

## **CAPITAL FLOWS TO LATIN AMERICA: NEW ISSUES AND OLD CONCERNS**

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The world is entering its first global recession since the early 1970s. Growth prospects were already weak during the first months of 2001, but the events of September 11 destroyed any hope of escaping a global recession. The most recent estimates from the International Monetary Fund predict that during 2001 and 2002, world output will grow at a rate of 2.4 percent. The growth rate of the advanced economies will be below 1 percent, and Latin America will have a growth rate well below 2 percent. The world slowdown will be particularly painful for countries that export commodities and rely on external financing.

The outlook is particularly bad for Latin America, which is facing a deterioration of its external financing conditions and weaker demand for its goods and services (especially commodities and tourism). These external factors, coupled with internal problems in some countries, are putting great pressure on the region's ability to grow, necessitating a severe fiscal adjustment. This climate is particularly worrisome because it may have severe implications for the welfare of the region in both the short run and long run. In the short run, the crisis is likely to increase poverty and severely impact the most vulnerable groups of the population. In the long run, the economic crisis will generate social discontent and may put in jeopardy the process of structural reforms that the region has painstakingly implemented during the last decade.

Since mid-1997, Latin America has experienced a succession of severe adverse shocks. Export prices deteriorated significantly in the aftermath of the Asian crisis. Compared with the second quarter of 1997, terms of trade in non-oil exporting countries, such as Chile and Peru, dropped by approximately 20 percent. While until recently, oil-exporting countries were benefiting from the high price of oil, since September 2001 oil prices also started declining.

The Russian crisis (and the other crises that followed, e.g., Brazil, Turkey, and Argentina) led to a significant and persistent rise in the cost of capital for emerging markets in general and an even greater increase for Latin America. Interest rates spreads for Latin American countries went from 260 basis points in the quarter preceding the Asian crisis to 800 basis points in the current quarter. The dramatic rise in the cost of capital was associated with a severe drought in capital inflows to the region. Total flows to the seven largest Latin American

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<sup>1</sup> The views and interpretations in this document are those of the authors and should not be attributed to the Inter-American Development Bank or to any individual acting on its behalf.

economies (which represent close to 90 percent of the region's gross domestic product [GDP]) dropped by about half between mid-1998 and mid-2001. Portfolio flows virtually disappeared, falling from \$49 billion in 1998 to their current level of 1 billion. Even foreign direct investment (FDI), which held up well in the aftermath of the Russian crisis, has leveled off and receded from a peak of \$72 billion in the third quarter of 1999 to the current \$57 billion. The drought in capital flows was widespread, even affecting countries with sound macroeconomic fundamentals and a solid track record of reform, such as Chile.

The double whammy of lower GDP growth and higher financing costs had a large negative impact on fiscal balances. The fiscal deficits of the largest seven Latin American countries deteriorated by an average of 2.8 percent of GDP between mid-1997 and the end of 1999. Although the situation improved during 2000, the deterioration is still significant and was quickly reflected in a rapid increase in public debt levels (10 percent of GDP on average) that, in many cases, such as in Argentina, reached levels that proved unsustainable.

This paper starts by analyzing the impact of external factors on the growth performance of Latin America and investigates in depth the financial channels that link Latin America to the rest of the world (section 2). Next, the paper describes the evolution of capital flows to Latin America during the 1990s and discusses alternative explanations for financial crises that have characterized the second half of the decade (section 3). Finally, the paper provides a short analysis of what is wrong with the international financial system and provides some suggestion for reforming the international financial architecture (section 4).

### **Growth in Latin America: The Importance of External Factors**

Perhaps the most salient characteristic of growth performance in Latin America is the remarkable importance of external factors. Whether the region regains its growth momentum previous to the recent downturn—in 1997 Latin America displayed its fastest growth since the early 1970s—crucially depends on when, if at all, the international environment upset by recent financial turmoil returns to normal. The following analysis focuses on this critical factor of growth performance.<sup>2</sup>

Since most external factors affecting Latin America are common across countries in the region (although an important exception is the price of specific export commodities), the importance of external factors can be gauged by looking at the common features of the performance of individual countries.<sup>3</sup>

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<sup>2</sup> This is not to deny that domestic factors play a key role in Latin American economic growth and that recent structural reform in Latin America has yielded substantial and sustainable growth dividends (see Fernández-Arias and Montiel 1997 for research that brings out this conclusion). However, external factors remain dominant at this juncture.

<sup>3</sup> This approach has been intensively used to analyze financial phenomena in both quantity and price dimensions. For example, it was used by Calvo et al. (1993) to study the role of external factors in the surge of capital inflows in the early 1990s, and it was also the methodological basis of Fernández-Arias and Rigobon (1998) in their study of international financial contagion in spreads and returns.

The evolution of economic growth in Latin America follows a consistent pattern across countries, which suggests that common factors external to the region are very important for growth. The growth rates in individual countries have a very large degree of comovement, i.e., they tend to go up and down together. As a result, the simple average of country growth rates over time exhibits ample swings, significantly deviating from the stable growth rate that would be expected if they were uncorrelated. The changes in the average growth over time, shown in Chart 1, are significant and explain a large portion of the variation in growth changes of individual countries (they reduce or “explain” about one-fourth of the overall variation). In fact, this is one major reason why the overall variation of growth rates over time, or growth rate volatility, is so large in Latin America (see Inter-American Development Bank 1995).

If the magnitude of the common external shock is measured by the change in average growth, it is possible to estimate the proportion of this common impulse that is transmitted into each country’s growth.<sup>4</sup> Table 1 shows that countries differ in the degree to which they are sensitive to external factors, but within a limited range.

One implication of the importance of external factors for growth performance in Latin America is that prospects need to be analyzed with an emphasis on the likely evolution of the external environment, which is the main focus of this paper. However, external does not necessarily mean exogenous and/or insensitive to domestic policy. First, the degree to which external factors affect economies depends on domestic policies. Second, many important external factors can be dealt with through international cooperation on trade (e.g., trade agreements) and finance. In fact, many important external financial factors are now under discussion under the rubric of international financial architecture and are amenable to policy intervention at the international level.

**Channels of Transmission.** There are various channels through which external factors originated in developed countries, especially the United States, are relevant to Latin American growth.<sup>5</sup> Business cycles in developed countries affect growth in emerging markets through at least three channels (Table 2). 1) Trade channels: A slowdown in a large developed economy has adverse consequences on its trading partners to the extent that the demand for imports in the decelerating economy has positive income elasticity. The higher the elasticity and the share of exports of the country that are funneled to the country experiencing the economic downturn, the more negative the consequences. 2) Relative price channels: A slowdown in a developed economy tends to reduce demand and prices for commodities that are often the main export of most emerging market countries. This reduction generates an adverse terms of trade shock that has negative consequences on the economic performance of commodity exporters. 3) Financial channels: A slowdown in developed countries affects the quantity and the price of external

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<sup>4</sup> Strictly speaking, the change in average growth of the rest of the countries. This may lead to overestimation in the case of large countries exerting measurable influence on the rest of the countries, which may explain why Brazil appears as the most sensitive country of all.

<sup>5</sup> This section heavily draws from Calvo, Fernández-Arias, Reinhart, and Talvi (2001).

financing available to emerging market countries. As this paper focuses on capital flows, the discussion below focuses on financial channels.

**The Importance of External Financing.** The evolution of external financing is important because growth is closely associated with the magnitude of the net flows of capital into the region (see Chart 2). In fact, regional output growth and private net flows, measured as a proportion of GDP, are positively correlated (34 percent). The notorious volatility of these net flows is associated with the high growth volatility of the region.<sup>6</sup>

Why is this so? A large net influx of capital from abroad allows economies to finance large current account deficits (without depleting limited reserves) and therefore to invest domestically beyond their national savings.<sup>7</sup> The typical macroeconomic outcome is that larger net flows of capital are associated with larger current account deficits, greater investment, and lower savings. Usually, the effect of net capital flows on the current account, and hence on the real exchange rate, is partially offset by variations in international reserves (an analysis of these and other macroeconomic relationships can be found in Calvo et al. 1993)

The previous line of reasoning tells only part of the story. When access to capital markets is closed, which happens with distressing frequency in Latin America, the collapse of real activity is dramatic. The collapse caused by a sudden swing in the level of the capital account, or “sudden stop,” sets in motion a destructive process in the real economy as credit dries up throughout the economy and production is strangled (see Calvo and Reinhart 2000a for a detailed analysis). The drastic growth slowdown and recession that followed “sudden stops” in net capital flows (e.g., after the 1982 debt crisis and after the 1998 Russian crisis) are apparent in Chart 2. The difference in average growth between years with open access to financial markets and with closed access to them is more than 2 percentage points.<sup>8</sup>

Our econometric analysis, based on pooled information from Latin American country experiences over the last thirty years on the quantitative relationship between capital flows and domestic economic activity, confirms the importance of these linkages (see Table 3). We found that an increase in private net capital flows of 1 percentage point in GDP would typically raise investment almost one for one (86 percent), thereby depressing savings only slightly, and accelerate growth by almost half a percentage point (39 percent).<sup>9</sup> Nevertheless, growth in

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<sup>6</sup> The standard deviation of the private net flow series amounts to almost one point of GDP, comparable to its average level. However, this relationship should not necessarily be interpreted as a causal relationship; the opposite direction of causation may predominate.

