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Understanding Financial Crises

Some Implications for Financial and Debt Policy

Guillermo Calvo
Columbia University

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Address for correspondence: 1300 New York Avenue, N.W., Washington D.C.,
20577

Understanding Financial Crises

Some Implications for Financial and Debt Policy

Guillermo Calvo^{*}



Inter-American Development Bank

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Abstract

The central objective of this note is to present a simple explanation of recent financial crises and, on that basis, to discuss some policy options for individual countries. Systemic policies are not discussed. More emphasis will be put on understanding the nature of these crises than on providing a list of policies. The note starts in Section II with a discussion of the current crisis, which has come to be known as the subprime crisis. The central point is that there is essentially nothing new under the sun. The level of financial sophistication has undoubtedly increased, but the subprime crisis is just the latest in a long series of bank runs. Section II will also discuss the impact of the subprime crisis on emerging market economies. It will offer an interpretation of a remarkable phenomenon that, surprisingly, is ignored in much of the debate, namely, that emerging markets today are, on average, faring relatively well. Section III will offer a brief summary of current research on emerging market crises, which highlights the role of balance sheet imbalances. In particular, this research has shown that foreign exchange-denominated debt coupled with large current account deficits is a dangerous cocktail. Latin America and Asia suffered its consequences in the 1990s and took measures to avoid it afterward. In contrast, Eastern Europe continued to drink it with gusto. The paper closes in Section IV with a discussion of financial policies that may lower the probability and the negative impact of financial crises. The list is not comprehensive. It is mostly intended to show how the findings about financial vulnerabilities highlighted in this note can be brought to bear. Special attention is paid to debt management policies.

JEL Classification: F31, F32, F34, F41, G01, G15

Keywords: Financial Crisis, Balance of Payments Crisis, Sudden Stop, capital flows, dollarization, real exchange rate, balance sheet effects, current account reversal

I. Introduction

The central objective of this note is to present a simple explanation of recent financial crises and, on that basis, to discuss some policy options for individual countries. Systemic policies are not discussed. I believe that systemic solutions are indispensable for sustaining healthy globalization, but, realistically, one cannot put much hope in such solutions. Politics, it has been said, is local, and politicians are unlikely to focus on systemic solutions until faced with a global catastrophe, which, one hopes, the world is likely to be spared this time around. Thus, it will be up to individual countries or regions to find policies that will help to prevent or, if necessary, attenuate the effect of financial crises.

I will put more emphasis here on understanding the nature of these crises than on providing a list of policies. As with most problems in economics, there are no simple formulas. There is no substitute for deep understanding. Fortunately, understanding these crises is not difficult – what is difficult is knowing in advance when and how they will play out. Fortunately, again, policy need not be concerned so much with the timing of crises but, first and foremost, with arrangements that help prevent them.

The note starts in Section II with a discussion of the current crisis, which has come to be known as the subprime crisis. The central point is that there is essentially nothing new under the sun. The level of financial sophistication has undoubtedly increased, but the subprime crisis is just the latest in a long series of *bank runs*. Financial institutions print money, and occasionally their customers, wanting to make sure that money is wealth, stage a run on them. Without a lender of last resort, the run may succeed in bankrupting the institutions, and the crisis breaks into the open. Obviously, not everyone will be hurt in the same way. If the crisis is systemic, everyone is likely to suffer the consequences in one way or another, either directly or indirectly. However, adequate policies may help to dampen its deleterious effects.

Section II will also discuss the impact of the subprime crisis on emerging market economies. It will offer an interpretation of a remarkable phenomenon that, surprisingly, is ignored in much of the debate, namely, that emerging markets today are, on average, faring relatively well. This is surprising because the previous systemic crisis – the 1998 Russian crisis – had a major negative impact on emerging markets. Simple extrapolation

would have led one to expect that the subprime crisis would have devastating consequences for emerging markets, but nothing of the kind took place.

Section III will offer a brief summary of current research on emerging market crises, which highlights the role of balance sheet imbalances. In particular, this research has shown that foreign exchange-denominated debt coupled with large current account deficits is a dangerous cocktail. Latin America and Asia suffered its consequences in the 1990s and took measures to avoid it afterward. In contrast, Eastern Europe continued to drink it with gusto. Confirming the relevance of this type of research, the current crisis has hit Eastern Europe very hard; in contrast, until the Lehman Brothers debacle, financial contagion was avoided in Asia and Latin America.

