, which we label "Theories of Too Little," posits that the fundamental problem comes from distortions that limit the enforcement of cross-border contracts, which cause capital flows to be too small relative to certain desirable benchmarks. In turn, failures of enforcement lead to frequent crises. Theories under this heading would help explain a nagging puzzle in economic theory. The standard theory of international trade predicts that capital should move from capital-abundant to capital-scarce countries and tend to equalize capital–labor ratios. However, after decades of capital mobility, capital–labor ratio differentials remain enormous and there is scarcely any perceivable tendency toward equalization. The volume of flows observed, e.g., 5 percent of GDP in the recipient countries, appears small relative to what would be required to achieve equalization in a reasonable time period. This puzzle has also appeared in a different context. Feldstein and Horioka (1980) found that investment is financed fundamentally by domestic savings in a manner inconsistent with the notion of an integrated world capital market.

Finally, the third class of theories emphasizes the instability of financial market conditions available to emerging markets and the unreliability of external finance to support sustained development. These are "Theories of Too Volatile," which have rapidly developed as a way of explaining recent crises and financial contagion. According to this view, markets are prone to panic for no particular reason in such a way that economies with strong fundamentals are constantly subject to the risk of massive withdrawal of funds that, by bringing the economy to an unnecessary sudden stop, would self-validate a crisis outcome. Similarly, distortions in international financial markets may lead to financial contagion and the interruption of the supply of capital to creditworthy countries. In the extreme, international financial integration may entail the importation of too much instability to make it worthwhile.

The three classes of theories outlined above emphasize different distortions but are complementary in explaining crises. For example, Theories of Too Volatile may be valid irrespective of whether capital flows are too much or too little. Similarly, Theories of Too Much and Theories of Too Little are not mutually exclusive because they do not start from the same benchmarks. The former point out distortions that make the volume of capital flows larger *than they would otherwise be*. The latter point to distortions that make them too small. Hence, each theory takes all other distortions as given.

One key question is what would the world be like in the absence of significant distortions. If that best of all worlds is one of smaller flows, restricting capital movements could be an effective shortcut. If, instead, it involves a radically larger flow of resources, then adopting policies that restrict the development of capital markets could be very inefficient. So the bottom line can be expected to depend on the relative importance of the various distortions. The emphasis on a particular set of theories in justifying policy proposals needs to match their relative relevance in the diagnosis of the problems of international financial markets in Latin America.

[2] Lack of transparency is often cited as a complementary distortion.

From a policy point of view, it is key to pose the issue of reforming the international financial architecture as a second-best proposition, one in which reforms will have to endure the existence of unavoidable distortions. In such a setting, the reduction of one particular distortion may very well be counterproductive and a single-minded focus on one particular set of theories may be dangerously misleading. After all, the theory of second best clearly shows that when there is more than one distortion in the system the reduction of one is not necessarily welfare improving. Specifically, the fight against moral hazard may easily lead to an inferior situation.

This paper attempts to display a broad array of important distortions in the international financial markets of emerging economies. First, as explained above, the second best nature of the problem implies that a comprehensive diagnosis of the distortions is required in order to assess policies geared towards the alleviation of identified specific distortions. Second, this "zero-base" approach enables the detection of important policy areas that are not being addressed by current proposals on the table. In particular, this approach would allow reform proposals to tackle some of the permanent underlying impediments to financial integration that are generally taken as part of an immutable institutional framework. Recent financial crises and their associated intellectual crises among economists open the doors to ambitious new architectural plans to tackle some of the hard issues of external finance for development. If the new architectural design does not address the structural problems and lay new foundations, it will be no more than interior decoration.

In what follows, we review the Theories of Too Much, the Theories of Too Little, and the Theories of Too Volatile. We then discuss their relevance in light of the evidence.

Theories of Too Much

Theories of Too Much usually assume that moral hazard encourages excessive lending.[3] Somebody is providing an implicit guarantee so that the parties to the transaction are not internalizing all the risks. Too much lending and too much risk-taking occur. Resources are also misallocated because they are apportioned to risky projects without internalizing the costs involved.[4] Eventually, the guarantee is called and a crisis emerges. The various scenarios differ in the source of the implicit guarantee.

Implicit Guarantees in the Domestic Banking System

The most traditional scenario involves government guarantees of the banking system. The same logic will apply to a corporation perceived as being "too big to fail," but banks remain the prime example because they play a critical role in the payments system. Governments cannot afford to let banks simply go broke because that would trigger a catastrophic sequence of defaults in which otherwise solvent firms go bust when their clients are unable to make payments from deposits frozen in problem banking

[3] Excessive lending to the public sector may also be caused by political economy distortions, which may have contributed to the debt crisis of the 1980s. Here we focus on lending to the private sector, and therefore assume that returns pass the market test.

[4] Dooley (1997), Krugman (1998), and Corsetti, Pesenti, and Roubini (1998) provide formal models of this intuition.

institutions. Counting on the protection provided by an inevitable government bailout, bankers may assume too much risk.

The lower a bank's capital is, the more extreme its behavior. If a bank is very highly capitalized, it will pay its losses with its equity. When the bank has no more capital, it will be tempted to adopt a strategy known as "gambling for redemption" in which depositors or the government will pay for any additional losses while the banker retains any upside potential for risky investments.

The standard solution to this problem is to impose, through regulation, a capital adequacy requirement and to check that it is being met. Since capital is the difference between many assets and many liabilities, proper valuation of each asset and liability is critical. Hence, accounting standards are also central to this strategy.

The cautionary tale of moral hazard in a national banking system can become international when domestic banks borrow abroad. Since financial liberalization may exacerbate the problem, some would argue for restrictions on foreign borrowing by banks or for other forms of capital control until financial regulation and supervision is upgraded. We would argue that the principles of prudential regulation and supervision should be applied to international financial transactions, just as they apply to domestic intermediation. In particular, liquidity requirements may be imposed on the foreign borrowing of banks for the same reasons they are applied on domestic liabilities. This has become an increasingly common practice in the region.

A variation of the theory of moral hazard views pegged exchange rates as an implicit guarantee (Mishkin 1996, Obstfeld 1998, Buiter and Sibert 1999). This form of moral hazard would reduce incentives for hedging exposure to exchange rate risk and would favor short-term foreign debt, which falls due in the period in which the guarantee would be more credible.

Implicit International Guarantees

Another Theory of Too Much follows similar lines but blames the International Monetary Fund, bilateral creditors, and multilateral development banks for providing rescue packages that shield either foreign investors or governments from the fallout of excessive risk-taking. This kind of moral hazard is thought to lead to excessive lending by foreign investors who expect to be repaid from resources provided through future rescue packages if real returns on investment do not materialize. Even if it is true that official rescue packages are quickly repaid, as it is the experience so far, and do not provide a subsidy directly responsible for creating moral hazard, they would still make it possible for the government to extend a moral hazard inducing bailout (an enabler of moral hazard, in DeLong (1999) terms).

Advocates of this explanation propose eliminating rescue packages from the arsenal of international financial institutions. This theory has received much currency, especially among economists (see Sachs 1998, Eichenbaum et al (1999)). Just as with nursery rhymes, its closure is reassuringly simplistic: The world would be a better place if not for these public sector interventions.