<sup>7</sup> There is, of course, no guarantee that larger investment will be efficiently applied or capacity well utilized, especially when used to finance public sector deficits, but the association between capital net flows and growth suggests that this has not been a major problem.

<sup>8</sup> Access periods are 1975 to 1981 and 1990 to 1997.

<sup>9</sup> In this econometric exercise, dollar GDP is valued at purchasing power parity (PPP) terms and is therefore less than GDP in nominal dollars. Therefore the previous results apply to capital flows of about one and one-half points of GDP as customarily measured.

periods of closed access to external financing is even slower than what the decline in external financing would account for in this estimation, by about 1 percentage point.<sup>10</sup>

The availability of external finance also plays a critical role as an insurance device against adverse economic shocks. For example, it may allow consumption and investment levels to be maintained in the face of natural disasters. The ability to finance negative shocks to export prices is also key to maintaining equilibrium in the balance of payments, which may otherwise be translated into lower investment and growth. As is well known, Latin America faces very volatile international terms of trade and export prices (see IDB 1995). The ability to finance these negative shocks is very important in compensating for the absence of explicit insurance mechanisms for these key prices and the lack of export diversification in Latin America.

The worst scenario is when negative external shocks, such as deterioration in commodity export prices, coincide with lack of access to external financing. This happened in the second half of the 1990s when the sharp decline in commodity prices that began with the Asian crises of 1997 coincided with the drying up of external financing that followed the Russian crisis of 1998 (see Chart 3). Unfortunately, this kind of “double whammy” is not coincidental. Deteriorating price conditions worsen country creditworthiness and thus impede access to financial markets. This perverse feature of low creditworthiness makes lack of export diversification extremely costly and heightens the fragility of Latin America’s economic activity.

### **External Financing in the 1990s**

External factors have played a key role in the availability of external financing. For example, negative real interest rates in the 1970s set in motion commercial bank lending to Latin America in the mid-1970s, and high interest rates and recession in the United States precipitated the debt crisis of 1982. The surge of capital inflows in the 1990s was no exception. Calvo et al. (1993) show that capital inflows were closely associated with a combination of lower U.S. interest rates, stock market and real estate returns, and economic activity. While the business cycle in the developed world is important for capital flow to emerging market countries, its impact is far from being straightforward because it depends on an income and a substitution effect that move capital flows in opposite directions. In particular, during periods of economic expansion, investors in source countries have higher earnings with which to invest at home and abroad (income effect). However, if growth rates are positively correlated to rates of return on investment, growth slowdowns may translate into a “push” factor expelling capital flows to developed countries (substitution effect). This substitution effect is strengthened by the fact that developed countries tend to adopt countercyclical monetary policies, according to which central banks reduce interest rates during economic downturns and increase them when signs of overheating develop.

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<sup>10</sup> Investment also shows a similar extra decline in no-access periods, but of a much smaller relative magnitude (a small change in the investment ratio), which suggests that periods of closed access to financing lead to an inefficient allocation of the scarce finance available.

We now focus on changing financial conditions during the past decade by examining capital flows in terms of both volume and composition, and their price in terms of bond spreads. We show that emerging countries' capital markets went through a "roller-coaster ride" with bond spreads ratcheting up at every turn since the Asian crisis of 1997.

**The New Wave of Capital Inflows.** Latin America saw a strong revival of capital inflows starting in 1990 after a long period of external financing constraints during the debt crisis of the 1980s. With only a brief interruption around the Mexican crisis in 1994 to 1995, this resurgence continued to increase until the Russian crisis in 1998 (see Chart 4). This outbreak was even more pronounced in the rest of the emerging markets starting in 1989. This phenomenon can be observed with remarkable similarity across countries in the region (see Calvo et al. 1993), and the universality of this new wave of capital inflows suggests that its root cause must lie in developments in central rather than peripheral countries.

This new wave of inflows to the region was not unprecedented. As shown in Charts 4 and 5, at their peak, similar levels of net capital flows had been observed in 1981, although at that time they proved to be short lived and unsustainable. Interestingly, inflows are also not unprecedented in the fast-growing Asian crisis countries when capital flows are measured in relation to the size of the host economies.

However, the new wave of capital flows to Latin America in the 1990s exhibited a different composition. Its most striking feature was the great importance of previously negligible portfolio flows, both of debt and equity (see Chart 6).<sup>11</sup> At the same time, bank borrowing was negligible or even negative, in contrast with the experience in other emerging markets, including the Asian crisis countries (see Chart 7).

FDI exhibits extremely high growth over the decade, but this feature is not specific to Latin America. The explosive path that FDI followed in the region in this decade is comparable to that in emerging markets overall (see Chart 8) and also qualitatively similar to that observed in industrial countries in the same period. In recent years FDI has represented almost 100 percent of overall net capital inflows, but this situation is likely to change if and when conditions for debt financing normalize (see Hausmann and Fernández-Arias 2000).

Why did Latin America experience the new wave of financing of the 1990s? How can the observations above be explained? One clue is given in Calvo et al. (1993) and subsequent studies, which show that developments in the center, and especially the decline of U.S. interest rates, bear a very close association with the surge of capital inflows in Latin America in the period. More generally, Montiel and Reinhart (1999) confirmed the importance of world interest rates for debt flows to emerging markets. Nevertheless, a complete explanation of the experience needs to account for the fact that Latin America was not considered creditworthy as late as 1989, just prior to the inflow surge. As Fernández-Arias (1995) pointed out, the expected elimination of the debt overhang through the Brady plan, designed in 1989, combined with the creditworthiness "push"

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<sup>11</sup> However, in the second half of the 1990s, as analyzed below, portfolio flows largely dried up.

provided by subsequent lower interest rates, may have done the trick of devolving substantial market access to the region.

Still, why is it that Latin America received mainly portfolio flows while other emerging markets, such as the Asian crisis countries, received mainly bank loans? An interesting hypothesis that has been advanced is that the creation of a secondary market for sovereign bonds in Latin America as a result of the Brady bond exchange may have been a relevant factor. An unexpected silver lining of the Brady debt reduction, which mostly focused on Latin America, was the creation for the first time of a mass of long-term bonds that needed to be managed and traded. The creation of this market allowed high-risk portfolios to include Latin American risk and made it worthwhile to invest in acquiring information about Latin American markets, which raised investors' interest in the region.<sup>12</sup>

**The Second Half of the 1990s: Financial Crises and Contagion.** Another important characteristic of capital inflows in the 1990s was that funds were largely directed to the private sector. By contrast, in the previous inflow episode that led to the debt crisis, external financing was mostly directed toward financing public sector deficits. Initially, this break with the past was seen as insurance against balance of payments crises, because it was expected that the corporate sector knew what it was doing. For this reason, the Mexican crisis of late 1994 came as a surprise to many.

The new features of the Mexican crisis were linked to the bonded nature of the new capital inflows. The refusal of bondholders to roll over short-term public bonds led to Mexico's inability to come up with the resources to pay on such short notice. The key lesson from this experience was that countries were financially more fragile than previously thought: even if their long-term capacity to pay was sufficient to cover obligations, they could be rendered insolvent if a critical mass of investors exited at once. In this situation, foreign investors could rationally refuse to lend, and a (self-fulfilling) crisis would ensue. Thus, liquidity crises were shown to be a distinct possibility for sovereigns.

Financial contagion was felt throughout Latin America and beyond in bond spreads and other financial indicators, and for a period many countries lost market access. The international official sector reacted quickly by putting together for the first time a large rescue package. Financial contagion disappeared in a few months, Mexico adjusted deeply but quickly recovered, the rescue package was repaid, investors came back, and the episode was brushed aside as an anomaly.

The second crisis episode was the string of Asian crises of 1997 in Indonesia, Korea, Malaysia, the Philippines, and Thailand. These crises hit some of the high-growth, high-savings emerging markets considered the best risks at the time. It became apparent that liquidity crises were also a possibility in the case of bank lending, whether intermediated through the domestic banking system or directly allocated to local firms. Some observers have argued that the Asian crisis was provoked by the presence of public sector guarantees, strengthened by the Mexican

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<sup>12</sup> The subsequent creation of secondary bond markets across emerging markets may have diluted this initial advantage as a portfolio opportunity by contributing to the establishment of an emerging market "investment class."

bailout. However, the evidence does not support the view that moral hazard played an important role (Eichengreen and Hausmann 1999). The main lesson, once again, is that liquidity crises are a real danger and that policy ought to focus on the fragility of the financial system (Calvo and Fernández-Arias 2000).

As expected, the Asian crises hit Latin America through trade channels, depressing export commodity prices. What was not expected was the significant financial contagion in bond spreads: the Latin American bond spread index increased by about 200 basis points in October 1997. In fact, over half of the jump was recovered over the following few months; by the end of July 1998, just prior to the Russian crisis, it had already returned to its peak level (see Chart 9).