The paper closes in Section IV with a discussion of financial policies that may lower the probability and the negative impact of financial crises. The list is not comprehensive. It is mostly intended to show how the findings about financial vulnerabilities highlighted in this note can be brought to bear. Special attention is paid to debt management policies.

II. An Overview of the Subprime Crisis

The current crisis has taken most major players by surprise. Many observers were wary about global imbalances (in particular, the large U.S. current account deficits) and the rapid growth of sophisticated financial instruments like credit default swaps, but few would have guessed that difficulties in a tiny segment of the financial market, subprime mortgages, would prove so deadly, spreading around the globe and threatening to plunge the world economy into a 1930s-like depression.

Hard to predict, therefore hard to understand? This does not necessarily follow. In my interpretation, the current crisis has many of the features that characterized the bank crises of the 19th and early 20th centuries. These processes start with a run on a visible segment of the financial sector and then spread, because investors fear that *other* investors will stage a run against the remaining institutions. It is a crisis of self-fulfilling expectations, and that is the main reason that such crises are hard to predict but not so hard to understand. In the 19th century these crises were hard to rein in because there was no effective lender of last resort, a situation that was partly remedied in the 20th

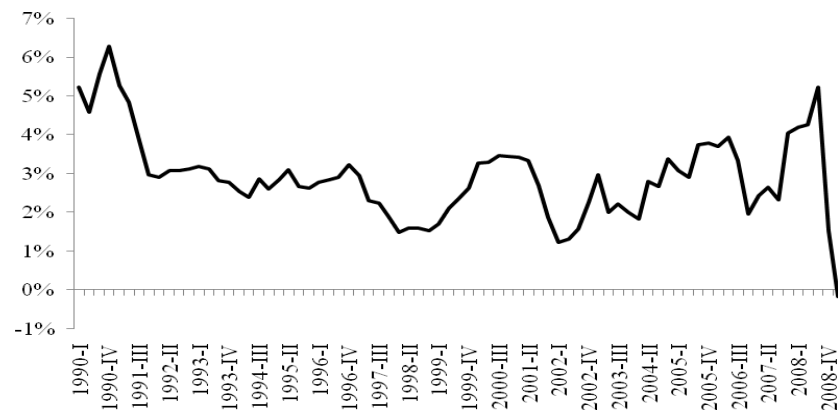
century by the creation of central banks. Central banks can bail out ailing institutions by, essentially, printing money. More specifically, they can extend credit to problem institutions, accepting those institutions' nonperforming loans as collateral. If the government is perceived as solvent, this financial alchemy can go a long way toward stopping a bank run in the bud.

The main difficulty in the current situation was that not every major player in the financial market was protected by a central bank. Investment banks, for example, were highly leveraged but fell outside the purview of central banks. This meant that as investors attempted to withdraw their funds from those banks, bankruptcy became the only option. As is well known, central banks were quick to react and did provide necessary liquidity to prevent large investment banks (with the exception of Lehman Brothers) from going bankrupt, but they did so reluctantly, and only after the crisis threatened to paralyze the whole financial system. This may seem a minor flaw, but the fact is that, to be effective, a lender of last resort must be ahead of the game and, as Bagehot advised, be ready to pump in as much liquidity as necessary to prevent a systemic crisis. Otherwise its help may be largely ineffective, like sending the ambulance hours after the heart attack or without the necessary equipment.

Why were central banks in the G-7 countries so slow to react? My guess is that it has much to do with the widely held view that central banks can prevent 1930s-type crises by just preventing price *deflation*. This view was first espoused by Milton Friedman and Anna Schwartz in their monumental book (1963), in which they attach great importance to the Federal Reserve's failure to prevent a collapse in prices and wages in the United States. Their view was highly influential, even though all they were able to show was that the Great Depression was accompanied by a contraction of the money supply. It does not follow that increasing the money supply prevents depression. Yet despite its weak scientific support, this is the main rationale behind the sharp decline in policy interest rates in 2007 and the great effort taken to remove the stigma attached to the use of central banks' liquidity facilities by commercial banks. The Friedman-Schwartz view held strong sway during 2007 and possibly also until mid-2008. As shown in Figure 1, U.S. consumer price inflation fell sharply in 2008, but until very recently it did not cross into negative territory. Therefore, it is no surprise that each new

“bad” shock was largely *unanticipated* by the central banks, who were expecting a quick recovery, and this explains why they failed to take effective preemptive action.