Theories of Too Little

For all the impressive growth in capital flows to emerging markets, they are surprisingly low relative to what one would expect given the dominant trade theories and the way open economies are usually modeled. In fact, current capital flows are low compared to those observed prior to World War I and, more recently, to those in some particularly telling countries. In this section, we will review crisis scenarios based on commitment problems both at the national and international level.

Commitment Problems at the National Level

It is useful to start by focussing on problems of willingness to pay when the enforcement of financial contacts is limited. Loans are not self-enforcing contracts. After receiving a loan, only coercion or the promise of future loans makes people want to fulfill their obligations. In order to compensate for the risk, higher charges are made. But higher interest rates further increase repayment problems by eroding the borrower's ability and willingness to repay in full and by worsening risk through adverse selection in the pool of borrowers and moral hazard in the choice of projects (see Stiglitz and Weiss 1984).

In order to address willingness-to-pay problems, loans are often secured by collateral, and courts adjudicate problems that arise during the life of the contract. In the simplest example, Mary lends John money to buy a house worth 100 quarks. The loan is for 80 quarks and the house is the collateral. So long as the value of the house minus the judicial costs of repossession exceed 80 quarks, John will always be willing to repay, because he would loose more by not paying. The availability of assets with good titles and with liquid secondary markets that can act as collateral and the judicial costs of repossession are therefore important determinants of the ability of financial systems to address willingness-to pay problems. [5] If the contract environment is not adequate and judicial enforcement is weak, borrowers may not want to repay, discouraging creditors from lending and leaving the credit market inefficiently small.[6]

When nonpayment occurs or is possible, bankruptcy procedures are set in motion. These allow ability-to-pay problems to be separated from willingness-to-pay problems. They also provide a mechanism to secure the cooperation of the different creditors, to remove management if creditors find it necessary, and to transfer the ownership of assets to creditors.[7]

Absence of an adequate bankruptcy law and court system can have deleterious effects on the financial system. It makes coercion less credible, worsening the willingness-to-pay problem. It also increases the cost of crises because it precludes

---

[5] Notice that it is important for the collateral to have a liquid market. If it does not, the threat of repossession is unlikely to be credible. A banker will not want to repossess a widget-making machine from a borrower if not much can be redeemed for it. It's better to leave the asset with the borrower who can at least generate some cash flow out of it. We will study other effects of illiquid markets in the next section.

[6] This problem is discussed in the domestic context in IDB (1998, Chapter 7). Japelli and Pagano (1998) present evidence of how the behavior of institutions that affect willingness to pay have impacted credit markets for a selection of mainly Latin American and European countries.

[7] La Porta and López-de-Silanes (1998) provide an empirical analysis of creditor and shareholder rights for a large set of countries and establish their importance as determinants of the level of development of financial systems.

concerted action to provide additional financing needed for the company's survival. This increases the social costs associated with bankruptcies and makes too-big-to-fail arguments relevant even for relatively small firms. This may prompt governments into providing rescue packages to the corporate sector, which has traditionally been the case in Latin America's public enterprises and as just happened in East Asia.

Bankruptcy law and the court system are important areas of domestic financial policy in which the region is still far from where it could be.

Sovereign Risk

The previous enforcement problems affect both national and international investment. However, in cross-border finance, the willingness-to-pay problem is severely aggravated by the involvement of a sovereign government. Since sovereigns do not need to abide by the rulings of any foreign court, the problem may be serious and difficult to resolve. Sovereign risk may explain why cross-border lending is so small. In the standard model (Bulow and Rogoff 1989) sovereigns will pay so long as it is not in their interest not to do so, given the "punishment" they may receive for nonpayment. However, the incentive not to pay goes up with the volume of debt owed. This theory, originally developed for public debt, can be extended to apply to private sector borrowing under the "protection" of the sovereign, which may suspend convertibility, nationalize assets, or otherwise interfere in the payment process if such action is perceived as increasing national welfare.

As a result, sovereign risk augments overall risk beyond the traditional commercial risk, and therefore, in the absence of financial enhancements, puts a floor to private risk. Sovereign risk will cause markets to impose a credit ceiling on countries so as to keep the volume of aggregate debt below the level that would create incentives for nonrepayment. The lighter the "punishment" the world can impose on the country, the lower the credit ceiling will be. Economies that are more integrated into the world are more easily "punished" and hence should get a higher credit ceiling.

The credit ceiling itself may be a source of crisis. First, the determinants of that credit ceiling might change, perhaps because of a deterioration in the country's terms of trade, causing the current debt level to exceed the ceiling and triggering a sudden stop in new lending. Second, even if the credit ceiling does not move, it may be destabilizing. As discussed in Fernandez-Arias and Lombardo (1998), an externality exists since the ceiling applies to the country as a whole but borrowing is decentralized. Every borrower will have incentives to get his or her loan before a neighbor does, prompting temporary overborrowing followed by crisis.

Sovereign risk helps explain the experience of some economies that are fortunate "outliers" in the history of international capital flows. A first example is Puerto Rico, where capital flows averaged about 15 percent of GDP between 1960 and 1994 and where payments to foreign capital account for 32 percent of GDP (see Hausmann 1996). These numbers are striking since crises have been touched off elsewhere long before capital flows reached these magnitudes. For example, in 1982 and again in 1994, crisis erupted in Mexico when the current account reached 7 to 8 percent of GDP and when payments to foreign capital were less than 7 percent of GDP. Puerto Rico's peculiar political structure implies that it does not have a sovereign to restrict payments or suspend convertibility, thus eliminating sovereign risk. The other two exceptions are Australia and Ireland at the turn of the century.

Clearly, we are not proposing Puerto Rico as a political model. We are only using it to illustrate the magnitude of potential effects of sovereign risk on the volume of capital flows. These "outliers" in the history of capital flows all had peculiar political structures that significantly limited or eliminated sovereign risk. They also used the same currency of the country that constituted the principal source of capital, a point we shall return to below.

Notice that sovereign risk is a commitment problem. If the sovereign could somehow tie its hands and mandate future payments irrespective of future conditions (including a change in ruling faction), the problem would disappear. Lending would be more ample and stable. Yet even when the sovereign might well be better off making such a commitment, the binding technology to make the pledge credible once indebtedness is high may be difficult to find.

From this point of view the, multilateral development banks such as the World Bank and the Inter-American Development Bank have something to offer. By charter, their policy requires them to suspend operations in countries that run into arrears. Since they are a cheap source of future credit and are committed to stop lending in case of arrears, sovereigns have always repaid, giving these multilateral institutions their preferred creditor status. In a world where such binding devices are scarce, it may make sense for these institutions to expand the use of their technology for improving commitment, e.g. through guarantees.

Thus far, private markets have tried to insulate themselves from sovereign risk with relatively rigid contracts lacking clauses that could be exploited to justify nonpayment in legalistic ways. Yet a scheme like this tailored to a pure willingness-to-pay problem may make crises triggered by a reduction in ability-to-pay more difficult to manage and more costly. It usually makes debt workouts quite messy.

The current trend toward private sector involvement in financial crises, also known as burden sharing, is generally proposed as a way to limit moral hazard. However, to the degree to which it makes it easier or more acceptable for countries not to repay then it will aggravate sovereign risk and cause an inefficient reduction in the flow of capital across borders.

