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Author: Rudi Dornbusch

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A Primer on Emerging-Market Crises

Rudi Dornbusch

Over the past twenty years there has been an explosion of emerging-market crises and a vast accumulation of commentary—descriptive, theoretical, and applied—highlighting the origins and mechanics of each crisis and of crises in general. There is plenty of analysis on how to deal with crises both in terms of prevention and of cures. Is it possible now to distill from all this analysis a simple set of propositions that summarize the experience and capture the chief lessons?

This paper attempts to set out a few propositions that summarize what is known and accepted. The purpose in doing so is to promote a set of presumptions that define unsound practice with a presumption that it cannot fail to engender, in time, a crisis. Moreover, crises are not merely financial experiences; rather, they involve large and lasting social costs and important redistribution of income and wealth. These consequences make it especially important to secure agreement on what constitutes bad practice and to identify areas of continuing controversy.

16.1 Slow versus Fast and Bad Regimes versus Big Collapses

A useful distinction can be drawn between old-style (slow-motion) crises, which focus on the financing of the current account in a financially repressed economy, and the new-style balance sheet crises of a financially opened economy. The distinction is useful not only to highlight what is new

Rudi Dornbusch is Ford Professor of Economics and International Management at the Massachusetts Institute of Technology and a research associate of the National Bureau of Economic Research.

but also to help policy makers understand the great speed of new-style crises and their devastating cost compared to earlier experiences.

Old-style crises involve a cycle of overspending and real appreciation that increasingly worsens the current account; while resources are ample, and before real appreciation bites into growth, the process is politically popular. In time, resources become more limited, and unpleasant options such as demand restraint and trade restrictions must be mounted, but they cannot last. Ultimately devaluation comes, and the process begins all over again. The "stabilization" may last if there is little accommodation, but if money is passive and the increased external room is used for quick expansion, the process is more nearly a *regime* of an inflation-devaluation spiral.

Exchange rate adjustments in an old-style setting have very few qualities of a crisis. Richard Cooper has noted that these events normally or invariably involve the fall of the finance minister, but little more. The central issue, as Diaz-Alejandro (1966) noted, is the fall of the real wage and the politics surrounding it.[1] Because finance is repressed, the buildup of sensitive balance sheets is ruled out. One example of the few old-style situations still in play is Egypt, where occasionally a widely anticipated moderate devaluation happens to relieve trickling reserve losses from current account imbalances and suitcase capital flight.

An important part of the story, obscuring its simplicity, is the occasional arrival of external resources (new access to the world capital market, the World Bank, etc.), which provides room for better growth without the early arrival of the external constraint. However, these resources more often than not are debt and hence have an adverse effect on the current account. Accordingly, unless there is significant productivity growth, trend real wages will have to decline in order to generate debt service. Alternatively, new resources or debt reduction must make room to keep up real wages.

A *new-style crisis* involves doubt about creditworthiness of the *balance sheet* of a significant part of the economy—private or public—and the exchange rate. It may originate with questions about either the balance sheet or the exchange rate, but when there is a question about one, the implied capital flight makes it immediately a question about both. In no time, capital flight wipes out reserves and precipitates a currency collapse. That process is only brought to an end by a resolution of the credit issues *and* the commitment of monetary policy. External intervention has high leverage in resolving credit and credibility issues.

The capital account plays a key role in the run-up to the crisis and in its unfolding. There is too much credit on the way in, and far too little once the

1. Diaz-Alejandro (1984), writing about the debt crisis of the early 1980s, keenly appreciated that finance had now become the key actor and aptly signaled this with the catchy title "We Are Not in Kansas Anymore." He would have needed yet another title to characterize the extraordinary increase in size and speed of the finance factor in recent crises.

crisis hits. The bankers' adage is "it's not speed that kills, but the sudden stop." Taussig (1927) captured the point when he wrote,

> The loans from creditor countries . . . begin with modest amounts, then increase and proceed crescendo. They are likely to be made in exceptionally larger amounts toward the culminating stage of a period of activity and speculative upswing, and during that stage become larger from month to month so long as the upswing continues. With the advent of crises, they are at once cut down sharply, even cease entirely. (130)

The central part of the new-style crisis is the focus on balance sheets and capital flight. Balance sheet issues are, of course, fundamentally linked to mismatches; even if there were solvency, they still create vulnerability related to liquidity problems. Exchange rate depreciation, in a mismatch situation, works in an unstable fashion to increase the prospect of insolvency and hence the urgency of capital flight.