Figure 1.
US CPI Inflation

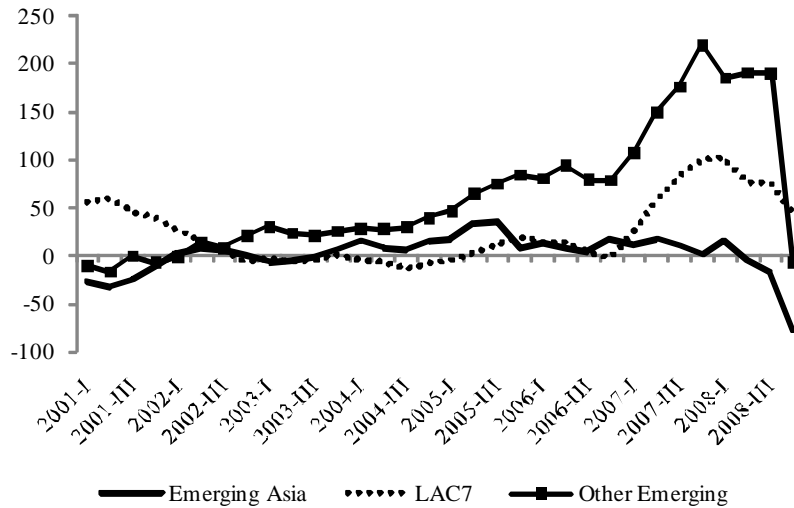


Note: year-on-year inflation rate. Source: Federal Reserve.

Interestingly, until mid-2008 emerging markets were largely isolated from the financial shock. In fact, commodity prices shot up in the first quarter of 2008, and there was a noticeable increase in capital flows to those economies (Figure 2). This seemed to confirm the conjecture that there would be a decoupling between them and the advanced economies. In that scenario the dollar would devalue, and U.S. output would shrink relative to trend, but without the decline reaching dramatic proportions; emerging markets, in turn, would pick up the U.S. mantle, increasing absorption and facilitating U.S. export growth. Some of this started to happen after August 2007, but by mid-2008 it became evident that Europe was nose diving and that China’s growth could not be easily sustained without a dynamic export sector as a counterpart. This led China to implement aggressive expansionary policy at home, but the results were not immediate. Disappointment gave way to panic when the U.S. government let Lehman Brothers go under. At that point it became evident that the world economy was on the verge of a 19th century-style bank run, that is, one without a central bank: stock markets worldwide then tanked, with those in emerging markets initially falling more sharply than the U.S. market, which makes sense given the discovery that decoupling was not working.¹

¹ At today’s prices both markets have fallen in about the same proportion.

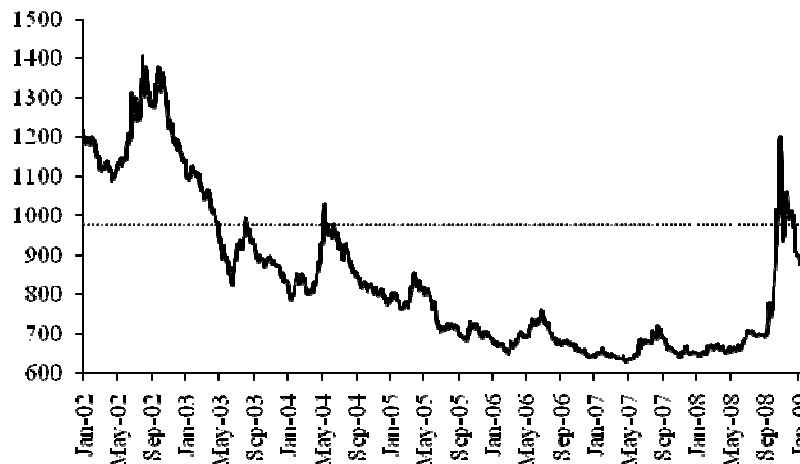
Figure 2.
Capital Flows to Emerging Markets (billions of USD)



Note: Financial account, last four quarters, in billions of USD. LAC7 includes Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela

Not all is grim, however. As shown in Figure 3, the average emerging market bond yield as computed in the JP Morgan EMBI+ is still hovering around the level reached before the Asian crisis of 1997, which is much lower than that reached during the 1998 Russian crisis (the large systemic financial crisis that preceded the current one). Moreover, commodity prices, although substantially lower than in the first quarter of 2008, are still markedly above their historical levels. Therefore, one cannot reject the hypothesis that there is still room for some decoupling.