Theories of Too Volatile

Financial terms and volumes of external financing are extremely volatile in our region. Figure 1 show illustrates this volatility in terms of the average risk spreads of sovereign bonds in our region over the past five years. Spreads reached extremely high values after the Mexican and the Russian crises, enough to compensate a 50% default rate, at which point countries lost access to credit. The dual of this price evolution is an extremely volatile evolution in the level of capital inflows to the region, illustrated in figure 2.

[Figure 1]
[Figure 2]

Markets did not predict either the Tequila or the East Asian crises. In fact, most of these economies appeared quite strong by conventional measures, certainly stronger than countries spared from crisis (see Calvo and Fernández-Arias 1998). This surprise

translated into a growing professional consensus that we were witnessing a new phenomenon, one in which there was ample room for the mood of expectations in the financial sphere to shape fundamentals and ultimately prevail.[8] International financial turmoil after the Russian crisis severely affecting Latin America, with whom it has very little fundamental links, further reinforced the idea that the international financial system was too moody to be relied upon. Market panics, herd behavior, financial contagion are some of the labels used to describe this new phenomenon in international financial markets.

In what follows we lay out some of the underlying theories behind market volatility. Nevertheless, it should be said from the outset that the anticipation of volatility, i.e., risk of financial turmoil, is in itself an explanation of why capital flows are too small. In this sense, the Theories of Too Volatile can be regarded as a special chapter of the Theories of Too Little.

Liquidity Crises

The traditional example of liquidity crises is a bank run. Banks typically have a term mismatch: They receive short-term deposits, even sight deposits, and lend them at longer maturities. Assume all borrowers are doing just fine. If there is no attack, the bank will do just great. But if suddenly depositors all want their money at the same time, the bank will go bust. In fact, in the bank's attempts to collect loans too quickly, even solvent borrowers may get into trouble due to the credit crunch. Hence, expectations may be self-fulfilling: both optimism and pessimism can be justified ex post.

The traditional solution is to have a lender of last resort able and willing to provide liquidity on demand from fundamentally solvent banks victims of runs. In this connection, a central problem in the world may be that the globalization of financial flows has overwhelmed the capacity of national central banks in emerging countries to credibly provide enough last resort lending to prevent liquidity crises.

More generally, capital account imbalances, especially in the presence of high levels of debt, raise the specter of bank-run-like payments crises if market financing dries up, whether or not an actual banking crisis develops. This market reaction may be based on a loss of confidence in a particular country or simply reflect global financial contagion (to be analyzed below). In fact, a temporary disruption in financial flows, due for example to a prolonged bout of contagion, may cause enough real damage to generate a full-blown crisis. Countries may be thus subject to situations in which the roll-over of public debt is subject to multiple equilibria where, in the bad outcome, creditors will refuse to refinance debts, provoking a grave short-term liquidity problem. The ensuing credit crunch can cause a serious contraction, high real interest rates, and payments problems in the corporate sector, thereby deteriorating the health of the financial system and justifying the attack.

Furthermore, the pressure on the exchange rate caused by the capital account shock may lead to devaluation, further contributing to the deterioration of the economic segments with net foreign currency exposure. In fact, currency devaluation alone may

[8] In fact, the interpretation of the Tequila crisis as the manifestation of a bad equilibrium in a multiple equilibrium situation first advanced in Calvo 1995 found limited echo in the profession. East Asian crises brought multiple equilibrium theories to the mainstream because most economists thought that traditional explanations did not suffice, including Paul Krugman who finally shared this viewpoint in Krugman 1999.

generate multiple equilibrium and a liquidity-like crisis (see for example Fernández-Arias and Lombardo (1998b), Chang and Velasco (1998), and Krugman (1999)).

Liquidity crises and solvency crises cannot be distinguished by their consequences: both manifest in crises. However, they differ in principle in two key respects. First, liquidity crises are not easily forecast because they arise from a movement to a bad equilibrium that is neither necessary nor inevitable. Second, liquidity crises are preventable with sufficient financing. Since in liquidity crises the financial interruption is not justified—with adequate financing the economy would be perfectly capable of servicing its debts—then these types of crises must be considered unnecessary and a strong effort should be made to prevent them through the provision of finance. The same holds true for financial contagion. By contrast, additional funds injected into a solvency crisis would only postpone the moment of reckoning.

International Financial Contagion

There is a growing consensus that the main inter-country linkages underlying the high degree of correlation among international financial prices in emerging markets are not related to world market conditions, trade relations among them, or other traditional transmission mechanism, but rather to the fact that they share a common set of investment institutions making joint investment decisions (Fernandez-Arias and Rigobón 1998). This remarkable correlation is illustrated in figure 3 for the evolution of bond prices in Latin America and other emerging markets over the past five years.

[Figure 3]

This phenomenon, termed financial contagion, is especially worrisome at the time of large negative shocks triggered by exogenous events. The most notable example is the collapse of bond prices in Latin America following the Russian default of August 1998, a country with whom our region has very little economic ties. The corresponding jump in risk spreads and the drying up of external financing for an extended period of time denied the region the possibility of financing a series of temporary negative exogenous shocks to terms of trade and production. Foreign capital not only proved unreliable, but also actually imposed a severe liquidity squeeze relative to normal levels that led to the recession from which the region is recovering only now (figure 4).

[Figures 4]

The possibility of financial contagion makes financial integration unreliable. To a large extent, financial contagion is akin to a liquidity crisis in slow motion, whose ultimate outcome depends on whether the speed of recovery is enough to pull out the economy. It is true that the market discriminates, in the sense that relative valuations in periods of contagion are consistent with the strength of fundamentals (as measured by prior market spreads; see Fernandez-Arias and Rigobón 1998), which puts some of the volatility under the control of the policymaker. In fact, as shown in figure 5, market relative valuations were preserved during the period. Furthermore, countries can try to prepare themselves to withstand contagion while it lasts. But, still, absolute valuations in

countries with strong fundamentals suddenly collapsed in ways that constitute a worrisome puzzle.

[Figure 5]

One important explanation advanced to account for the evidence is that investment institutions were hit by big losses in crisis countries, e.g., Russia, and became capital deficient to back their obligations (fulfill margin calls) and not creditworthy themselves, which forced them to shrink their portfolio and reduce risk bearing. The result was the kind of portfolio reallocation observed in practice. Because of the illiquidity of this market, perhaps because non-specialized buyers are less informed than specialized sellers (see Calvo 1998), this reallocation requires fire-sale prices. The strong contagion in our region would be due to the fact that most of our investors are within a narrow field of institutions specializing in non-investment grade paper. In this sense, financial regulations in industrial countries, by prohibiting very large institutional investors from holding non-investment grade assets, may have caused the inefficient segmenting of the market and drastically reduced its liquidity.