The biggest surprise for Latin America was the aftermath of the Russian default in August 1998. Russia is a country with very little real linkage with Latin America, and it represents less than 1 percent of world output. And yet, the financial contagion shock wave was enormous, similar to that felt in the aftermath of the Mexican crisis in 1995. The Latin American bond spread index jumped by 700 basis points to more than 1,100 points. The (unweighted) average spread on long-term bonds of the four largest Latin American economies soared even higher (see Chart 9). The corresponding Loss Equivalent Fraction (LEF), equal to the fraction of the contractual value of the bond that would not be expected to be recovered in a fair contract,<sup>13</sup> skyrocketed to 60 percent and has remained consistently above 40 percent!

Two other characteristics of contagion are worth noting in order to understand its nature. First, it was widespread across countries (and regions, too), which points to a common factor beyond the real economy. For example, witness the sensitivity to contagion of various countries in the three crisis episodes of the 1990s shown in Chart 10. Second, while the implied absolute valuations of spreads are difficult to rationalize in terms of risk of default because they suddenly become so large, the relative valuations across countries remained unchanged, which suggests that the market rationally discriminates (see Fernández-Arias and Rigobon 1998).

How does one make sense of these facts? The theory most consistent with all the evidence is that financial contagion was caused by weakness of the financial intermediaries investing in emerging markets. In the Russian crisis, accumulated losses and high leverage led to a liquidity crunch, forcing a sell-off of emerging country paper across the board at fire-sale prices (see Calvo 1998 for an analysis). This explanation is consistent with the fact that the cross-country correlation of bond returns increases during bad times (Fernández-Arias and Rigobon 1998; IMF 2001).

Furthermore, bond spreads showed a strong tendency to recover prior levels after each outbreak, as could be expected from a temporary market disequilibrium offering arbitrage opportunities. For example, by the end of 1998, only three months after the worst of the Russian crisis, risk spreads had recovered most of their losses (albeit helped by generous liquidity policies of industrial countries concerned with the health of their own financial institutions, such as Long

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<sup>13</sup> The expected present value of the contractual stream of payments would be paid in excess of its nominal value in the absence of default—and therefore would be expected to be unpaid in a fair contract.

Term Capital Management [LTCM]). The Brazilian devaluation of January 1999 was no more than a brief interruption of this process, which was again underway as early as March. This rapid recovery pattern was followed closely by individual countries. Yet, since mid-1999, spreads have not shown any consistent trend and recovery has not been completed in full. Similarly, the increase in risk spread in the second half of 1997 had not been offset by the time the Russian crisis hit. During 2000 spreads showed a general tendency toward deterioration. In sum, recovery was fast but limited. This tendency intensified in 2001.

Table 4 shows risk spreads and loss equivalent fractions (LEF) pre-Asian crises, pre-Russian crisis, and end-January 2001 for long-term sovereign bonds of Latin American countries. The table suggests that the developments associated with the Russian crisis and its aftermath are only half of the story. The question is what may be behind this ratcheting up of spreads, relative to the precrisis period of 1997, of almost 300 basis points on average for the big four (Argentina, Brazil, Mexico, and Venezuela), which persists even after factoring in the beneficial effect of U.S. Federal Reserve Board reductions of its rate by 100 points in January 2001. For the big four, on average, spreads increased by almost 300 basis points despite having tightened by 60 basis points in January 2001. The evolution of spreads in Asian crisis countries is not as clear due to unavailable information and because the direct effect of the unfolding of their own crises tends to dominate. Nevertheless, bond spreads in Asia are consistent with the same overall pattern. In particular, they exhibit a parallel deterioration over the course of the year 2000.

**Why Have Bond Spreads Ratcheted Up?** Fernández-Arias (1995) analyzed the channels through which lower international interest rates contributed to this new wave of capital inflows. The key insight is that the direct effect that international interest rates ( $r$ ) have on the cost of capital ( $i$ ) in any economy that is financially integrated into the world is only part of the story, and perhaps not the most important one in high-risk countries. In fact, there is also an indirect channel of influence by which international interest rates affect country creditworthiness, and therefore risk spreads ( $s$ ) and cost of capital. This unconventional channel, explained below, was shown to be very important in the period under study. For completeness, we now add a third, residual channel ( $x$ ) to capture other sources of variation, whose nature we will explore in the next section:

$$i = r + s$$

$$s = s(d, r, x),$$

where  $d$  is domestic fundamentals, traditionally measured with an indebtedness indicator (e.g., debt-to-GDP ratio) and  $x$  is an unknown third factor. In this formulation, the risk spread depends not only on traditional debt indicators relating external liabilities to resource bases (such as exports, GDP, or tax revenue), but also on the level of international interest rates, so that country creditworthiness also depends on external factors. In particular, a lower interest rate  $r$  leads to a lower spread  $s$  and reinforces the direct effect on cost of capital  $i$ , which is further reduced. The reason for this creditworthiness channel of transmission is that the country's capacity to pay

depends on the present value of future resources, which increases as the discount rate declines. In high-risk countries, i.e., countries with high-risk spreads, this indirect effect may be large and dominate the direct effect. In this sense, developing country bonds are like corporate high-risk bonds, whose spreads are very sensitive to the market value of the firm and could be subject to credit rationing.

On the basis of the spread equation above, in which the bond spread is a function of traditional indebtedness indicators (as a measure of capacity to pay) and of the international interest rate, we look at the evolution of these two variables in a first attempt at explaining the increase of spreads. Traditional debt indicators do not appear to explain the deterioration. Their small increase in 1998 to 1999 was brought down to precrisis levels by the end of 2000, which remain low by historical standards (e.g., prior to the Mexican crisis and to the new wave of capital inflows in 1990) and are bound to improve as real activity recovers (Chart 11). In particular, bond spreads deteriorated as indebtedness indicators improved during the course of 2000.<sup>14</sup>

Negative shocks to the value of the country's resource base increase the risk spread and the cost of capital (thus,  $s$  is an increasing function of  $d$ ). For example, as mentioned above, a decline in international terms of trade would have such an effect. The increase in Latin American sovereign risk spreads starting in 1997 can be interpreted in this way (see Chart 12).

Tables 5–7 show that financial condition in the United States may explain part of the story, but that this explanation does not go through a standard risk-free interest rate channel. First of all, we find no correlation between emerging market spread and short-term U.S. interest rates. If we consider the correlation between long-term U.S. rates and emerging market spreads we do find a positive between the emerging markets bond index and the index of ten-year U.S. rates. In particular, we find that a 1 percentage point increase in U.S. rates is associated with a 25 basis point increase in the EMBI spread of the following day. However, this correlation is far from being stable and disappears when we consider the 1999 to 2001 period (Table 7). We also find a negative (and robust across subperiods) correlation between U.S. stock market returns (S&P 500 and Nasdaq) and emerging market spreads and a positive correlation between U.S. high-yield bond spreads and emerging market spreads. These results indicate that, if we are interested in studying the behavior of spreads in emerging market bonds, the relevant interest rate may not be the risk-free U.S. rate. Returns on riskier assets (stock market return and volatility and high-yield U.S. bonds) are more important.

Tables 5–7 also suggest that, in the current environment characterized by low and volatile stock market returns and increasing high-yield spreads, the outlook for emerging market bonds is particularly gloomy. While terms of trade shock may explain the increase in spreads during 1997 and current U.S. conditions may explain the recent increase of spreads, neither of these channels can explain the increase in spreads that followed the Russian crisis. With the Russian crisis, in fact,

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<sup>14</sup> The indebtedness indices in Chart 11 were constructed on the basis of International Monetary Fund World Economic Outlook statistics for technical reasons, due to data availability and comparability over time. The use of traditional World Bank-based indebtedness indicators would reinforce the arguments.

spreads skyrocketed without any measurable change in the identified variables in the equation above. Therefore, the search for an explanation needs to focus on other factors for which the past is not a good guide. We attribute this change to the residual unknown  $x$ . What is the nature of  $x$ ? What caused this shift in the spread schedule? Either capacity to pay is not well measured by traditional debt stock indicators or spreads do not accurately reflect capacity to pay. We now consider three types of explanations based on the reassessment of the countries' prospects, on changes in the involvement of the official sector, and on problems in financial markets.

The most immediate explanation of bond spreads' ratcheting up is that the market perceives worse country prospects in Latin America.<sup>15</sup> Perhaps the cause is the expectation of a backlash against the structural reforms of the 1990s, which did deliver faster growth (Fernández-Arias and Montiel 1997) but failed to improve income distribution (IDB 1999). Alternatively, perhaps the growth gains of reform were shorter lived than previously thought and sustainable growth is being revised downward. However, while these hypotheses may have some validity, they do not correspond closely with the widespread nature of the increase in bond spreads since 2000. Not only did spreads increase in emerging countries in general, both inside and outside Latin America, but they also increased substantially in the U.S. corporate high-yield segment. This evidence suggests that some of the important underlying forces are unrelated to any reassessment of countries' prospects.

