

**UNDERSTANDING THE RUSSIAN VIRUS**  
**with special reference to Latin America**

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**I. Introduction**

Although Tequila and Asian crises took the world by surprise and had global repercussions, after a short while financial turmoil remained somewhat regionally confined. Tequila crisis started in Mexico and claimed Argentina as a victim, but the rest of the world was virtually unscathed. Similarly, the Asian crisis began in Thailand and spread all over Asia but did not cause major capital outflows in Latin America. Advanced economies' financial sectors were little touched by either.

Early results, however, strongly suggest that the recent Russian crisis may have more serious implications. Negative effects seem deeper, credit to emerging markets economies, EMs, has frozen, and a major recession in those economies is becoming more likely. Why? This is the central issue addressed in the present note.

I will argue that the world capital market is populated by essentially two types of investors: informed, and non-informed (or less-informed). As a general rule, the former lead and the latter follow, and there is no major difference of opinion between the two groups. This system works reasonably well as long as there is no need for one group to carry out a significant portfolio recomposition. For, in that case, one group will have to sell and the other buy. This is precisely what, in my view, happened after Russia's debt repudiation: the capital loss suffered by Russia's bond holders, triggered 'margin calls'

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on highly leveraged informed investors, forcing them to sell some of their EM holdings to the other group, i.e., the non-informed (for whom leveraging was less attractive due to their poorer information). This is a complicated operation because the informed investors' sellout makes the non-informed think that there must be some fundamental problem with EMs. As a result, EM security prices drop by more than can be accounted for by conventional fundamentals. This is key for the explanation offered in this note.

Moreover, since informed investors are liquidity-constrained, EM security prices will be slow to recover, which implies that EMs may face sharply higher interest rates for an extended period of time. This is the link with the real sector. The resulting fall in aggregate demand (which has a large unanticipated component) lowers output and employment through different channels. The note highlights the sudden change in the relative price of nontradables caused by contraction in aggregate demand. A typical example is a sharp fall in real estate prices. This, in turn, increases the share of nonperforming loans and arrears, seriously damaging the domestic credit market. The note argues that, if financial turmoil is not quickly turned around, it may interfere with production and cause a negative output shock. Afterwards, EMs would fail to recover even if the informed investors are no longer liquidity-constrained.

The paper contains a brief methodological comment on the role of short-term debt obligations in aggravating the crisis, and closes with a few observations about the difference between Tequila and Russian crises, and prospects for an early recovery.

## **II. Information Costs, Specialist Clusters, and Leveraging**

I start from the observation that EMs' risk assessment is subject to large fixed costs. This is so because no investment project can be effectively evaluated without

taking into account the macroeconomic environment (a fixed cost). In addition, EMs' macroeconomic analysis is especially costly as it has to be carried out in a milieu of poor and rapidly obsolete information—the latter stemming from the fact that many of these economies are undergoing still uncertain but deep political/economic reforms. This, in turn, naturally leads to the formation of *specialist clusters*. The latter are groups of high-power macroeconomists and financial experts who can quickly evaluate new information, and effectively disseminate it across the clusters' clients, e.g., institutional investors, hedge funds, etc.<sup>2</sup>

The above-average information enjoyed by these investors (which I call *informed investors*) makes it attractive for them to finance their long positions in EM instruments by borrowing and short selling safe assets (e.g., US T Bills)—in other words, leveraging. Thus, an exogenous and unexpected negative shock, like Russia's debt repudiation, will lower informed investors' portfolio values and, in turn, trigger *margin calls*, i.e., instant debt repayment obligations on leveraged positions

In an ideal perfect-information world, *deleveraging* associated with the collapse of a very small share of world's financial portfolio (as Russian debt is), should not result in an across-the-board implosion of EM markets. This implication, however, is not valid if informed investors were liquidity-constrained. Under those circumstances, new EM debt instruments, for example, would have to be acquired by non-informed investors.<sup>3</sup> This may bring about a major disturbance in the capital market, as I will explain. For the sake

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<sup>2</sup> Although information gathering is subject to increasing returns to scale, information dissemination is not. The value of the latter declines with the number of clients, given that dissemination relies on technologies such as conference calls. As a result, informed investors are unlikely to be the dominant type of investors in the market for EM securities.