It is useful to reflect on the fact that illiquidity is crucial for contagion. In this case the imbalance between sellers and buyers stems from the fact that there is a common shock affecting all specialized agents, which calls for liquidity support and/or regulatory forbearance to smooth the shock. More generally, the lack of liquidity of asset markets is usually a major contributing factor to liquidity crises. One important example is the market for asset collateral. If such markets are liquid, then in times of crisis a firm should be able to find someone willing to provide a collateralized (i.e., practically risk-free) loan. However, if the market for the asset is not liquid, then its use as collateral is severely limited. One important factor is the presence of large aggregate shocks to the economy, which by hitting most agents in a similar fashion tend to make the market unbalanced and hence illiquid. Agents are either all trying to buy or to sell, but since agents on both sides are needed to make a market, then very few transactions will take place and asset prices are likely to be very volatile, hence not very useful as collateral. In particular, falling asset prices during generalized downturns facilitate the occurrence of liquidity crises, by reducing the amount of collateral.

A key implication is that bond spreads under contagion do not reflect country risk. Prices are misaligned but arbitrage opportunities are not exploited because the specialized, informed investors are capital constrained. Over time, the pricing gap would be arbitraged as the constraints over our specialized investors ease and new financial intermediaries are established. Therefore, lack of liquidity resulting from contagion would be temporary, a prediction that also bodes well with the evidence. International policies of temporary support suggest themselves.

Original Sin

Many of the problems discussed so far are related to or aggravated by a characteristic of almost all emerging market currencies: they cannot be used to borrow abroad and cannot be used even domestically to borrow long term. This fundamental incompleteness of the financial market has been called original sin (Hausmann 1999, Eichengreen and Hausmann 1999).

From the point of view of this definition, all emerging market currencies suffer from original sin. Essentially, all foreign debt is denominated in foreign currency. With the partial exception of Chile, there isn't a single country in Latin America with a liquid market for long-term bonds denominated in the domestic currency. Long-term debt to the extent that it exists, is issued in dollars with the exception of Chile, the only country where there is a liquid long-term bond market in a price index.

These two characteristics are accompanied in many countries by a large de facto dollarization of assets in the domestic banking system. In Argentina, Bolivia, Ecuador, Peru and Uruguay dollar liabilities account for well over half of the deposits of the banking system.

Original sin has important implications for financial fragility. It will cause investments to be financed either in dollars or short term. If the funding is done in dollars, many projects will have a currency mismatch, as cash flows would be denominated in a different currency from that of the debt. If companies try to avoid this problem by borrowing in pesos, they will have a maturity mismatch as only short-term loans are available in the domestic market. Hence, maturity and currency mismatches are endemic in countries with original sin.

Currency mismatches cannot be reduced, to any significant extent, through hedging in countries with original sin. This is so because external debt is in foreign currency, which in turn reflects foreigners' unwillingness to be long in the domestic currency. With imports more or less hedging exports nothing is left to hedge the net external debt. If hedging was possible, i.e., was a feasible market, international banks would offer peso loans and then hedge away their currency risk. After all, a peso loan is just a dollar loan plus a hedge. If hedging were possible we would see much more lending by major banks in local currency. The fact that this does not happen is an indication of the seriousness of this constraint.

This is important because it has been argued that floating exchange rates would reduce the incentives to leave unhedged foreign currency positions and thus limit the moral hazard in international borrowing. But if hedging is limited by original sin, then floating will reduce unhedged dollar borrowing by simply reducing dollar borrowings both domestically and internationally, leading to less investment and growth.

The currency and maturity mismatches interact through monetary policy, making the Central Bank's choices much riskier. When there is pressure on the exchange rate, the monetary authority may let the currency depreciate but this will cause serious balance sheet problems in those firms with currency mismatches. The reduction in net worth may limit their ability to pay both foreign and domestic obligations. Alternatively, the Central Bank may defend the exchange rate through non-sterilized intervention or by otherwise tightening monetary conditions, but this would make it difficult for those with maturity mismatches to roll over their short-term debt. Either way, the system may end up in a banking or currency crisis.[9]

This may be one reason why developing countries hold such high reserve levels in comparison to more developed countries. But avoiding this problem by holding sufficient reserves means essentially foregoing the importation of capital (in net terms). Similarly,

[9] This dilemma is at the root of the contradictory criticisms that IMF exchange rate policy advice in crisis countries has received, some for endorsing currency depreciation (e.g. Wall Street, 1998, editorials) and some for defending the currency with high interest rates (e.g. Sachs 1998).

restricting or taxing foreign investors that lend in foreign-currency would amount to taxing capital inflows, reducing financial integration by increasing the domestic cost of capital.[10] This helps account for the puzzle of too-little financing.

It is important in this context to ask what would happen to financial turmoil if countries were to abandon their weak domestic currencies in favor of a strong supranational currency.[11] One would expect the sudden elimination of significant currency and maturity mismatches throughout the balance sheets of households and firms in the economy to facilitate financial integration and lead to safer, deeper markets. As mentioned before, evidence supporting this hypothesis comes from the fact that capital flows were proportionally much higher prior to World War I than any time afterward. One explanation for this was the existence of a global currency system: the gold standard. Likewise, Panama, which uses the U.S. dollar, has the deepest domestic credit market and is the only country in Latin America where the financial system offers 30-year mortgages and it does so at less than 9 percent interest.

Original sin may be caused in part by sovereign risk. If a capital importing country could borrow in its own currency it would be able to improve its net worth by letting the currency depreciate. In anticipation of this risk, lenders would demand a higher rate of return, but this would trigger an adverse selection process as the only ones willing to pay such a premium would be those planning to devalue. Hence, the market could easily disappear. But then, how is it that some countries are able to borrow abroad in their own currency?

One hypothesis is that the government would not be expected to let the currency depreciate if a broad cross-section of domestic residents holds much of the public debt. In that case, the median voter will be close to the median debt holder and it will not be politically expedient to devalue in order to dilute the real value of the domestic currency debt. If instead, much of the public debt is held by few voters, or even worse, by non-voting foreigners, then it will be hard for the government to establish credibility in its willingness to forgo the benefits of devaluation. This means that original sin may have deep political economy causes that are unlikely to be reversed through pure and costly perseverance. A social security reform with the development of private pension funds may permit a better alignment of the interests of the median voter with those of foreign investors and thus give credibility to peso denominated debt.

Confronting the Evidence

It is well known that capital flows to developing countries are smaller than desirable under any reasonable standard. Taking into account the existing differences in capital/labor ratios, international flows across nations are way too small relative to flows within nations (Bayoumi and Rose 1993, Bayoumi 1997), which explains the strong correlation between domestic savings and investment first uncovered by Feldstein and Horioka (1980). This piece of evidence implies that Theories of Too Much do not address the most important distortions present in the world. Hence, policy recommendations predicated on them, without reference to their impact on the other more

[10] This proposal has recently been advanced by Anne Krueger.

[11] This issue is specifically addressed in another paper in this conference "Exchange Rate Arrangements for the New Architecture" (Hausmann 1999).

important distortions cannot be presumed to be welfare enhancing. At the same time, this evidence supports the Theories of Too Little and, indirectly, the Theories of Too Volatile.

The magnitude of capital flows under the Gold Standard, before W.W.I, clearly shows that international flows can be much larger than today. In fact, the correlation between domestic savings and investment is much weaker in that period, on the order of 40% relative to 80% after W.W.II. Whether large flows were due to the international monetary arrangement or to limited sovereignty of the main borrowers relative to the major capital exporting center is an open question. However, the case of Argentina, a country that received massive flows without having special political ties to the United Kingdom supports the view that the monetary arrangement was a critical ingredient.