Because new-style crises involve the national balance sheet, they involve a far more dramatic impact on economic activity than mere current account disturbances; this larger impact arises in terms of both the magnitude of the financial shock and the *disorganization effects* stemming from illiquidity or bankruptcy.[2]

16.2 Vulnerabilities

Sources of vulnerability include a substantially misaligned exchange rate and balance sheet problems. Trouble in the balance sheet can come in one of two ways: exposure, or existing holes in the form of nonperforming loans. Nonperforming loans or vulnerable loans speak for themselves, although one should note that they limit the room for higher interest rates and hence are a major problem for an interest rate defense. The other problem is exposure in the form of mismatches. In a national balance sheet there can be two kinds of mismatches: *maturity* mismatches, which lead to liquidity issues, and *currency* mismatches. In a situation in which the willingness to hold assets on current terms is impaired, these misalignments or mismatches become explosive. The willingness to hold assets can be impaired because there is a question either about the exchange rate or about the willingness and ability of debtors to meet their liabilities.

The exchange rate can be the starting point of a crisis when it is patently out of line. This is typically the case in exchange rate–based disinflation programs, which succeed in bringing down inflation but do so at the cost of a significant real appreciation. The resulting widening of the current account

2. *Disorganization effects* are developed in Blanchard and Kremer (1997) to aid understanding of the output collapse in transition economies but have not been applied in the setting of emerging-markets crises, where they are as useful a guide to grasping dramatic output adjustments.

deficit and the disappearance of growth from appreciation, and as a result of increased interest rates required to attract continued financing, make it obvious that the program cannot last because it is not self-correcting. At some point (see below for details) a speculative attack occurs that cannot be met by high rates or reserve depletion. At that point, currency depreciation interacts with balance sheet issues. The worse the balance sheets, the bigger the collapse.

The initial large real appreciation of an exchange rate is often justified by the argument that it reflects restructuring-induced dramatic rates of productivity growth, generating inflation of the Balassa-Samuelson kind. The argument is invariably suspect because this appreciation should not affect manufacturing price-based competitiveness measures and is less likely to be the case in an environment where unemployment is high and rising and the current account is deteriorating.

What are sustainable rates of real appreciation or of current account deficits, and what invites a crisis? Because of such issues as lasting improvements in capital market access, persistent terms-of-trade improvements, and productivity growth, emerging economies can experience trend real appreciation; they certainly can expect to finance some deficit-GDP ratio on an ongoing basis. It is safe to say, however, that a rapid real appreciation (say, over two or three years) amounting to 25 percent or more and an increase in the current account deficit to exceed 4 percent of GDP, without prospect of correction, take a country into the red zone.

Mexico with its recurrent end of sexennio currency collapses is an example of an economy in which the exchange rate and the current account are in the foreground and concern about the possibility of a devaluation (or the fact of a small devaluation) triggers massive capital flight. Because devaluation is postponed by shortening and dollarizing debt (the Tesobonos issue; see below) the balance sheet issues triggered by the currency depreciation are huge.

Consider next a balance sheet with substantial nonperforming loans. If interest rates are lowered, the currency comes under attack. If interest rates are raised, the loan portfolio goes even further under water. This is commonly a situation that leads to a crisis.

Consider as examples Thailand and Malaysia, which in 1997 had substantial nonperforming loans. In Thailand these were in real estate and consumer finance, whereas in Malaysia they included stock market loans that had financed a market boom. Protracted unwillingness to raise mandated lending rates brought about a "carry trade," and the pressure on the currency created an offshore market and ultimately led to crisis.