Alternatively, the issue of how the official sector involves itself in financial crises in emerging markets may be at the root of the increase in bond spreads. One such explanation was born after the International Monetary Fund (IMF) refused to rescue Russia and its default caused substantial losses to investors. This loss has been mentioned as a good reason why the market reassessed the risk of default in all other emerging markets, anticipating that they might not be rescued in the future. This argument is usually made in reference to the elimination of the moral hazard that official rescue packages would have provided before the Russian crisis, but such a linkage is unnecessary. Justified or not, less official support at time of crises, either because of a change in policy or because the necessary economic and political resources erode over time, implies higher private risk (for a given country's fundamentals). A variant of this explanation, upon which the private sector places substantial weight, is that the unpredictability of the rules of engagement of the official sector, more than their change, creates fear of an unnecessary or abusive private sector bail-in (private sector involvement, or PSI) and drives up the perception of risk.

This set of explanations rings true and could account for the widespread deterioration in financial conditions in emerging markets but, again, cannot account for the increase in junk bond spreads or other related phenomena in industrial countries. Furthermore, the extent to which it can be sustained in light of the actual experience of official intervention is uncertain. Even under the pessimistic expectation that the official sector will not be able to make its role more effective in the international financial architecture it is trying to design, the official sector has at least shown

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<sup>15</sup> At the outset, it is intuitively difficult to rationalize expected contractual losses of 50 percent, as shown in the LEF index in Chart 9, on the basis of the countries' payments records.

its readiness and ability to support fast recovery when economic fundamentals are satisfactory, as in Mexico or Korea. It is true that some of the perceptions of the new doctrine of PSI may have scared the market at times, but the emergency packages of Brazil, Turkey, and Argentina should have gone a long way toward counteracting such impressions.

Finally, there are explanations grounded in problems with financial markets. Country risk, or the probability of default, may have been reassessed simply because we have observed new and unexpected situations that may lead to crisis. Liquidity crises, for example, may appear more likely now. By increasing the cost of capital, contagion leads to less external financing (possibly to a sudden stop), less investment, and less growth. In turn, less growth leads to worsening capacity to pay and creditworthiness, which, by increasing risk spreads, reinforces the increase in the cost of capital that leads to a further deterioration of fundamentals and diminished creditworthiness. Latin America's high dependence on access to external financing makes this vicious circle especially powerful, to the point that it may lead to self-fulfilling crises, that is, crises in situations in which economic fundamentals would be consistent with normality. A sudden stop initially caused by panic, like a bank run, may have such a deleterious effect on fundamentals that, ex-post, it may justify panic. A "meeting of minds" among investors would therefore be rational. Short of that coordination of expectations, any imperfection leading to impediments to financing for a period of time will erode fundamentals and, if it is sufficiently prolonged, may also bring a self-fulfilling crisis in "slow motion." Schematically, this situation corresponds to the consideration of a feedback mechanism of the form  $d(s)$ , that is, domestic fundamentals considered not as a state variable but as substantially affected by financial conditions sufficiently strong as to give rise to more than one solution to the spread determination equation above. In this case, observed spreads would depend on the expected likelihood assigned to the possibility of the "bad equilibrium" in the future. The implication is that the imputed probability of default conditional on given economic fundamentals would be revised upward, thus leading to an apparently unjustified increase in spreads. Under this interpretation, financial globalization entails more risk than meets the eye under solvency considerations only, and traditional solvency-based creditworthiness indicators ought to be replaced by more comprehensive indicators encompassing overall financial fragility (see Calvo and Fernández-Arias 2000).

The collapse in bond prices due to international financial contagion is another mechanism by which bond spreads may increase for given countries' fundamentals. Even under the assumption that the phenomenon is temporary and the probability of default remains unaffected, bondholders anticipating the need to sell in bad times will demand higher spreads in return. Emerging country paper is extremely illiquid in bad times and consequently entails large capital losses to those forced to sell, which increases the market cost of country default and further distorts the traditional relationship between solvency indicators and spreads.

The large variability and correlation among emerging market bond spreads could also be a reason for a negative market reassessment of the portfolio value of these bonds to risk-averse investors. Higher spreads may have resulted not from considerations of default but from portfolio

risks associated with lower diversification value, which would imply that country spreads and LEFs depend not only on country default probabilities but also on how a country's bond returns fluctuate in relation to those in other markets. In fact, returns are highly correlated across countries in all emerging markets and even with junk bonds in industrial countries, which diminishes the portfolio value of emerging market bonds and demands a higher spread for any given default probability. The same is true with the correlation between emerging market spreads in Latin America and the U.S. Nasdaq stock index, which supports the view that all high-yield investments, including U.S. stocks, belong to the same class. In fact, it is tempting to think that investors specialized in high-yield investments contaminate all high-yield markets through contagion in the very attempt to hedge through diversification. The end result is to kill diversity.

### **Concluding Remarks: Reforming International Financial Architecture**

Most reforms announced and being put into practice are based on the premise that recent crises have resulted from excesses provoked by moral hazard. Moral hazard is caused by implicit government guarantees to the banking sector (or the private sector more generally) under conditions of poor domestic financial supervision.<sup>16</sup> Importantly, moral hazard is also generated by the official financial rescue packages designed to solve crises, which among other things provide the resources to make good on the governments' implicit guarantees. The net result of these packages is to bail out foreign private investors, who therefore face less risk than they should. Under this interpretation, market discipline cannot deliver because private returns are artificially inflated, exceeding true or social returns.

The implications of this moral hazard diagnosis are clear. First, improve international and domestic financial regulation, increasing the regulatory price of risk, including making certain standards part and parcel of regular official conditionality.<sup>17</sup> Second, reduce the scope and volume of IMF-led financial rescue packages. Third, involve foreign private investors in the resolution of crises ("bail in" the private sector) to make sure that they also take a hit and assume the true risk of their actions. Involving the private sector may be ex ante through the use of contracts that allow for easy rescheduling or renegotiation or ex post by forcing default on private claims during times of crisis as a condition for parallel official support.

These three implications are the basis of most of the announced reforms. The expected results are lower volumes of private financing after eliminating the excess due to moral hazard and, consequently, a drastically reduced risk of crisis. Private risks would go up, but that would be good because such a price would be the right price. External financing would go down, but that would be good because there is too much of it, which makes it unsustainable and crisis prone. This is, in fact, the conclusion if the moral hazard diagnosis is right. But is it? And what will

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<sup>16</sup> Another source of moral hazard could be implicit guarantees of exchange rate risk in the form of commitment to a peg.

<sup>17</sup> Implicitly, a recommendation to avoid exchange rate pegs also follows the diagnosis.

happen if it is not? (The following draws from Fernández-Arias and Hausmann 2000a and 2000b, to which readers are referred for further elaboration.)

The moral hazard diagnosis contradicts the view that most recent crises were unnecessary liquidity crises of the kind explained above. Eichengreen and Hausmann (1999) found that the composition of capital flows does not support the moral hazard hypothesis. The likelihood of the diagnosis being misguided is larger in Latin America, where the premises of weak banking systems built on weak supervision and regulation are much less credible. Moreover, the fact that rescue packages have been quickly repaid so far does not support the notion that “plumbers and carpenters” have lost much in these efforts, without which there is no subsidy and no moral hazard. Furthermore, the risks of a misdiagnosis apply not only to crises that may be left untreated to avoid creating moral hazard, but also to emerging markets in general; no specific measure is being considered to prevent or contain international financial contagion if a crisis does occur. The optimal balance between financial rescue and moral hazard in the new world financial order calls for more, rather than less, official sector involvement.

If moral hazard is not the main reason for crisis, then there is no guarantee that reforms designed under premise will yield any greater financial stability. In fact, the risk of crisis may very well increase. If the main drivers of crises are the limitations on enforcement imposed by sovereign risk or the faulty working of investment institutions, crises will still occur. If the new risks exposed by recent financial turmoil are considered—namely the pervasive risks of liquidity crises and of international financial contagion—then overall risk will be higher than before. Eliminating the sources of moral hazard, such as rescue packages to provide liquidity in a liquidity crisis, would have a positive effect only if moral hazard is an important distortion. If it is not, the loss of an effective instrument to deal with liquidity crises would lead to higher, not lower, risk. This additional risk would mean more and deeper crises, as the official sector would be prevented from acting so as not to generate moral hazard.

In summary, reforms inspired by the moral hazard diagnosis will certainly lead to lower flows but not necessarily to more stability. In fact, if the diagnosis is wrong, the risk of crisis may very well increase. If policymakers perceive this to be the case, they will need to think about how to adjust domestic policy to protect their countries from heightened exogenous risks that are not being dealt with globally. Interestingly, current principles of reform of the international architecture neither preclude nor discourage the application of capital controls. At the same time, if the market perception is also one of increased risk, flows may be much lower, possibly inhibiting growth.