As DeLong (1999) points out, the historical record of large flows in the Gold Standard period can also be interpreted as direct evidence against the moral hazard view. First, in that period there was no IMF or functional equivalent to create international moral hazard in developing countries, and yet flows were larger. And second, financial crises then were even more frequent and deep; IMF is certainly not a requisite for crises!

Theories of Too Much imply that capital flows would be skewed in favor of the type of flows more likely to be covered by guarantees, as Eichengreen and Hausmann (1999) point out. Borrowing by banks and government borrowings would appear at the top of the list. Also, the moral hazard involved in currency risk would justify these flows to be skewed toward the short term. But the evidence from international banks that report to the BIS is that their cross-border lending to developing countries shows no evidence of these distortions (see table 1). The pattern of lending to emerging markets by BIS-reporting banks is less short term, less inter-bank and more non-bank than lending to other industrial countries. Hence, by the standards of developed countries, there is no evidence that BIS-reporting banks skew their flows to exploit moral hazard.

[Table 1]

Moreover, portfolio flows rather than international commercial banks have been the key players in this decade. The massive losses stock and bondholders have been subject to and the enormous political costs paid by governments in crisis countries make it hard to imagine that moral hazard alone could create such widespread financial havoc.

Therefore, there is strong evidence that moral hazard is not the dominant distortion in international finance to developing countries. The same holds true in the context of impediments to economic development. Even if moral hazard is a piece of the explanation of the East Asian crises, the fact that these countries have the most successful sustained growth record in known history is countervailing evidence that should make us pause. Radical institutional reform of a financial system recently regarded as a development model in the name of moral hazard appears premature given the current state of knowledge (see Feldstein 1998).

Concerning Latin America, our region has made very significant progress in improving banking supervision and regulation,[12] especially after the Tequila crisis in 1995. During the past two years, Latin American banks withstood quite well a very adverse environment given the Asian and Russian financial shocks, the decline in the

[12] See IDB (1997) for a country-by-country assessment of how much progress has taken place and for an analysis of its contribution to growth in the region.

terms of trade, and the effects of El Niño and of hurricanes Georges and Mitch. Domestic banks have been able to weather the storms without generating a banking crisis in any of the major economies of the region. Despite this performance, financial turmoil has been at a peak and access to world capital markets has been closed for long stretches.

What Went Wrong in Recent Experiences?

To unearth the causes of financial turmoil, it is important to review the salient features of recent crises. Starting with the Mexican crisis of 1994–1995, financial turmoil in emerging countries has puzzled analysts of all stripes. Surprise is perhaps the most striking feature of recent crises. A graphic way to view this is presented in Calvo and Fernandez-Arias (1998). There, the six crisis countries of 1997–1998 (Indonesia, Korea, Malaysia, Philippines, Russia, and Thailand) are compared with the six largest countries in our region (Argentina, Brazil, Colombia, Mexico, Peru, and Venezuela). If we classify these countries into low and high risk according to market risk spreads and ratings in mid-1997, right before the crises, we find that, except for Russia, crises occurred in the low-risk countries.

Some crisis narratives attribute this lack of predictability to the fact that crises have come in a variety of flavors, each triggered by yet-to-be-discovered factors. In fact, many of these "flavors" have been quite novel. The Mexican Tequila crisis of 1994–1995 came as a surprise because the key causal factor of the 1982 debt crisis-- namely a high fiscal deficit --was not an issue. Eventually, many analysts came to blame a large current account deficit and low savings for Mexico's crisis, but neither of these would play a role in the Asian crises that followed a few years later. Furthermore, the Asian crises would differ among themselves; for example, some involved banking problems, others did not. None involved significant exchange rate misalignments and Korea had a very small current account deficit. Then the Russian episode changed the pattern of the kaleidoscope again, returning to a traditional script for a public debt crisis.

We are more persuaded by the argument that lack of predictability is largely rooted in problems of multiple equilibria rather than in a misunderstanding of the workings of economies. This means that the existence of a potentially "bad" equilibrium may trigger a self-fulfilling financial panic, in which the collapse validates the state of panic that causes it. These problems resemble bank runs and are associated with liquidity problems. They are particularly likely in countries that suffer from original sin, as all the crisis countries did. In some of the recent crises, fundamentals were consistent with the required capacity to service the debt load, but a sudden lack of liquidity severely damaged the economy leading to an unexpected change in sentiment. The unnecessary nature of the run that provoked the liquidity crunch can account for the failure of the market to anticipate the crisis.

And most puzzling of all, and this is very important, the strong financial contagion associated with these crises infected countries enjoying strong fundamentals that had essentially no economic linkages with crisis countries. This was most notably so in Latin America during the Russian crisis. Most emerging markets in the world have lost much of their access to external financing, even though their economies do not present any great inherent weaknesses. Recent experience with financial contagion points to the importance of addressing distortions of the international financial system that lie beyond policy reform in emerging countries.

We shall keep in mind some of these features when discussing the degree of relevance of different theories about "what is wrong in the world" and, consequently, how to fix it.

We shall also keep in mind the severe limitations of policy instruments in stopping a crisis once it has started, which puts a premium on prevention strategies. Once a crisis breaks out, the experience shows that it quickly develops into a meltdown with enormous output losses, even if rescue packages are quickly dished out. Some of the reasons may reside in that in developing countries financial markets are incomplete and contracts hard to enforce. Experience suggests that such strategies are insufficient either to avoid enormous damage to the well- being of the countries involved or to prevent the contagion from spreading internationally. Crisis resolution based on official rescue packages is mired with difficulties. First, once a crisis breaks out, the economic fundamentals swiftly deteriorate, and contagion propagates, in ways that are not easy to reverse or repair. Second, the emergency nature of the situation produces support packages that tend to be uncertain. Moreover, the tranched and conditioned nature of the disbursements do not reverse the run by private sector creditors to the bad equilibrium. Third, for the same reason it is very difficult to implement effective private sector participation in a way that is not involuntary and counterproductive.

What is Wrong?

The analysis just presented suggests that serious distortions are present in international financial markets. These are behind the fact that flows are on average small, relative to the difference in capital-labor ratios and demographic trends in the world. They are also behind their unusually high volatility and co-movement. While much of the policy debate has assumed that the dominant distortion is moral hazard, the preponderance of the evidence suggests that other distortions are more binding.

The dominant view in industrial countries, as expressed among others in the Report of the Council on Foreign Relations and the G-7 Cologne communiqué is centered around concerns of moral hazard. Hence, it puts emphasis almost single-mindedly on measures to reduce moral hazard. Thus, it concentrates on policy initiatives such as better regulation and supervision of domestic banks to reduce moral hazard in banking; smaller rescue packages and more private sector involvement in them, to reduce the moral hazard caused by bailouts; floating exchange rate regimes to reduce implicit exchange rate guarantees that foster unhedged foreign currency borrowing. But supervision is not a solution to problems of commitment in credit markets. The elimination of rescue packages is likely to aggravate liquidity crises. Floating regimes in the context of original sin are likely to reduce unhedged foreign currency borrowing by reducing borrowing, leading to less mobilization of resources and less growth.