A large budget deficit and large short-term public debt are factors of vulnerability. A change in the growth prospects undermines the sustainability of debt, as does an increase in world interest rates, and thus undermines the willingness to hold and add to lenders' portfolios. The same is true of the

perception that the willingness to service the debt is impaired. The result is a flight from public debt, and the direction of that flight is invariably foreign assets. The resulting funding crisis translates into increased interest rates, which further worsen the fiscal situation and thus act in a destabilizing fashion.

For example, Brazil's crisis was centered on a large short-term debt, part of which was dollar-linked; depreciation prospects put debt service into the express lane, and actual depreciation completed the picture.

Argentina in late 2000 is a case in point. A deteriorated growth outlook put into question the financing of budget deficits and the rollover of the public debt by external creditors. Interest rates shot up, and the prospect of a massive capital flight was in the air. A massive International Monetary Fund (IMF) loan postponed the fiscal crisis until further notice.

If the exchange rate is fixed, reserves are being depleted, and that process increasingly adds currency risk to the equation. If the rate is flexible, depreciation ensues and increasing depreciation is projected. That in turn may spread risks to foreign exchange–denominated parts of the balance sheet and aggravate capital flight.

Banking problems are a frequent part, and possibly the initiating factor, of a currency crisis. When creditors of short-term interbank lines, or depositors, withdraw from suspect banks, the resulting flows tend to go offshore and hence translate into reserve losses or depreciation. The situation is likely to become a banking and foreign exchange crisis: the worse the nonperforming loan situation, the larger the maturity mismatching in the balance sheet, and the more significant the mismatching of denominations on the asset and liability side.

It is invariably important to look behind the balance sheet of the banking system at the underlying exposure generated by the banks' loan customers. Although the banks' balance sheets may look proper, the loan customers may have mismatching on their books and hence may shift it to the banking system if and when they run into trouble.

It is also important to recognize that a banking system's situation can change dramatically in a very short time. This easily happens when a concentration of liabilities (say, real estate loans) becomes bad, or a spell of high interest rates causes a general deterioration of a loan portfolio that had been only slightly above marginal. If the banking system's funding is short-term, the makings of a crisis emerge very quickly.

The Turkish crisis of December 2000 is a great example. In a situation of a large number of bad banks (not the major part of the banking system though), a withdrawal of credit lines triggered a banking crisis; the central bank financed the run on the banks by pumping in credit only to repurchase the liquidity in selling foreign exchange. Reserve depletion within days threatened the maintenance of an IMF-supported, exchange rate–based stabilization program.

The corporate sector, like the banking system, has balance sheets that are vulnerable to mismatch issues of maturity and denomination. The larger the corporate sector's short-term debt in the national balance sheet, the more vulnerable the country is to a funding crisis, which can then become a currency crisis. Once again, when credit to a particular sector is withdrawn, in emerging markets that means a capital outflow and not a substitution into other assets. For that reason, balance sheet problems become currency crisis issues.

Indonesia and Korea are examples of countries where formidably bad balance sheets—huge debt-equity ratios and large foreign exchange exposure—were a major part of the crisis situation. Typically, it takes weeks to determine just how large the external exposure is. Creditors will be reluctant to take haircuts, and debtors are under no pressure to yield. The protracted debt problem overshadows postcrisis credit normalization.

Whenever capital flight emerges, the question of the exchange rate regime is immediate. Under fixed rates, that means the amount of reserves the central bank has and is willing to commit; under managed or flexible rates, it means the extent and speed at which the rate will depreciate. Either way, the question is how urgent it is to bring money out. Once that question emerges, the answer is already *very urgent.* Reserves are almost never sufficient to withstand a balance sheet attack, and often they are less than reported.

Vulnerability can, at least conceptually, be expressed in terms of a value-at-risk exercise: what are the relevant shocks, what are the exposure areas, and how large a deterioration of the balance sheet would result? Mismatches are the key triggers of extreme vulnerability, and the worse the risk in part of the balance sheet, the more likely that it will spread to all of it—if only because, in case of doubt, creditors want recovery and asset holders refrain from lending.