An alternative diagnosis would focus on designing international institutions to address the risks of international private flows while controlling for moral hazard. This may require the establishment of an international lender of last resort, or a strengthened contingent credit line, and an international bankruptcy court able to discriminate among countries. An alternative diagnosis would also focus on enabling sovereigns to commit to repay by establishing monetary arrangements that eliminate or reduce the currency mismatch in external debt. The plan would also advocate reforming regulations on industrial countries’ flows to emerging markets in order to

eliminate regulatory-driven disruptions of flows and markets. Deeper economic integration among countries in the Western Hemisphere would make financial irresponsibility more costly and improve repayment commitment. More generally, the voluntary cession of sovereignty to endow international institutions with legal powers to regulate and remedy international financial transactions will in the long run be the basis for strengthening commitment to repay and effectively dealing with sovereign risk. If this alternative diagnosis is right, under these new institutions capital flows would be larger and also more stable.

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**Table 1: Country Sensitivity to Common Factors**

<b>Country</b>	<b>Sensitivity</b>
Brazil	1.36*
Ecuador	1.21*
Peru	1.11*
Guatemala	1.08*
Bolivia	0.97*
Argentina	0.95*
Venezuela	0.90*
Paraguay	0.88
Uruguay	0.87*
T&T	0.86
Costa Rica	0.78*
Dominican Republic	0.75*
Mexico	0.73*
El Salvador	0.71*
Honduras	0.66*
Colombia	0.59*
Chile	0.58
Panama	0.54
Haiti	0.53
Nicaragua	0.25

\*Significantly different from zero at the 95 percent confidence level

**Table 2: North-South Links**

<b>Type of shock</b>	<b>Transmission channel</b>	<b>Amplifiers</b>	<b>Expected growth consequences</b>
<b>The growth cycle: Low growth/recessions in the G-3</b>			
Income effects	Trade: Lower exports to G-3	High trade exposure High G-3 income elasticities	Negative
Relative price effects	Trade: Decline in the terms of trade for developing countries	High primary commodity content in exports High exposure to cyclical industries in exports	Negative
International capital flows	Finance: Higher bank lending to emerging markets but lower FDI	Large declines in the domestic demand for bank loans	Ambiguous
<b>The interest rate cycle: Low interest rates/monetary easings</b>			
International capital flows	Finance: Higher portfolio capital flows to emerging markets	Developed bond and equity markets. Large interest rate spreads. High interest sensitivity of flows.	Positive
Debt servicing	Finance: Lower cost	High levels of debt relative to reserves. Sensitive risk premia to international interest rates	Positive
Interest earnings	Finance: Declining interest income	High level of reserves relative to debt	Not obvious

Reproduced from Calvo, Fernandez-Arias, Reinhart, and Talvi (2001)

**Table 3: External Financing and Economic Activity in Latin America**

Dependent Variables	Independent variables			
	GDP growth rate		Investment rate	
Capital flows	0.389 (0.07)	0.361 (0.07)	0.864 (0.08)	0.834 (0.08)
Access to finance		1.00 (0.30)		1.00 (0.40)

Note: Standard errors in parentheses. Estimated using fixed effects, the panel includes twenty countries over twenty-nine years. Capital flows are measured as net private capital flows (percentage of GDP), and access to finance is a dummy variable taking the value of one for period 75–81 and 90–97 and zero otherwise.

**Table 4: Bond Spreads and Loss Equivalent Fraction (LEF)**

Date	(1) 30-Sep-97	(2) 31-Jul-98	(3) 31-Jan-01	(2)-(1) Change	(3)-(2) Change	(3)-(1) Overall Ch.
<b>LAC</b>						
<b>Spreads (bps)</b>						
Argentina	332	444	603	112	159	271
Brazil	371	565	673	194	108	302
Colombia	220	426	666	206	240	446
Mexico	296	401	366	105	-35	70
Uruguay	150	189	275	39	86	125
Venezuela	334	794	808	459	15	474
<b>LEF (%)</b>						
Argentina	30.5	38.7	46.7	8.2	8.0	16.2
Brazil	34.1	49.2	52.1	15.1	2.9	18.1
Colombia	20.2	37.1	51.6	16.9	14.5	31.4
Mexico	27.2	34.9	28.4	7.8	-6.6	1.2
Uruguay	13.8	16.4	21.3	2.7	4.9	7.5
Venezuela	30.7	69.1	62.6	38.4	-6.5	31.9
<b>ASIA</b>						
<b>Spreads (bps)</b>						
Indonesia	157	757	712	599	-44	555
Thailand	179	423	141	244	-282	-38
Philippines	n.a.	398	539	n.a.	141	n.a.
Korea	n.a.	433	212	n.a.	-220	n.a.
<b>LEF (%)</b>						
Indonesia	10.3	36.3	35.4	26.0	-1.0	25.0
Thailand	11.6	24.2	9.8	12.6	-14.4	-1.8
Philippines	n.a.	23.1	29.3	n.a.	6.2	n.a.
Korea	n.a.	24.6	14.0	n.a.	-10.6	n.a.

Note: Loss equivalent fraction (LEF) is the fraction of the contractual present value that would be expected not to be paid in a fair contract. Source: Bloomberg and own calculations.

**Table 5: Correlation between U.S. Variables and Emerging Market Spreads**  
**Daily Data January 1991 to September 2001**

	(1)	(2)	(3)	(4)	(5)	(6)
	D.embi	D.embi	D.embi	D.embi	D.embi	D.embi
D.us3mo	-7.075 (1.25)	-0.655 (0.14)				
LD.us3mo	1.545 (0.26)	8.400 (1.46)				
D.us10yr	19.765 (3.47)***		3.363 (0.77)			
LD.us10yr	18.433 (3.96)***		24.039 (5.19)***			
D.lnas	-62.417 (2.32)**			-113.913 (16.01)***		
D.lsep	-261.337 (5.99)***				-287.229 (17.48)***	
D.hi_spr	0.300 (9.05)***					0.174 (5.70)***
crish	130.351 (30.77)***	135.587 (39.24)***	136.363 (38.68)***	133.861 (36.88)***	131.647 (33.55)***	134.750 (39.22)***
crisisl	-117.638 (18.19)***	-119.181 (18.91)***	-120.025 (19.08)***	-103.023 (18.82)***	-103.638 (22.09)***	-121.506 (18.69)***
L.arch	0.089 (16.32)***	0.083 (16.12)***	0.084 (15.97)***	0.085 (16.39)***	0.085 (16.16)***	0.080 (16.30)***
L.garch	0.907 (197.27)***	0.911 (209.32)***	0.910 (198.75)***	0.910 (207.77)***	0.911 (205.03)***	0.914 (219.26)***
Constant	-0.778 (2.84)***	3.665 (3.68)***	3.655 (10.20)***	3.452 (3.63)***	-0.898 (3.28)***	-1.013 (9.84)***
Constant	3.146 (8.98)***	-1.039 (10.67)***	-0.970 (3.45)***	-1.008 (10.81)***	3.131 (9.71)***	3.430 (3.60)***
Observations	2770	2784	2784	2785	2785	2771

Note: OPG z-statistics in parentheses, \* significant at 10 percent; \*\* significant at 5 percent; \*\*\* significant at 1 percent

**Table 6: Correlation between U.S. Variables and Emerging Market Spreads**  
**Daily Data January 1995 to September 2001**

	(1)	(2)	(3)	(4)	(5)	(6)
	D.embi	D.embi	D.embi	D.embi	D.embi	D.embi
D.us3mo	-1.234 (0.19)	6.359 (1.20)				
LD.us3mo	5.551 (0.92)	12.081 (1.92)*				
D.us10yr	33.105 (4.27)***		4.757 (1.01)			
LD.us10yr	16.310 (3.31)***		26.879 (5.36)***			
D.lnas	-55.172 (2.15)**			-123.251 (13.13)***		
D.lsep	-298.150 (7.11)***				-318.841 (17.12)***	
D.hi_spr	0.511 (6.48)***					0.275 (5.74)***
crisish	153.219 (34.92)***	157.377 (38.58)***	158.709 (39.44)***	155.267 (38.88)***	154.104 (37.68)***	154.071 (38.69)***
crisisl	-132.438 (13.41)***	-133.198 (13.94)***	-129.255 (14.25)***	-80.402 (10.05)***	-81.077 (13.69)***	-136.843 (14.83)***
L.arch	0.214 (11.31)***	0.162 (10.50)***	0.164 (10.68)***	0.188 (10.98)***	0.199 (11.84)***	0.149 (10.47)***
L.garch	0.787 (47.91)***	0.831 (60.14)***	0.829 (60.03)***	0.809 (52.63)***	0.802 (55.94)***	0.842 (63.39)***
Constant	-0.853 (2.96)***	6.374 (8.91)***	6.296 (3.40)***	-1.129 (3.64)***	-1.004 (8.40)***	5.945 (3.66)***
Constant	6.504 (7.52)***	-1.146 (3.56)***	-1.085 (8.84)***	7.056 (9.05)***	6.558 (3.37)***	-1.158 (7.45)***
Observations	1742	1744	1744	1745	1745	1743

Note: OPG z-statistics in parentheses, \* significant at 10 percent; \*\* significant at 5 percent; \*\*\* significant at 1 percent

**Table 7: Correlation between U.S. variables and Emerging Market Spreads**  
**Daily Data January 1999 to September 2001**