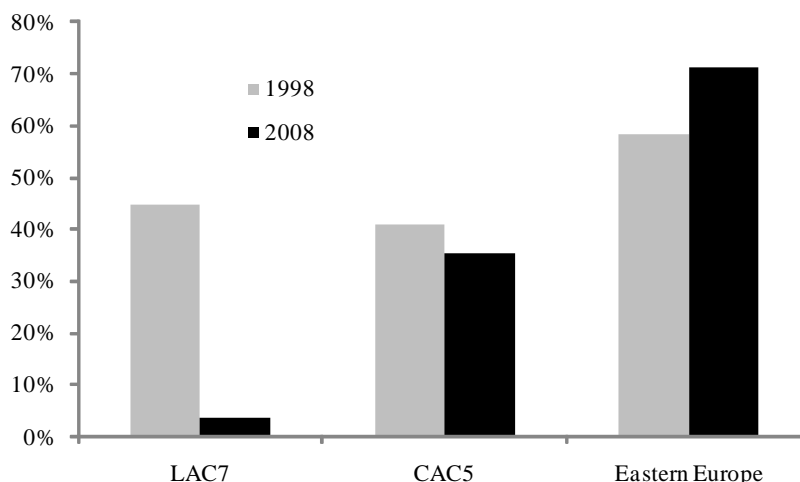
Figure 3.
JP Morgan EMBI+ Yield (in bps)



Note: The dotted line indicates the the EMBI+ yield before the Asian crisis. Source: Datastream.

Latin America is likely to be first in line for recovery if there is decoupling or, even better, if the advanced economies show signs of recovery. This is suggested by the probit model developed in Calvo, Izquierdo, and Mejia (2008), results of which are shown in Figure 4, where the bars indicate the probability of a “sudden stop,” that is, a large and unexpected cut in capital inflows during a systemic financial crisis. The contrast between Eastern Europe and Latin America is striking and, as will be argued below, is likely due to the much greater financial vulnerabilities exhibited in Eastern Europe.

Figure 4
Estimated Sudden Stop Probabilities



Note: Simple country averages. LAC7 includes Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela. CAC5 includes Costa Rica, the Dominican Republic, Guatemala, Honduras, and Nicaragua. Eastern Europe includes Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Turkey.

III. Financial Vulnerabilities

1. Historical Background

Financial globalization confronts policymakers with new challenges, which often require global cooperation. After the Second World War and until the late 1970s, *domestic* variables, such as sustainable fiscal deficits and low inflation, played a central role in ensuring macroeconomic stability. The conventional wisdom during that period was that if an economy succeeded in “putting its house in order,” the financial markets would facilitate the necessary adjustment. In that context, even a large and persistent

deterioration in the terms of trade could for the most part be accommodated by borrowing in international capital markets. This did not hold exactly as described, because official controls on capital mobility were widespread, but the role of the capital markets was assumed by the international financial institutions (IFIs). In any case, it is clear that the capital market was not a source of severe disturbances. Thus, the evidence did not *deny* the conventional wisdom, and it probably reinforced the view that capital market liberalization would enhance social welfare. In particular, it was expected that weaker capital controls would be conducive to more efficient capital allocation around the globe by freeing capital flows from distorting political influences.

The conventional wisdom was first challenged by the 1980s' debt crisis, which started with Mexico's 1982 debt moratorium. Unfortunately, identifying the key factors behind the crisis was not easy, because Mexico, like several of the other economies hit by the crisis, had large and unsustainable fiscal deficits. Therefore, the view that the culprit was large fiscal deficits, and not the capital market, could not be rejected out of hand. Some observers pointed out that fiscal unsustainability in these countries could partly be traced to the sharp rise in U.S. interest rates, but that view did not enjoy general acceptance (see Borensztein and Calvo, 1989). The crisis generated a painful "lost decade" in the countries involved, yet the conventional wisdom was hardly shaken: the IFIs continued pushing for freer capital markets and a bigger role for private financial institutions.

The Asian crisis of 1997 represented a big challenge for the conventional wisdom, because there was no evidence of major fiscal or current account imbalances in the affected economies. Several of these economies had shown spectacular growth for many years, and one of them, Korea, had already graduated to the ranks of the advanced industrial economies. This gave rise to the hypothesis that these economies' main mistake was to peg their exchange rates to a hard currency without having enough international reserves, or to allow themselves to fall prey to powerful vested interests (such as the *chaebol* in Korea); "crony capitalism" became a popular expression at the time.