An example of this phenomenon is provided by the Asian economies, which experienced crises due to bad corporate financial structures (high debt, high foreign exchange debt) relative to equity and a high ratio of short-term external liabilities to reserves. The combination made for fireworks.

Table 16.1 **Critical Indicators: 1996 (%)**

Country	Corporate Debt/Equity	Short-Term External Debt/Reserves
Indonesia	310	177
Korea	518	193
Malaysia	150	41
The Philippines	160	80
Thailand	250	100

Source: World Bank

16.3 Timing

There is no hard and fast rule about the timing of crises. It is surprising how long basically unsustainable situations can endure, notably if an election is in sight. With an election on the horizon, creditors are willing to believe that action be taken to hold off a crisis or a corrective devaluation. At such a time, they believe, governments will do anything, including instituting high interest rates and (preferably) shortening maturities and redenominating claims into foreign exchange. As a result, crises happen after elections, not before. This phenomenon is akin to the myopic political business cycle but is no less real. It is clear that the more the crisis is postponed, the worse the balance sheet, and the larger the fallout, once it does happen. Mexico, for example, always postpones crises until after the election. So did Brazil, Korea, and Russia. The post-election discovery of a Taiwan banking problem, and crisis, is another instance.

Bad balance sheets—as opposed to significant overvaluation, escalating current account deficits, or vanishing growth—in principle can last almost forever provided net inflows cover up the hole and transparency is absent ("clear water, no fish," as the Chinese saying goes). As a result, the proverbial straw that broke the camel's back can easily be the trigger. A relatively minor event might break a precarious refinancing scheme, or a suspicion arising anywhere else in the world might cause creditors to kick the tires somewhere else. Importantly, changes in the relative attractiveness of domestic and foreign assets or a change in the growth scenario can suddenly bring the test of the balance sheet and, with it, the move to crisis. If the balance sheet is bad enough, as a rule, quite small events are sufficient to undermine the funding scenario and precipitate the crisis.

For example, Turkey had forever been on the short list for a crisis but somehow got by. The failure of a Rumanian subsidiary of a bad Turkish bank, in an environment of political agitation about a sleazy banking system, started the stone rolling, and within days Turkey reached the prospect of immediate currency collapse.

Contamination easily fits the pattern of balance sheets that are bad enough to invite an accident. When that is the case, in time the right circumstances for a crisis will materialize. This takes longer than one would expect, but then it happens faster than one would have thought. A shift in the external environment—Group of Three exchange rates, federal interest rates, a slump in new commodity exports—can work as a trigger. The spread of crisis in Asia fits this pattern.

16.4 Good Balance Sheets, No Crisis

Do countries with good balance sheets and a currency that is not vastly misaligned face crisis risks? Of course, there is the trivial answer that for any

exchange rate or any balance sheet there can exist a shock large enough to render it unviable. However, the striking fact of the past twenty years of crises is surely this: well-managed emerging-market economies have suffered slowdowns in growth, high interest rates, and currency depreciation, but they have not suffered crises. Moreover, the better the balance sheets, the better the ability to absorb shocks to capital flows and trade without outsized adjustments in exchange rates or interest rates. The proposition "good balance sheets, no crisis" risks circularity, but, pending a good counter example, I will let it strand. The good balance sheets of banks in Singapore, Hong Kong, and Argentina are a large part of why these countries, while surely affected, were not pushed under by the crises of Mexico or Russia and Brazil.

16.5 Why Are Collapses so Large?

Currency collapses are large for two reasons: the interaction of mismatch factors and the difficulty governments face, once a meltdown is underway, in establishing their willingness and ability to engage in an uncompromising stabilization effort. In this environment, the IMF's role is to restore credibility and hence credit.[3]

The interaction of mismatch factors produces an instability in the response of asset holders: the more the exchange rate goes, the more bankrupt the balance sheet, and hence the more reason to deny credit and get out. The higher the maturity mismatch, the more liquid the creditors, and the more easily the debtor is moved into the gray zone between illiquidity and insolvency. The interaction of depreciation and illiquidity causes markets to cease functioning, and thus record interest rates and (initially) a vast overshooting of exchange rates are the rule.