	(1)	(2)	(3)	(4)	(5)	(6)
	D.embi	D.embi	D.embi	D.embi	D.embi	D.embi
D.us3mo	2.807 (0.31)	-2.499 (0.30)				
LD.us3mo	-1.881 (0.21)	8.629 (1.03)				
D.us10yr	17.483 (1.47)		-33.111 (4.52)***			
LD.us10yr	27.625 (3.45)***		20.193 (3.04)***			
D.lnas	-87.774 (2.84)***			-128.451 (9.40)***		
D.lsep	-177.816 (3.15)***				-307.192 (10.86)***	
D.hi_spr	0.465 (4.66)***					0.556 (7.86)***
crish	87.783 (6.17)***	88.658 (7.05)***	84.095 (6.68)***	80.672 (6.60)***	82.983 (6.99)***	84.155 (6.56)***
crisisl	-107.768 (4.48)***	-105.776 (5.19)***	-84.265 (5.75)***	-31.221 (2.64)***	-41.235 (4.06)***	-111.404 (5.56)***
L.arch	0.267 (5.42)***	0.192 (5.04)***	0.202 (5.20)***	0.242 (5.56)***	0.236 (5.87)***	0.191 (4.93)***
L.garch	0.671 (12.71)***	0.699 (12.91)***	0.713 (14.53)***	0.675 (12.86)***	0.683 (13.81)***	0.726 (13.88)***
Constant	-1.226 (2.63)***	33.462 (3.76)***	27.004 (2.31)**	28.514 (3.89)***	27.201 (3.53)***	25.027 (3.41)***
Constant	22.611 (3.31)***	-1.139 (2.07)**	-1.209 (3.86)***	-1.238 (2.42)**	-1.336 (2.58)***	-1.267 (2.54)**
Observations	699	701	701	702	702	700

Note: OPG z-statistics in parentheses, \* significant at 10 percent; \*\* significant at 5 percent; \*\*\* significant at 1 percent