More broadly speaking, a single-minded focus on eliminating financial crises may well be achieved by eliminating finance altogether. A focus on eradicating surges in capital flows may lead to a dearth of capital mobility towards the developing world and forgoing the benefits of financial integration at a time when demographic trends would justify increased capital mobility. The challenge then is not just stability but stable growth and development.

Eduardo Fernández-Arias is Lead Research Economist at the Inter-American Development Bank; Ricardo Hausmann is the Chief Economist of the Inter-American Development Bank.

References

Bayoumi, T. 1997. Financial Integration and Economic Activity. Manchester: Manchester University Press.

Bayoumi, T., and A. Rose. 1993. Domestic Saving and Intra-National Capital. *European Economic Review* 37, pp. 1197-1202.

Buiter, W., and A. Sibert. 1999. UDROP: A small Contribution to the New International Financial Architecture, unpublished manuscript, University of Cambridge and Birkbeck College, University of London.

Bulow, J., and K. Rogoff. 1989. Sovereign Debt: Is to Forgive to Forget? *American Economic Review* 79: 43–50.

Calvo, G. 1998. Capital Market Contagion and Recession, An Explanation of the Russian Virus, September 30, 1998. University of Maryland.

Calvo, G., and E. Fernández-Arias. 1998. The New Features of Financial Crisis in Emerging Markets. Presented at Conference on Crisis and Contagion in Emerging Financial Markets: The New Policy Agenda, October, 1998, Washinghton, D.C. Inter-American Development Bank.

Chang, R., and A. Velasco. 1998. The Asian Liquidity Crisis. NBER Working Paper No. 6796 (November). Cambridge, MA: National Bureau doe Economic Resesarch.

Corsetti, G., P. Pesenti., and N. Roubini. 1998. Paper Tigers? A Preliminary Assesment of the Asian Crisis. Mimeograph. Yale University, Princeton University, and New York University.

De Long, J.B. 1999. Financial Crises in the 1890s and 1990s: We Remember History: Why Are We Still Condemned to Repeat it?, September 1999.

Dooley, M.. 1997. A Model of Crisis in Emerging Markets. NBER Working Paper No. 6300 (December). Cambridge, MA: National Bureau for Economic Research.

Eichengreen, B., and R. Hausmann. 1999. Exchange Rates and Financial Fragility. Paper presented at the Federal Reserve Bank of Kansas City's Conference, September 1999.

Feldstein, M. 1998 Refocusing the IMF. Foreign Affairs, March 1998.

Feldstein, M., and C. Horioka. 1980. Domestic Savings and International Capital Flows. *Economic Journal* 90 (June):314–29.

Fernández-Arias E., and D. Lombardo. 1998a. Private Overborrowing in Undistorted Markets. Working Paper 369. Washington, D.C.: Inter-American Development Bank.

———. 1998b. Market Discipline and Exuberant Foreign Borrowing. Paper presented at symposium, Banking, Financial Integration, and Macroeconomic Stability. Second Annual Conference of the Central Bank of Chile, September 1998.

Fernández-Arias E., and R. Hausmann. 1999. Getting it Right :What to Reform in International Financial Markets. Mimeo. OECD-IDB Conference, Paris, November 1999.

Fernández-Arias E.and R., Rigobon. 1998. Financial Contagion in Emerging Markets. Working Paper. Inter-American Development Bank.

Hausmann, R. 1995. On the Road to Deeper Integration with the North. *Crecimiento Economico*: 221–254.

Hausmann, R. 1999. Exchange Rate Arrangements for the New Architecture. Mimeo. OECD-IDB Conference, Paris, November 1999.

Inter-American Development Bank (IDB). 1996. *Economic and Social Progress 1996. Part II*. Washington, D.C.: IDB.

———. 1997. *Economic and Social Progress 1997. Part II*. Washington, D.C.: IDB.

———. 1998. *Economic and Social Progress 1998. Chapter 7*. Washington, D.C.: IDB.

Jappelli, T., and M. Pagano. 1998. Information Sharing in Credit Markets: International Evidence. Unpublished paper.

Krugman P. 1998. What Happened in Asia. Unpublished paper. MIT.

———. 1999. Balance Sheet, the Transfer Problem, and Financial Crises. Paper presented at the IMF Conference in Celebration of the Contribution of Robert Flood, January 1999, Washington D.C.

La Porta, R., and F. Lopez-de-Silanes. 1998. Creditor Rights. Unpublished paper. Harvard University.

Mishkin, F. 1996. Understanding Financial Crises: A Developing country Perspective, in Michael Bruno and Boris Pleskovic(eds). Annual World Bank Conference on Development Economics 1996, Washington, D.C., pp.29-62.

Obstfeld, M. 1998. The Global Capital Market: Benefactor of Menace?. *Journal of Economic Perspectives* 12, pp.9-30

Rodrik, D. 1998. Who Needs Capital Account Liberalization? In *Should the IMF Pursue Capital Account Convertibility*? ed., Peter B. Kenen. Essays in International Finance No. 207 (January). Princeton, NJ: International Finance Section, Department of Economics, Princeton University.

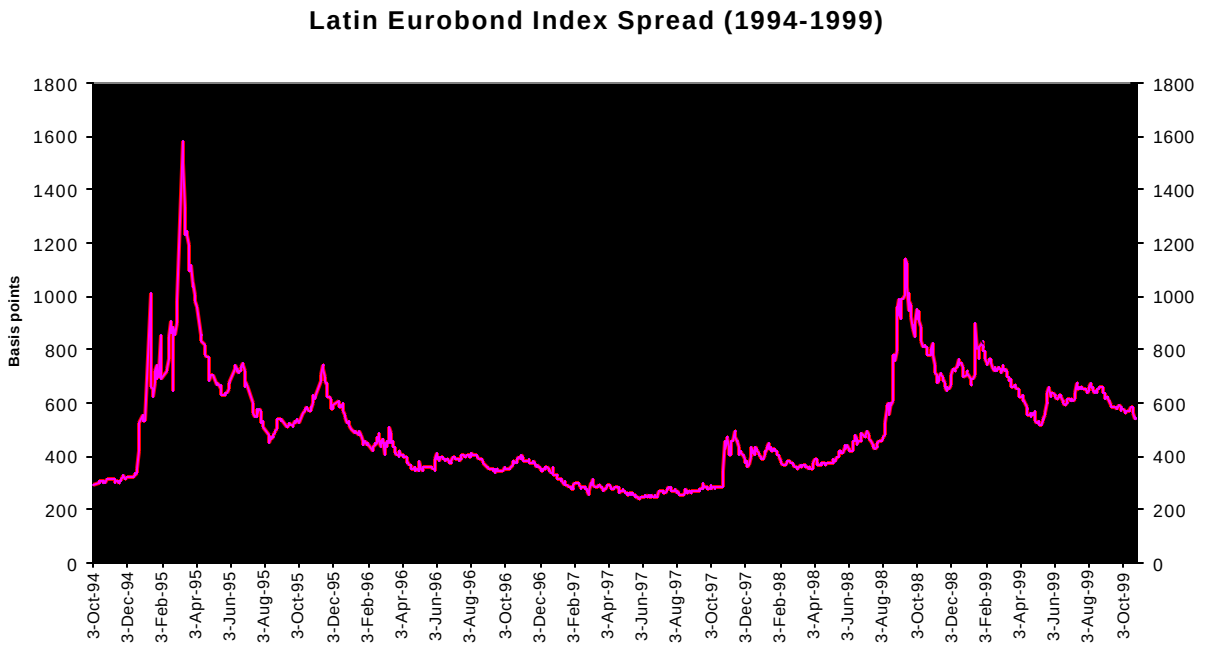
Sachs, J. 1998. The IMF and the Asian Flu. American Prospect 37(April/May), pp.16-21