The crisis itself weakens the government politically and makes doubtful its willingness to stick with a policy that dries up credit and hence starves off capital flight. The absence of effective property rights and of transparency renders the possibility of bottom-fishing very hazardous. Hence, there are no capital inflows and no stabilizing speculation, and only a one-way downward pressure on asset prices, the currency, and the balance sheets. Indonesia, with a political collapse and an ongoing struggle about who will pay the debts and who will gain, offers a clear case of an unresolved crisis.

Disorganization in the Blanchard-Kremer sense becomes a dramatic issue when creditworthiness collapses and bankruptcy spreads to attack the real economy. The real economy is a complex layer of relationships in two

3. For the Asian economies, the initial level is January 1999; for Mexico, January 1994; for Brazil and Russia, January 1998. The most recent data are for December 2000.

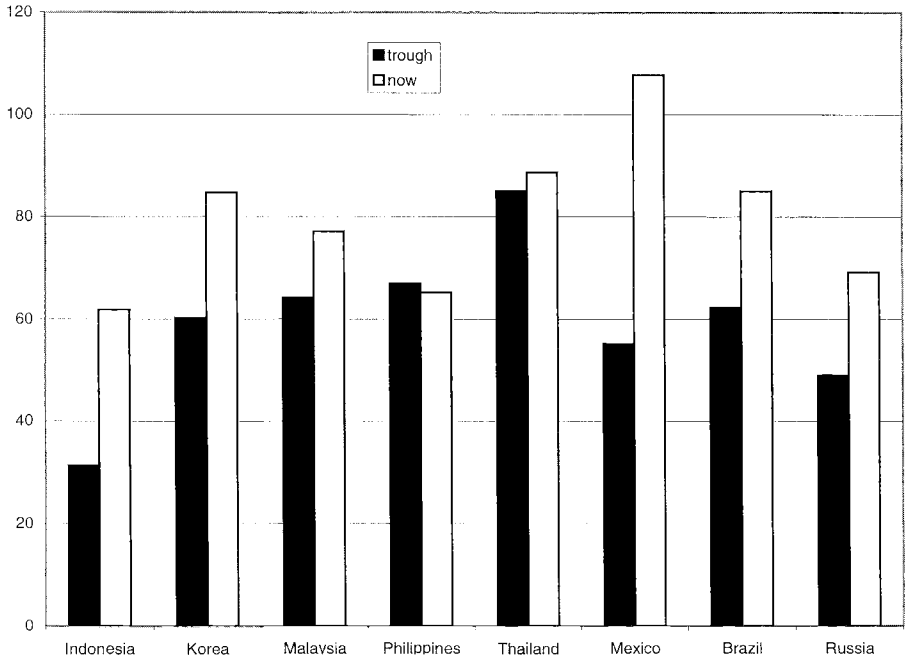

Fig. 16.1 Real exchange (initial level index = 100)
Source: JPMorgan data

ways. First, there are input-output relationships that can be disrupted at any point in the chain because a critical supply or demand link disappears and hence impairs or destroys the whole chain. Second, there is often a credit relationship, rather than cash and carry, and this is sensitive to creditworthiness suspicions and can become the disruptive factor. Disorganization is an important part of the output collapse.

The IMF's role in reversing the dramatic immediate events is twofold. First, it offers a commitment device for governments to underwrite a stabilization strategy that is known to work. Second, it offers temporary credits and debt reorganization, including lock-up of short-term credits and commercial bank credits, and thus helps stem the outflows.

High interest rates may hurt growth and the balance sheets, but they definitely stem the depreciation of the currency. Ultimately that is the single most important beachhead of the stabilization program. As long as the currency melts, there is no prospect of stabilization. (Below I discuss an alternative to controls.) In the collapse phase, currencies depreciate formidably relative to any current account-based view of what is necessary for adjustment. They are driven by the capital account. When a credible program is put in place, there is a rapid normalization, as in Korea or Brazil.