CHART 1: Average GDP Growth Rate Fluctuations in Latin America

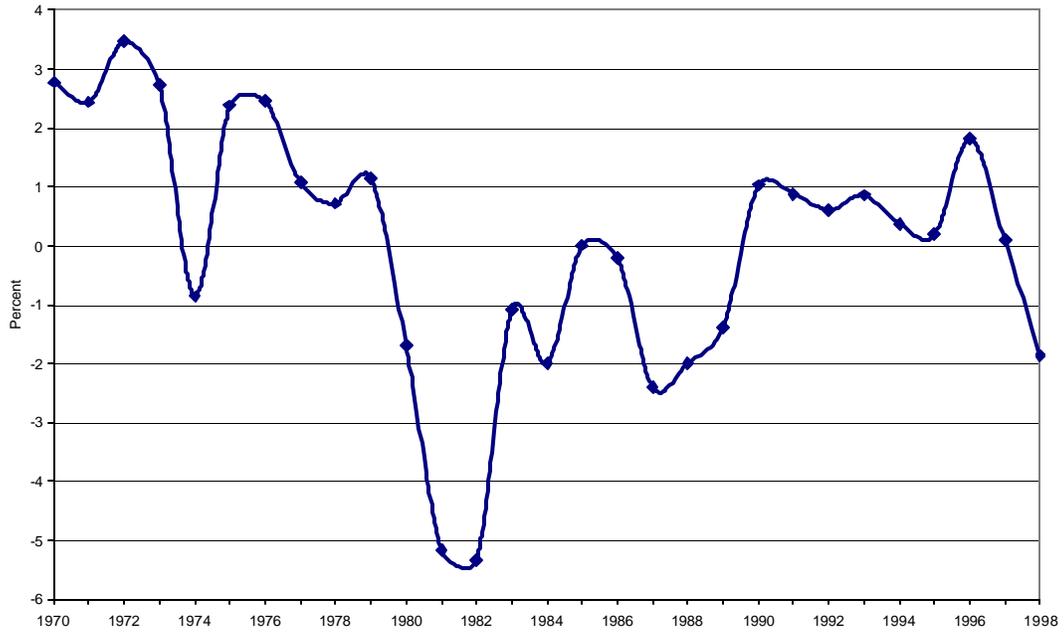


CHART 2: Capital Flows and Growth in Latin America, Percent of GDP

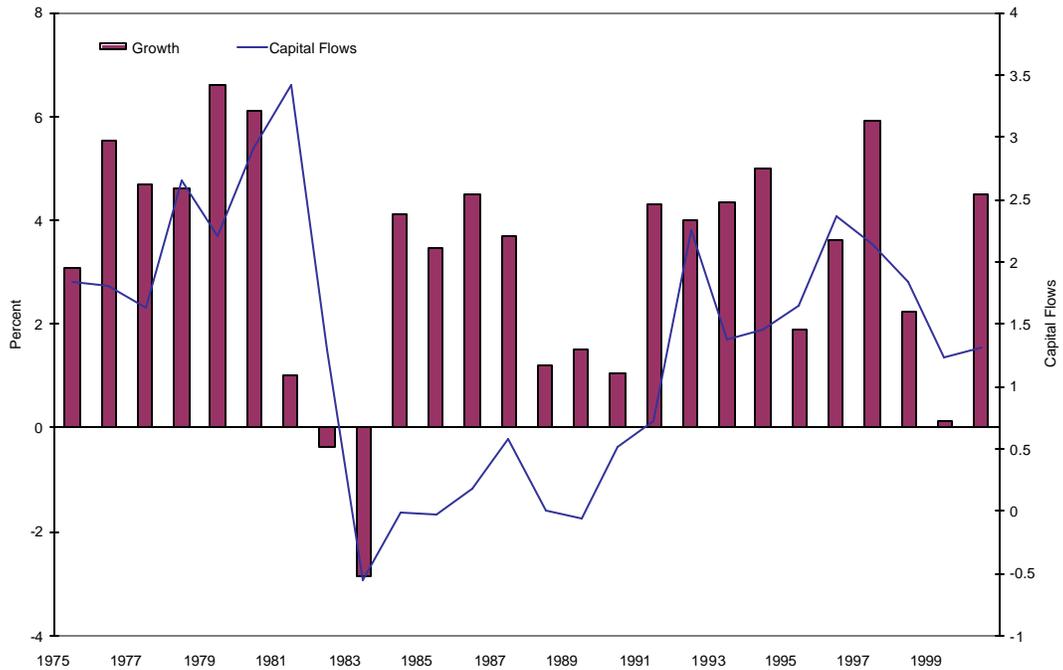


CHART 3: Capital Flows and Commodity Prices in Latin America

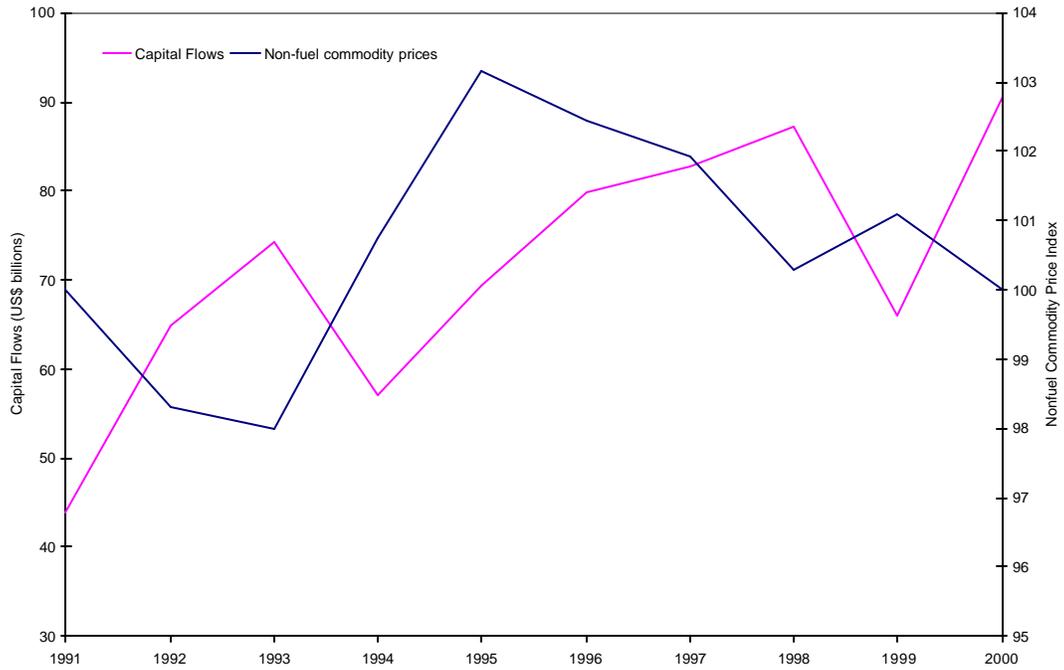


CHART 4: Capital Flows by Region

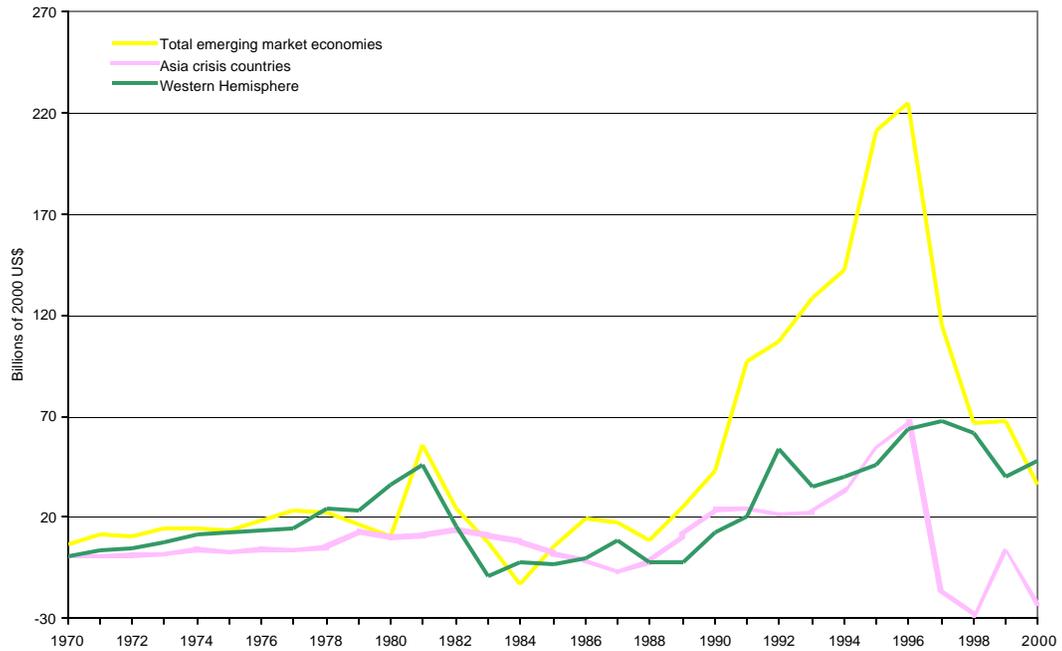


CHART 5: Capital Flows

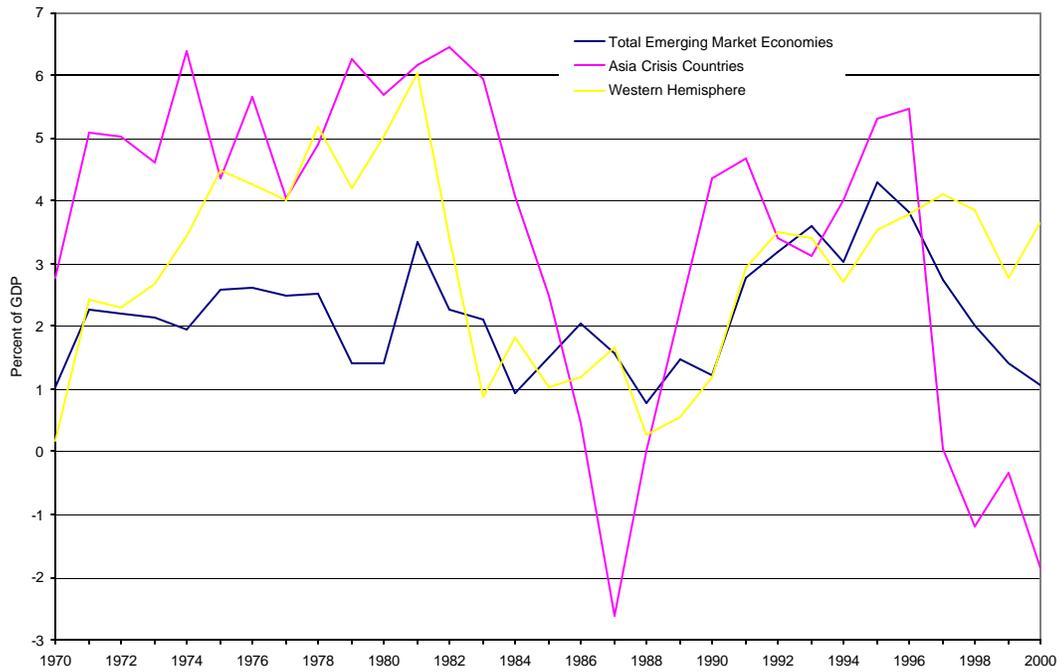


CHART 6: Portfolio Flows