Table 1 Structure of Debt Owed to BIS Reporting Banks 1998 (%)

	Banks	Gov't	Nonbanks	Short-term	Long-term
ALL COUNTRIES	35.34	14.34	49.51	52.43	47.57
DEVELOPED COUNTRY	39.60	13.83	46.30	54.19	45.81
Australia	41.72	7.18	50.86	55.03	44.97
Portugal	59.84	8.08	31.66	65.87	34.13
EASTERN EUROPE	44.83	14.43	40.52	49.07	50.93
Czech Republic	53.87	6.09	39.82	56.15	43.85
Poland	35.79	22.78	41.23	42.92	57.08
DEVELOPING COUNTRIES	31.76	14.91	53.20	54.58	45.42
LATIN AMERICA	23.71	20.13	55.90	55.22	44.78
Argentina	18.19	19.34	62.45	57.38	42.62
Brazil	31.34	17.48	51.01	63.12	36.88
Chile	15.08	7.06	77.38	45.51	54.49
Colombia	25.63	20.93	53.44	39.06	60.94
Mexico	18.64	29.22	52.04	44.81	55.19
Peru	34.23	5.51	60.26	77.31	22.69
Venezuela	10.27	40.77	48.89	39.81	60.19
ASIA	37.00	9.04	53.90	53.03	46.97
Indonesia	13.69	15.65	70.66	54.07	45.93
Korea South	56.57	6.75	36.58	45.08	54.92
Malaysia	30.79	6.62	62.47	48.21	51.79
Philippines	45.05	12.61	42.31	56.39	43.61
Thailand	26.09	4.29	69.60	59.26	40.74
Hong Kong	53.70	0.72	45.01	75.23	24.77

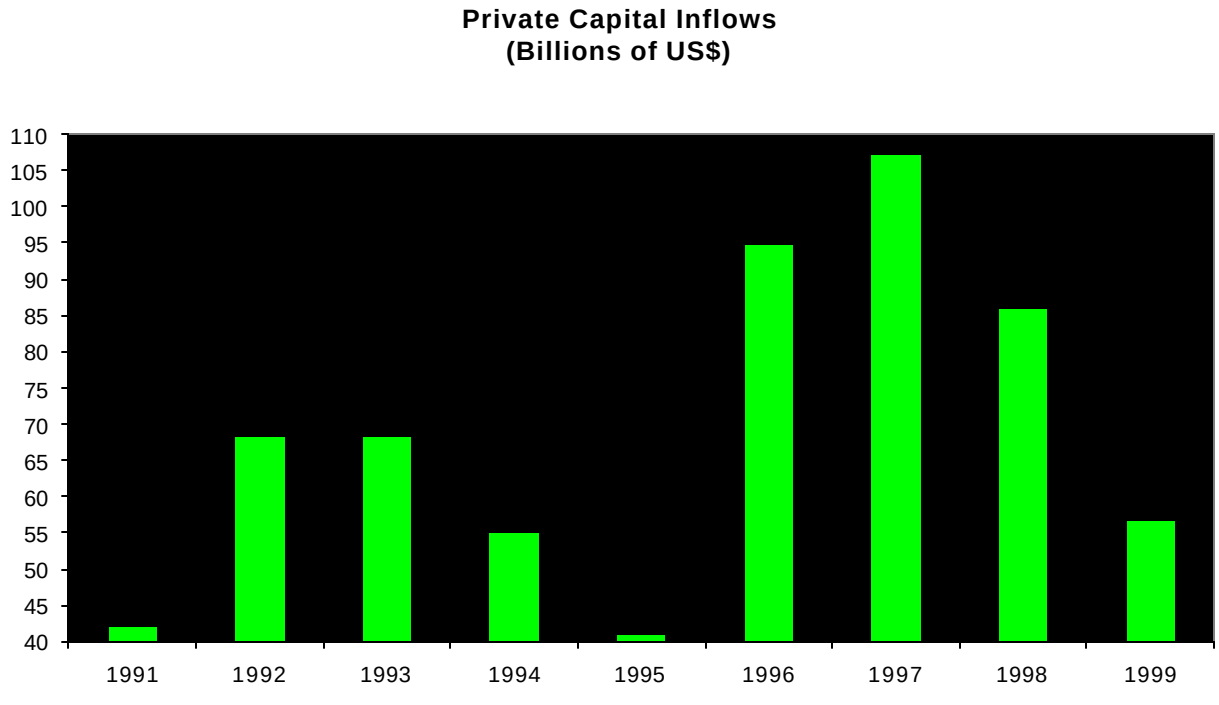
Source: BIS Consolidated International Banking Statistics.
From Eichangreen and Hausmann, (1999)