The adoption of an IMF strategy and demonstrated adherence soon shut off the hemorrhage and turn an economy around into currency recovery and a decline in interest rates. The combination of postcollapse, overdepreciated exchange rates and a credible credit program provides for appreciating exchange, and declining interest, rates. A virtuous circle begins. Wavering commitment, by contrast, remains reflected in volatile currency and high interest rates.

16.6 Costs

Currency crises are formidably expensive; even more so is a history of recurrent crises. The costs arise in three ways: a substantial increase in public debt associated with the crisis, a loss of output and disruption, and the possibility of socially controversial redistribution of income and wealth.

In a currency crisis, because the government will bail out banks and (often) even companies, public debt increases substantially, and, with it, future tax liabilities. The deterioration in public finance also arises from a period of high interest rates in the run-up to the crisis and in the stabilization phase. It will also arise from the fall in output and hence tax revenues in the crisis period. Moreover, the increase in debt may itself bear the seeds of future crisis if it occurs when the government dos not have the ability to meet the higher debt service burden by taxation or reduction in spending.

The numbers can be staggeringly large. The government burden from a bank bailout can easily be 20 or 30 percent and more of GDP. In addition, there is easily a 10 or 15 percent increase in debt from high interest rates applied to a large debt and from recession-induced tax losses.

Also, there is always a large loss of reserves, which are sacrificed during the defense part of the crisis. To some extent these may be captured by the private sector and hence merely amount to a transfer, but often they are the counterpart of a bet the government makes with the rest of the world and loses. To the extent that a crisis experience weakens a country's credit rating, there is also a lasting cost in terms of a higher international cost of capital.

A currency crisis redistributes wealth and income. It is said that more money was made in the few years of collapse of the Holy Roman Empire than in the long years of its existence. The same is true of crises that enrich those who can be in time in foreign exchange or can induce the government to assume their debt while keeping their assets. That is routine. The striking regularity, of course, is the dramatic fall in real wages and employment, as well as the bankruptcy of small debtors.

Periods of recurrent currency crises translate into poor growth performance, short horizons, slow increases in the standard of living, and a deteriorating social and economic infrastructure. Major asset sales along the way, increases in external debt, or spurts of reform can obscure the degra-

Table 16.2 Latin American Growth Per Capita

Year	Growth Rate
1980–90	–0.3
1990–99	1.7

dation of the productive economy at any one time. However, ultimately medium-term growth rates, far from reflecting catch-up, reflect the costs of persistently poor finance.

16.7 The Alternative Medicine Controversy

There are two areas of controversy. The first involves capital controls, and the second surrounds the appropriateness of IMF programs. On both issues the controversy is alive and conducted with great vehemence.

The appropriateness of IMF programs is quite obviously questioned because they seem, at least on the surface, to make a bad situation worse. Raising interest rates at a time when balance sheets are already under water makes a bad debt situation worse. Raising interest rates and tightening fiscal policy at a time when the economy is already in steep decline seems to be outright counterproductive.

What are the alternatives? Capital flight will certainly continue as long as the central bank pumps in credit at unchanged interest rates: obviously, the immediate gains from borrowing in a depreciating currency far outweigh the cost of borrowing. Hence, borrowing and capital flight remain active, depreciation deepens, balance sheet problems increase—there is no obvious end to the process.

There are, of course, two ways of trying to reconcile unchanging interest rates—rather than extraordinary short-run levels of 100 or 1,000 percent per annum—with an end to capital outflows. One possibility is credit allocation controls, and the other is capital control; the best possibility is a combination of the two. There are obvious questions regarding the effectiveness of controls, but even if these are settled, there is also the issue of efficiency. If controls were temporary, this might not be an issue, but if they are lasting, suspending the capital market is much more of an issue. For the system at large, the presumption that controls are the response to outflows will reduce the perception of liquidity and hence translate into a higher cost of capital and more trigger-happy investors.

Surely there is agreement that the better strategy is to reduce the risk of a crisis situation, including means such as predetermined limits on liquidity and profitability, but that leaves open the question of what to choose in the midst of a crisis: IMF or controls. The debate continues.

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