<sup>3</sup> Non-informed simply means that these investors do not belong to the informed set, i.e., those that are informed by the specialist clusters directly. Thus, non-informed should be identified with *uninformed*. In fact, as will later be argued, the non-informed have a different type of information.

of exposition, I will analyze each of the following increasingly realistic situations: (a) initially, non-informed hold no EM paper, (b) they do, and (c) the non-informed keep track of informed investors' strategies (this is the most interesting and, I believe, relevant case).

- a. *Non-informed hold no EM paper.* In this case non-informed investors' reservation price would be below the market's, implying that for them to be willing to take EM debt, its price must take a dip. This extreme case helps to illustrate how prices can plunge beyond what would be called by (conventional) fundamentals. However, the example is not realistic because there are, for example, open-end EM mutual funds especially designed for the non-informed small investor. Therefore, one should pay attention to the case in which, initially, holders of EM securities involved both informed and non-informed investors.
- b. *Informed and non-informed hold EM paper.* The informed investors' sellout will bring about a fall in the price of EM debt. This is so because the non-informed will end up holding a larger share of EM paper. However, for the fall to be significantly large, one would have to argue that initially the non-informed held a tiny fraction of EM securities, or that their risk assessment or risk aversion was much larger than that of informed investors. This may very well be the case, but I will now offer what seems to me a more relevant explanation.
- c. *The information set of non-informed includes the informed investors' actions.* Non-informed investors are not completely in the dark. They read Barron's and the Wall Street Journal and, thus, follow the informed investors' opinions and actions, albeit at a distance and with a lag. In particular, the non-informed will not be indifferent to the

fact that liquidity-constrained informed investors stay out of the market for new EM debt, for example.<sup>4</sup> Thus, the non-informed face what is sometimes called a signal-extraction problem: do the informed investors stay out because they are liquidity-constrained, or because they know something bad about these countries that I don't know? It seems to me plausible that, upon observing that the informed stay out of the market for new EM issues, the non-informed will attach some probability that the EMs have been hit by a negative—albeit unobserved—across-the-board shock. This would lead them to lower their assessments for all EMs, causing a sudden market value loss for *all* EM debt. Furthermore, as informed investors realize that their actions are closely watched by the non-informed (bringing about a sudden across-the-board fall in prices), they will have a *strong incentive to dump their EM securities holdings before the non-informed have time to react*. However, in order for the informed to be able to sell *as a group*, they must find buyers among the non-informed. In the realistic case in which the non-informed take this dumping by the informed as a strong signal that there are fundamental problems with *all* the EMs, the sellout will increase further. This is so because the informed investors' dumping would go far beyond what is necessary to meet the margin calls associated with the Russian shock.<sup>5</sup> Thus, depending on how the non-informed revise their expectations

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<sup>4</sup> The new debt market is likely to be active as long as some EMs run current account deficits.

<sup>5</sup> A sophisticated non-informed investor would realize that the sellout is partly motivated by the informed trying to avoid capital losses. However, since the non-informed face a signal-extraction problem, they are still likely to attach a higher probability to the existence of a negative shock to fundamentals for the entire EMs.

in light of these developments, one might even conceive of situations in which the market for new EM debt obligations freezes up completely.<sup>6</sup>

#### **IV. Sudden Stop and Meltdown**

The collapse of the EM bond market results in sharply higher interest rates and a sudden stop or reversal of capital inflows (sudden stop, SS, for short). By national accounting, and abstracting from errors and omissions, capital inflows equal current account deficit plus accumulation of international reserves. Therefore, SS has to be met by reserves losses or lower current account deficits. In practice, both take place. While a loss of international reserves increases the country's financial vulnerability, contractions in the current account deficit usually have serious effects on production and employment.