This alternative view did not have to wait long to be seriously challenged. The challenge came from Russia in August 1998. Russia represented less than 1% of world

output and was not a major capital market center. However, its debt difficulties shook all emerging markets; the tremors even reached Wall Street with the collapse of the hedge fund Long Term Capital Management. It then became obvious that the capital market had become, at the very least, a major channel for *financial contagion* (see Calvo, 2005). The capital market turned from friend to threat, from accommodator to generator or at least propagator of bad shocks. Although the IFIs were reluctant to abandon the conventional wisdom, they did start paying increasing attention to financial vulnerabilities. The current crisis has added considerably more force and conviction to that trend.

2. Research

Recent research is casting some light on the relevance of different types of vulnerabilities. Typically, a financial vulnerability involves a term structure or a currency denomination mismatch between assets and liabilities. For example, banks' balance sheets typically show that their assets are less liquid or exhibit longer residual maturity than their liabilities. This is the rationale behind reserve or liquidity requirements and the existence of a lender of last resort, a function usually assumed by the central bank.

A currency denomination mismatch takes place in emerging markets in which foreign currencies circulate side by side with the domestic currency, a phenomenon known as currency substitution. This creates a problem for the local central bank because, to the extent that foreign currencies circulate *outside* the banking system, a sudden switch away from domestic money and into foreign currency may provoke a large devaluation, or a bank run, or both. Thus, it is quite common in economies where currency substitution is widespread for the central bank eventually to allow commercial banks to offer deposit accounts denominated in foreign currency. (Outstanding examples in Latin America are Uruguay, Bolivia, and Peru.) If domestic agents hold their foreign currency-denominated liquidity in the form of deposits in domestic banks, a portfolio shift in favor of foreign currency will then take the form of a change in the composition of deposits, without necessarily provoking a bank run.

The problem that arises is that such a portfolio shift generates a currency denomination mismatch on the banks' balance sheets. Such a mismatch is usually discouraged by regulators. However, if individuals and firms have a strong preference for foreign currency-denominated deposits, banks will have incentives to offer loans denominated in foreign currency even to sectors that do not generate foreign exchange, because foreign exchange-denominated deposits will yield a relatively low interest rate, even after adjusting for expected devaluation and risk. Thus, in the scenario most preferred by regulators, in which banks do not exhibit currency denomination mismatch, the mismatch migrates from the banks to domestic nonfinancial firms. The associated financial vulnerability does not vanish, but rather shifts to the nonfinancial sectors and, thus, becomes less transparent.

Currency denomination mismatch is examined in Calvo, Izquierdo, and Mejia (2008), who highlight a variable labeled domestic liability debt (DLD), defined as local banks' foreign currency-denominated loans to the domestic economy as a share of GDP. If the share of such loans channeled to the nontradables sector is fairly constant across economies, then DLD will be a reliable index of currency denomination mismatch *outside* the banking sector. DLD does not include external loans, because the presumption is that defaulting on loans from local banks is much more harmful than defaulting on foreign loans. The reason for this conjecture is that the former could paralyze the domestic payments system, which would be highly disruptive and is less likely to occur if the lenders are external to the domestic financial market.

Calvo, Izquierdo, and Mejia (2008) focus on "systemic sudden stops," which are large and sudden cuts in capital inflows in the context of a systemic crisis. They define a systemic crisis as one in which the EMBI spread rises by more than two standard deviations above its historical mean. Their statistical analysis estimates the *probability* of sudden stop in a panel of 110 countries if there is a systemic crisis. DLD turns out to be a statistically significant determinant of this probability: the larger is DLD, the higher will be the probability of a sudden stop during a systemic episode.

Another variable that emerges as statistically significant is one labeled CAD, the current account deficit as a share of tradables absorption (that is, domestic expenditure on tradable goods). Again, the larger is CAD, the larger will be the probability of a sudden

stop during a systemic episode. Calvo, Izquierdo, and Mejia (2008) highlight the interaction between the current account and DLD. The larger is CAD, the larger will be the fall in expenditure as a share of tradables absorption if there is a sudden stop, and, under some standard assumptions, the larger will be the real depreciation of the currency (that is, the larger will be the fall in the price of nontradables relative to that of tradables or foreign exchange). Thus, if both CAD and DLD are large, the resulting large currency mismatch in the private sector will be *multiplied* by a large devaluation if a sudden stop occurs, leading to the conjecture that CAD and DLD will perversely interact to generate a more than proportionately high probability of a sudden stop. On the other hand, if DLD equals zero, for example, the same CAD is likely to have a smaller impact on that probability. These implications are borne out by the statistical analysis. In plain English, the empirical evidence shows that currency mismatch enhances the probability of financial crisis in the context of a systemic episode, and the effects of currency mismatch are aggravated if there is a large current account deficit.