Figure 1



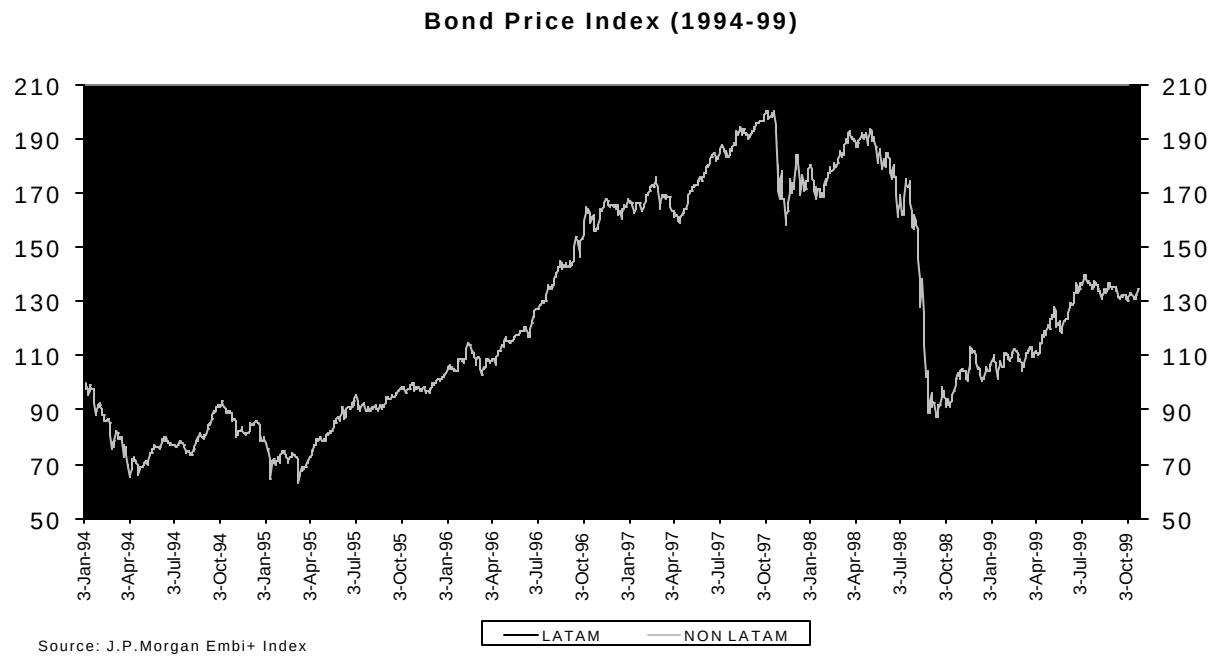
Source: J.P. Morgan

Figure 2



Source: IMF

Figure 3



Source: J.P.Morgan Embi+ Index

Figure 4

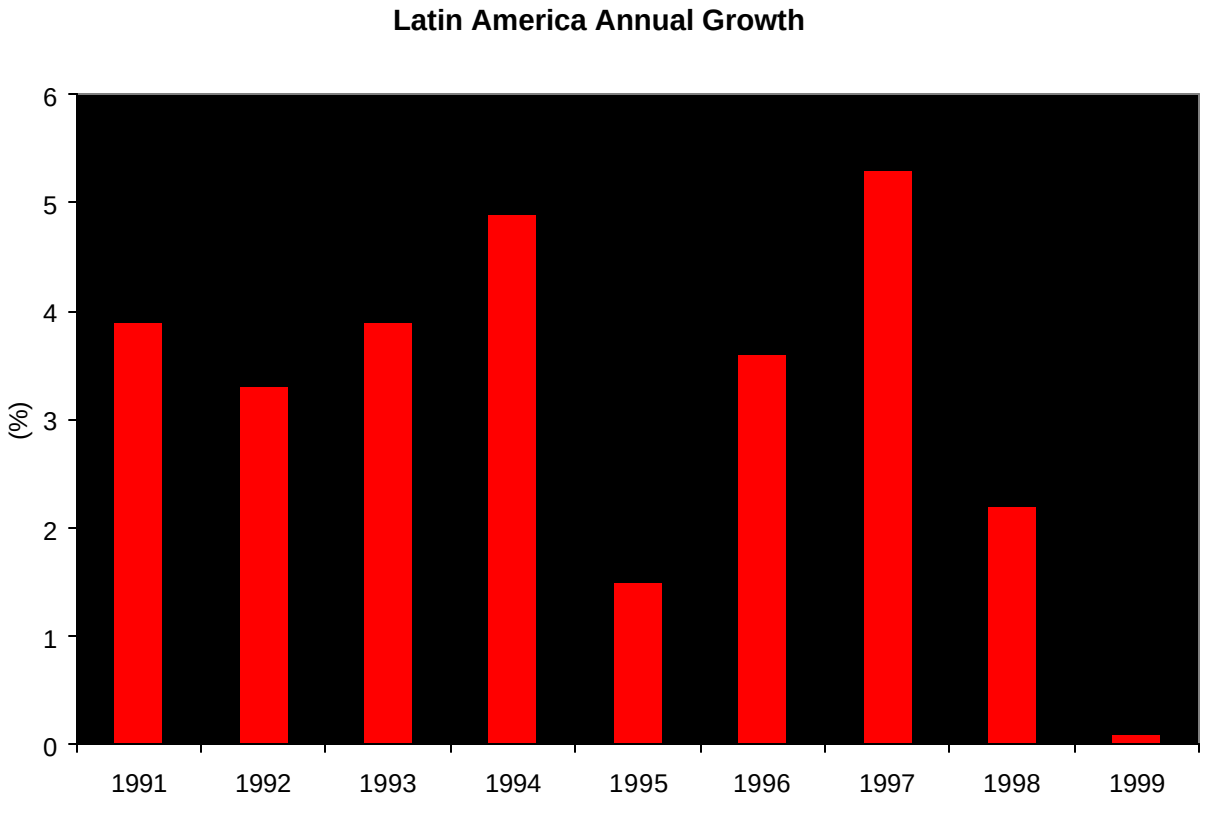
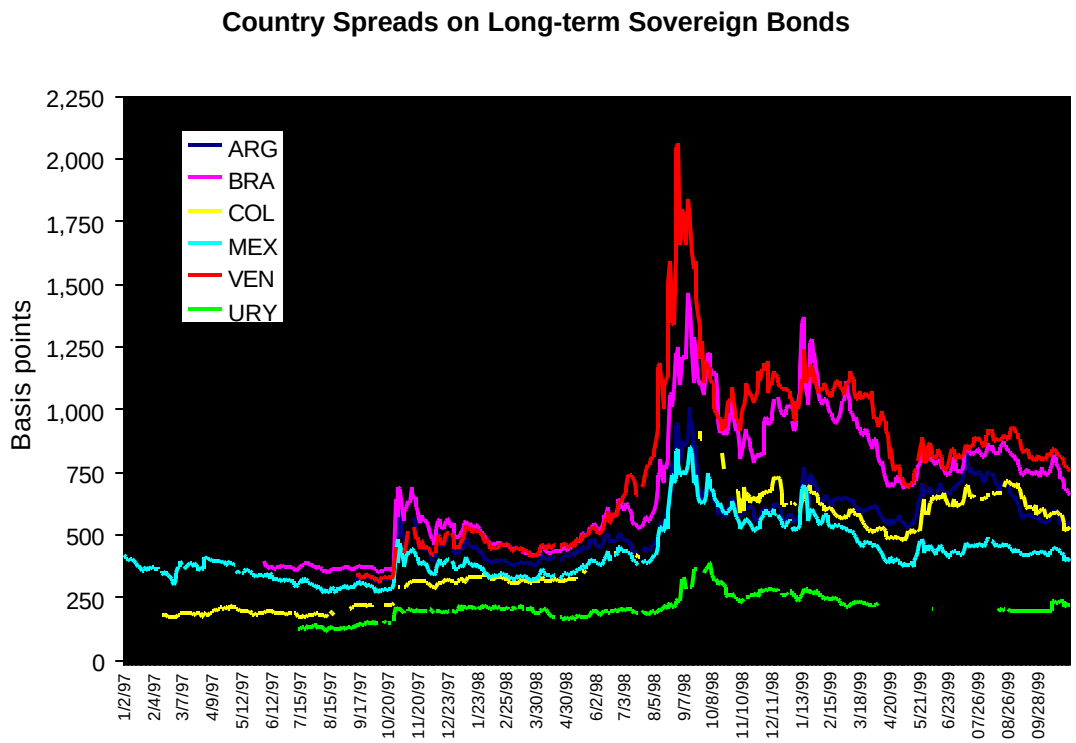


Figure 5


Country Spreads on Long-term Sovereign Bonds
Basis points
2,250
2,000
1,750
1,500
1,250
1,000
750
500
250
0
ARG
BRA
COL
MEX
VEN
URY
1/2/97
2/4/97
3/7/97
4/9/97
5/12/97
6/12/97
7/15/97
8/15/97
9/17/97
10/20/97
11/20/97
12/23/97
1/23/98
2/25/98
3/30/98
4/30/98
6/2/98
7/3/98
8/5/98
9/7/98
10/8/98
11/10/98
12/11/98
1/13/99
2/15/99
3/18/99
4/20/99
5/21/99
6/23/99
07/26/99
08/26/99
09/28/99