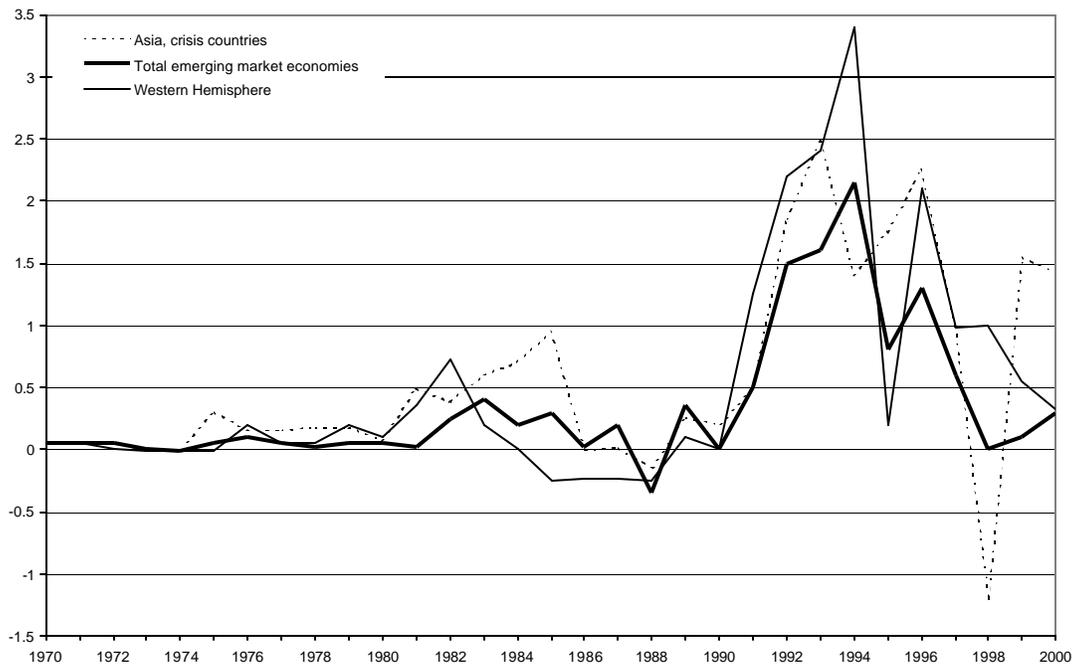


CHART 7: Commercial Bank Lending

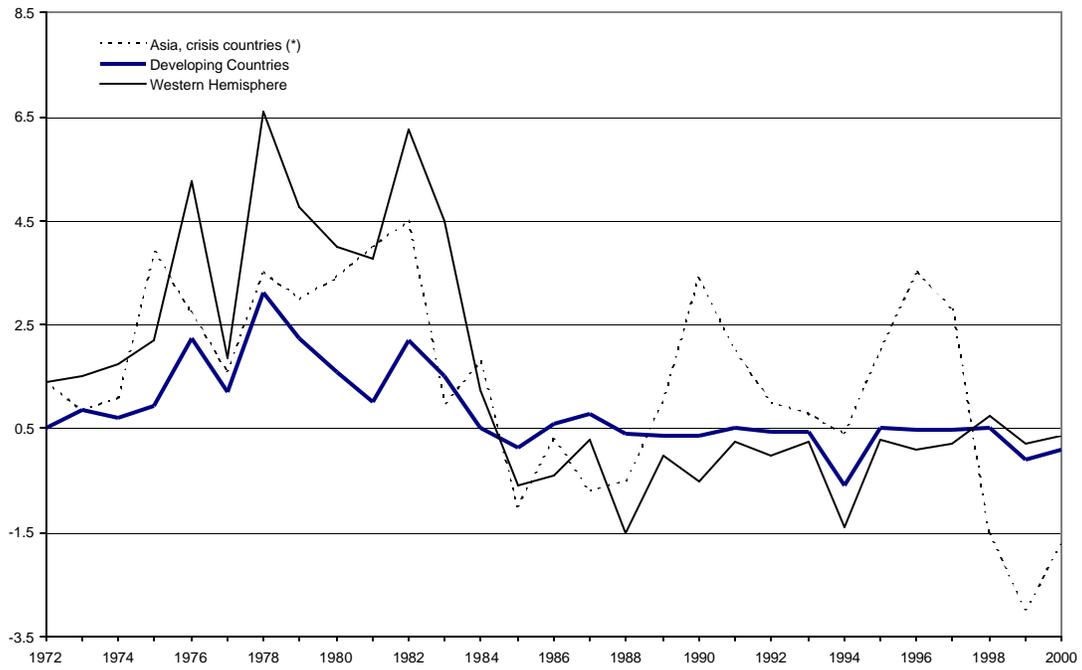


CHART 8: Foreign Direct Investment

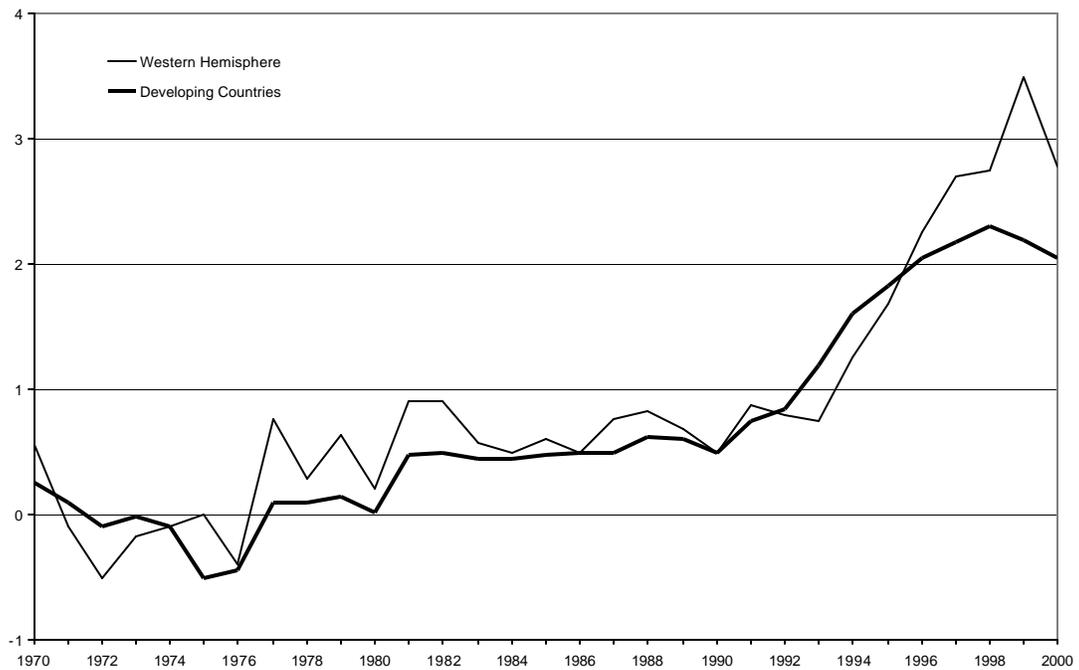


CHART 9: Bond Spreads and Loss Equivalent Fraction (LEF)

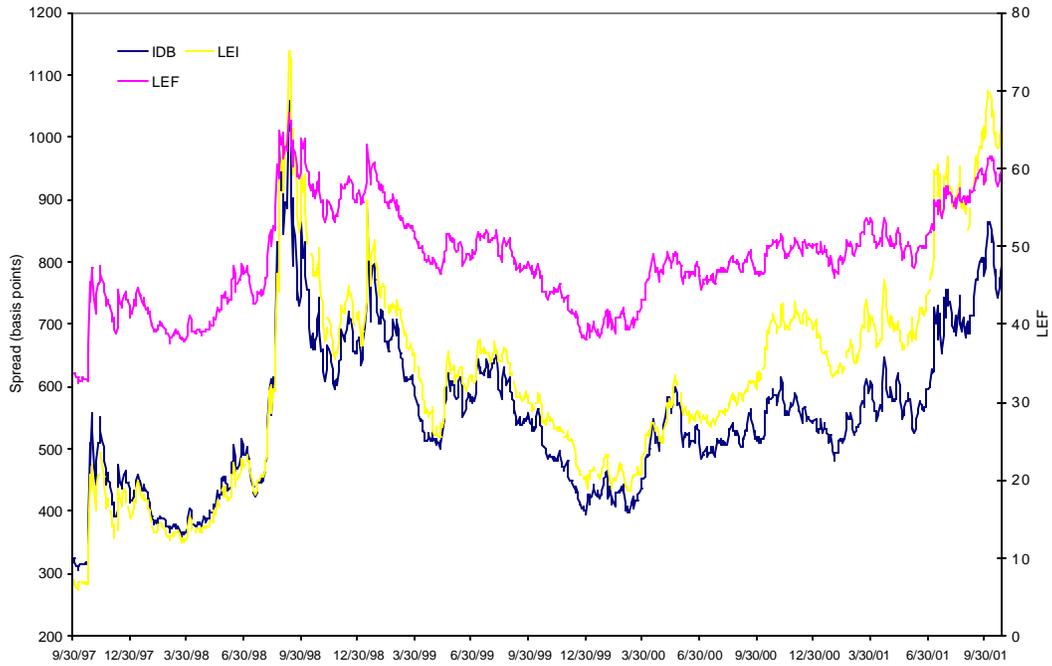


CHART 10: Decrease in Bond Prices

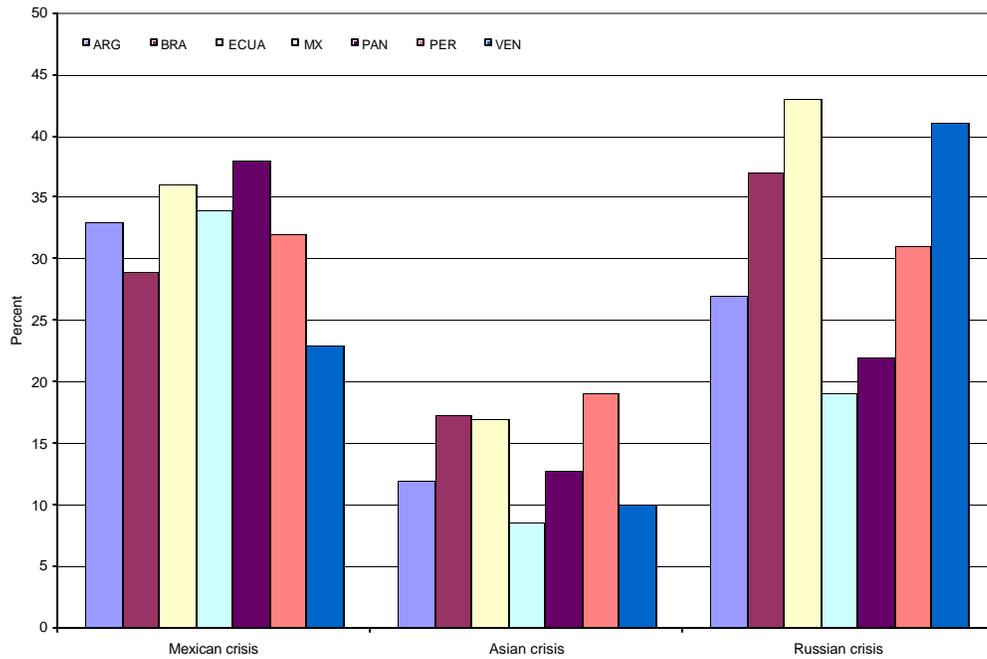


CHART 11: Indebtness Indices

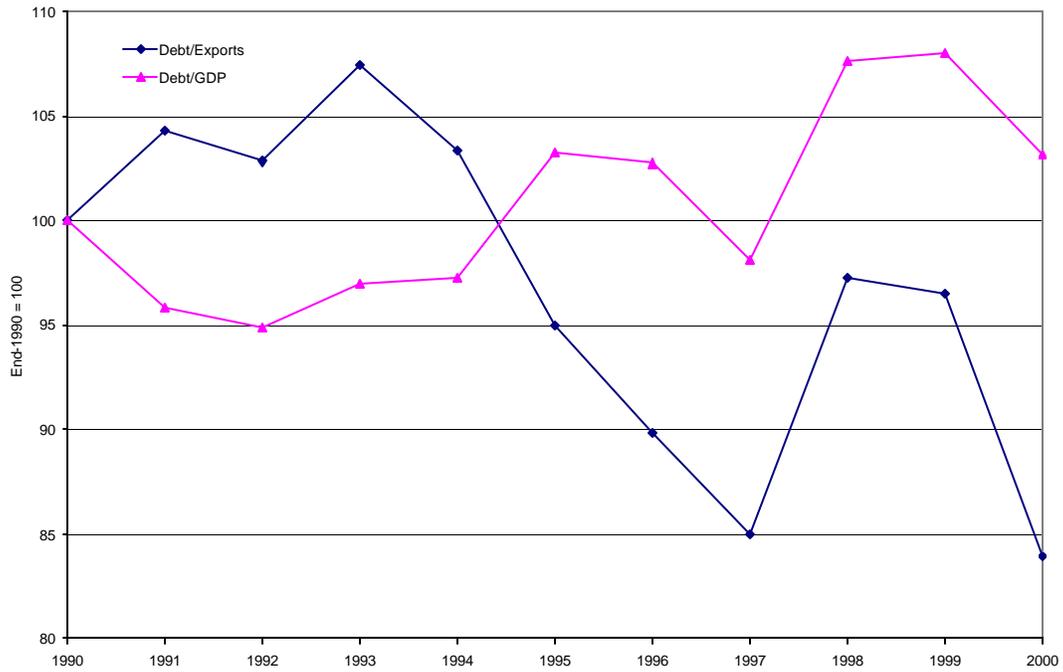


CHART 12: Sovereign Bond Spreads in Latin Eurobond Index, 1994-2001