In ongoing research, Calvo, Alejandro Izquierdo, and Rudy Loo-Kung show that similar results are obtained if DLD is replaced by NDL, which is DLD net of international reserves. This shows that reserve accumulation will have an effect on reducing the probability of a sudden stop during a systemic episode like the current one. This evidence, incidentally, gives support to the aggressive reserve accumulation policy now being pursued in Latin America and Asia and offers a partial explanation for the resiliency of their financial sectors in the face of the current crisis. This is worth highlighting because Latin America, in particular, has been suffering a deterioration of its terms of trade, which shows that a solid financial sector can withstand strong winds coming from the real sector. In contrast, past crises show, in no uncertain terms, that the opposite is not true: financial shocks can have severe consequences for the real economy. Even exports may suffer the consequences of a negative capital market shock. There have been several instances in which exports initially contracted despite large devaluations.

Another vulnerability measure that has been associated with financial crises is the ratio of short-term debt to international reserves. Here the evidence, however, is less clear. Rodrik and Velasco (1999) use two versions of this variable as a determinant of

financial crises for a group of emerging markets, distinguishing short-term debt to foreign banks from other foreign short-term debt, and find these variables to be significant in explaining the probability of a financial crisis. In a separate exercise, my collaborators Izquierdo and Mejia and I use the same (but updated) data source employed in the Rodrik-Velasco study (the International Institute of Finance's database, comprising 31 emerging markets, substantially shrinking the sample size) to evaluate the impact of alternative measures of the ratio of short-term debt-to reserves on the probability of a systemic sudden stop. For this relatively small subset of countries (compared with the sample of 110 countries used in the estimation described above), and controlling for balance sheet effects, we do not find consistent evidence that either measure of the ratio of short-term debt to reserves is a significant determinant of systemic sudden stops. This evidence is more in line with the finding by Frankel and Rose (1996) that short-term debt does not affect the incidence of currency crises, and that by Eichengreen and Rose (1998), who actually find that short-term debt may *decrease* the probability of a banking crisis.

IV. Policy Issues

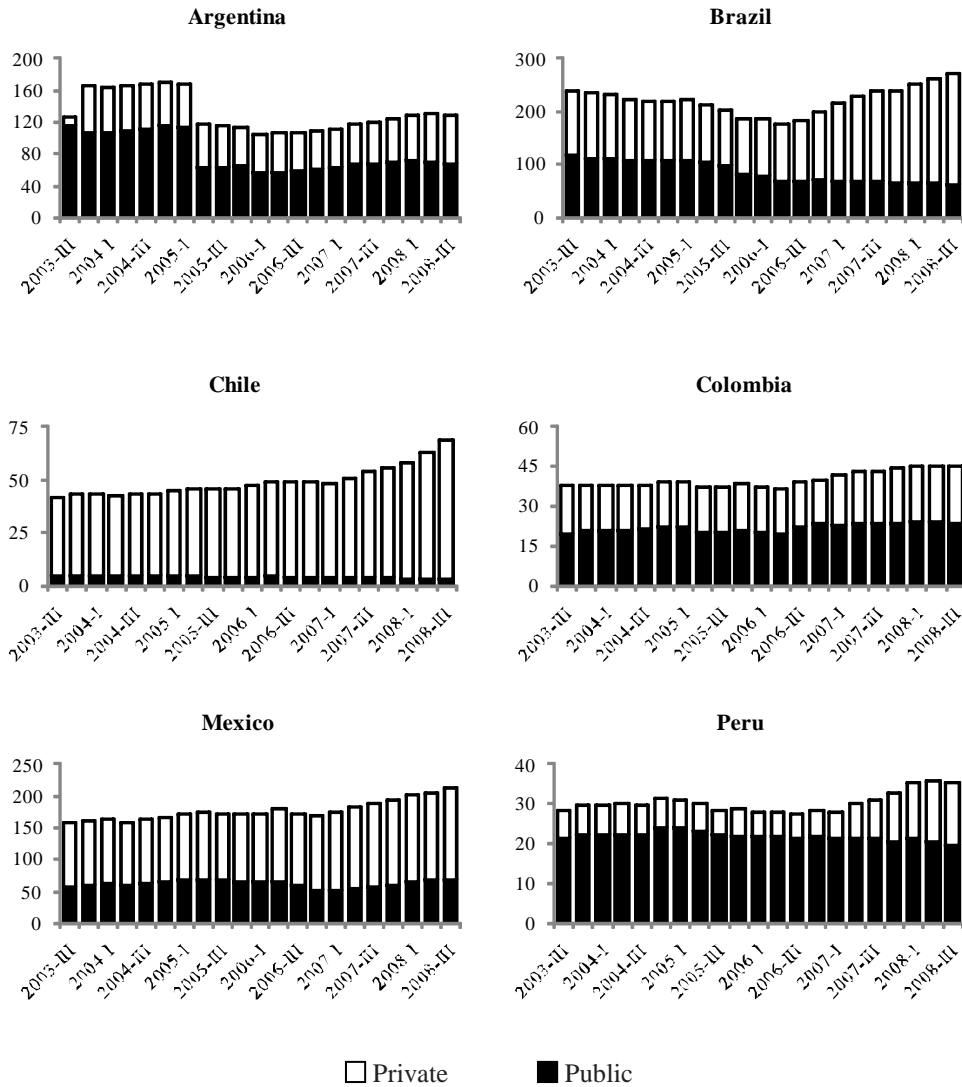
The good news from the previous discussion is that the increased frequency of severe financial crises does not call for abandoning the road to financial reform and globalization. However, the situation could be improved by judicious regulations, instruments, and institutions that would help to reduce financial vulnerability. I will now discuss some specific examples.

1. Fiscal Stabilization Funds. These are government funds that are accumulated during economic expansions and decumulated during downturns. Their main role is to help to carry out expenditure smoothing and countercyclical macroeconomic policy. Chile is the stellar example in Latin America. Its stabilization fund has followed rigid rules despite heavy fire from opposition politicians. But the Chilean case is not unique. Economies such as Peru that have accumulated large international reserves have been pursuing a policy akin to the creation of a stabilization fund.

The point to be stressed here is that if the private sector realizes that the public sector is saving during economic bonanzas, it may start counting on public sector support when things turn sour. Figure 6 shows external public and private debt for several Latin American economies. In the cases of Brazil, Chile, Mexico, and Peru, it is clear that private sector external debt has grown much faster than public debt.² Was this triggered by international reserve accumulation? The answer must await further research, but this is an issue that deserves close attention. In several countries in the current crisis, the private sector has taken risky, speculative gambles that have induced the public sector and the IFIs to come to their rescue. A salient example in Latin America is Mexico, where the private sector had to be bailed out to prevent major bankruptcies associated with wrong derivatives bets by corporations. Brazil is using international reserves to help refinance private debt, and several private banks in Eastern Europe and Central Asia are being directly or indirectly bailed out as nonperforming loans have skyrocketed. Part of the reason is that many of those bank debts were denominated in foreign exchange and became hard to service after a large devaluation.

² The figure shows *gross* external debt. The difference between public and private sector debt accumulation would be even sharper if international reserves were subtracted from public debt, given the large reserve accumulation in most of these countries.

Figure 6.
Gross External Debt in LAC (billions of USD)



Note: The public sector includes general government and monetary authorities. The private sector includes the banking sector, the nonfinancial private sector, and intercompany lending. Source: BIS-IMF-OECD-WB Joint External Debt Hub.

2. Short Maturities. Market uncertainty gives rise to a steeper yield curve, which creates incentives to shorten the maturity of debt. Issuing shorter-maturity debt may indeed be advisable in some circumstances, but not in all. For example, if creditors believe that the probability of default has increased, but the government, say, has good reasons to think otherwise, then it will not be optimal to pay the implied premium on long-maturity bonds, and the appropriate policy is to issue short-maturity bonds. Issuing long-maturity bonds when the government has no intention to default and believes that debt rollover will not

be a problem would amount to paying a higher price for the same service that short-maturity debt provides. However, if the probability of default is positive, there could be situations in which the higher interest will not be paid in full. Besides, issuing long-maturity bonds will put the government under less pressure to roll over its debt and allow it to wait for more favorable times. Long-maturity bonds therefore have an insurance component, which may be worth paying for.

The above discussion applies especially to foreign exchange-denominated debt. It is sometimes argued that if the debt is denominated in domestic currency, the government can always service its debt by printing money. However, this ignores some possibly serious inflationary consequences. An excess of short-term domestic debt could throw the economy into an inflationary spiral from which it may be hard to exit. For example, if the market anticipates that the government will resort to inflationary finance, it will raise the nominal interest rate. Thus, if inflationary expectations are correct, the government will not succeed in lowering the *real* burden of servicing the debt. The situation could be even more serious. Suppose that the government has a reputation for employing inflationary finance to service part of its debt and other government obligations. Then creditors will demand a high nominal interest rate on government bonds, whatever the government's intentions. This happened in Brazil in the 1980s and made it difficult to stop inflation until the Real Plan was implemented. More schematically, this is how it worked:

- Market nominal interest rates are high because creditors expect high inflation, given the country's inflationary track record.
- Under those circumstances, the government launches an inflation stabilization plan that, at first, is effective in lowering inflation.
- Thus, since the nominal interest rate stays high despite lower inflation, the real interest rate is also high; in fact, real interest rates were spectacularly high in Brazil because nominal interest rates hovered around 30% per month.
- After a while, domestic debt skyrockets in real terms, and policymakers realize that it makes no sense to raise taxes in order to service a debt that has grown because of lack of credibility in preventing inflation.
- The stabilization plan is abandoned and inflation resumes.

This situation is formalized in Calvo (1988). A possible way out of the inflation trap is to index debt to a foreign currency or to the consumer price index. But this solution has its own problems, as pointed out above. The best strategy is to avoid falling into the inflation trap, an error that policymakers who forget the 1980s' inflation in Latin America could easily make. Policymakers should weigh the benefits of lower yields on short-maturity debt denominated in domestic currency against the risk of high and persistent inflation.

3. Use of International Reserves. Countries accumulate reserves for more than one reason. One is to use them during a sudden stop. Another is to use them as *collateral* on domestic debt instruments, to enhance the effectiveness of those instruments for open-market operations. In both cases, reserves are accumulated to meet an emergency. Curiously enough, these simple facts are often missed. It is not unusual to hear complaints about reserves' low yield and, on that basis, to advise that they be reallocated to more attractive government projects (in education and health, for example).

An issue that is of greater relevance for this discussion is whether and to what extent it is advisable to use international reserves to repay external debt. From a purely financial point of view, selling low-yielding assets to repay high-yield obligations (assuming one intends to repay them) is a wise decision. Its plausibility is further enhanced if there are risks that opportunistic politicians might use those reserves to finance vote-grabbing public projects. Moreover, since this asset swap increases wealth, it should not interfere with access to credit. On the contrary, credit should be more easily and cheaply available. This is impeccable reasoning, but it is conditioned on the assumption that the capital market is not subject to *liquidity* or *information* shocks. In fact, as the sudden stop literature bears out, experience in the last twenty years shows that the capital market may become dysfunctional and unable to channel resources to socially valuable projects. Until the development of new IMF instruments like the Flexible Credit Line, countries had few alternative options to reserve accumulation. Credit lines from private banks were available but always tended to dry up when most needed.

Thus, until the new IMF instruments prove their effectiveness, international reserves are a central bank's best friend during a credit crunch. This holds true even

when the reserves are acquired by issuing debt instruments of equal maturity and currency denomination, because the central bank always has the option of using reserves to bail out financial institutions, for example, and of defaulting on its own debt or negotiating a debt restructuring. This may be costly, but it allows the central bank to channel international liquidity at a time of severe financial stress. The private sector is aware of that and correspondingly charges an interest rate on central bank bonds that exceeds that on international reserves (typically acquired through reserves sterilization); sometimes the spread between the two rates is quite wide.

In closing, it is worth remarking that the use of reserves requires some caution. Purely monetary operations to, for instance, support the exchange rate and prevent a large devaluation may be counterproductive and generate a self-fulfilling balance of payments crisis. This is so because the associated fall in international reserves grabs headlines and may lead to the expectation that the currency will suffer further devaluation. This may set in motion powerful mechanisms that could quickly drain the central bank's international reserves. For example, large firms, which are prime customers of domestic banks, could borrow from those banks and use the proceeds to buy foreign exchange. This mechanism is powerful because it is not limited by large firms' domestic currency holdings – and it has been observed in several crisis episodes, for example in Brazil and Chile in 1998.

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