To see this, note that, by national accounting, the current account deficit equals aggregate demand minus GNP. Thus, a sudden contraction in the current account deficit is likely to lead to a sharp decline in aggregate demand (the only exception being the unlikely case in which there is an offsetting increase in GNP). The latter, in turn, lowers the demand for tradables and nontradables. The excess supply of tradables thus created can be shipped abroad, but the nontradables are, by definition, bottled up at home and, thus, its relative price will have to fall (resulting in a real depreciation of the currency).

A typical example, is real estate prices that have collapsed in all recent crises.

How does one go from here to infer a loss of output and employment? I can identify two channels: (1) Keynesian, and (2) Fisherian (for Irving Fisher, the Yale economist). The Keynesian channel is straightforward and familiar: prices/wages are

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<sup>6</sup> The situation is reminiscent to the celebrated Lemon's Problem that arises in the market for used cars. For a recent exposition, see David M. Kreps, *A Course in Microeconomic Theory*, Princeton University Press, 1990, Chapter 17.

downward inflexible; thus, a fall in aggregate demand is accommodated by a fall in output and employment.

On the other hand, the Fisherian channel is less familiar but, in my view, potentially more fearsome. Financial contracts are, as a general rule, very simple. An example are bank loans, which oblige the borrower to pay a fixed number of installments. Consider, first, a stable price level situation. In that situation, nontradables' prices must *fall* for their relative price to decline. Thus, the ex post real interest rises, increasing the amount of nonperforming loans. This problem may be less acute if the currency is devalued. However, there are two common complications that may offset the positive effects of devaluation. First, many EMs are heavily dollarized, in which case devaluation is ineffective. Moreover, even in countries where assets dollarization is not significant (Chile, Indonesia), there exists sizable liabilities dollarization. It is well known, for example, that Indonesia's private sector had a sizable external debt when crisis hit, and that this type of debt played a key role in the ensuing financial difficulties. Second, even if there is no dollarization to speak of, bank loans, for instance, are of shorter maturity than the underlying productive projects. Therefore, interest rates are likely to be revised upward after the SS, reflecting credit market conditions, again increasing the incidence of nonperforming loans. The Fisherian channel is more fearsome because it damages the financial sector. As a result, banks become more cautious and cut their loans, especially to small- and medium-sized firms, interenterprise and trade credit dry up, possibly leading to a major recession.<sup>7</sup>

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<sup>7</sup> For further discussion on these issues, see Guillermo Calvo, "Capital Flows and Capital Market Crises: The Simple Economics of Sudden Stops," 1988, which can be found in my web site [www.bsos.umd.edu/econ/ciecalvo.htm](http://www.bsos.umd.edu/econ/ciecalvo.htm), under Policy Papers.

As discussed in Calvo (op.cit.), once the real side of the economy is hit, the damage may not be cured with standard monetary or fiscal policy. This is so because the damage may be equivalent to a negative supply shock which lowers physical capital's marginal productivity. Therefore, EMs become less attractive investment options, and the combination "low growth-high unemployment" may linger on for a long time. Even if the informed investors grab hold of their initial liquidity, they will now have lower incentives to go back to EMs.

#### **V. Aggravating Factor: Short Term Debt Obligations**

If there is no debt or debt obligations are nil in the near future, then a SS can at most force the current account deficit down to zero, i.e., the country as a whole can at worst be denied fresh money. In contrast, if international credit dries up and debt obligations (interest plus amortization) are large, the economy may need to generate sizable current account surpluses or declare a debt moratorium (as Mexico in 1982) or repudiate (Russia 1998)—deepening the negative effects of SS.

To illustrate the relevance of short-term debt obligations, Chart 1 shows potential public sector debt service as a share of international reserves for several Latin American countries. Potential debt service is defined as interest plus amortization coming due on a given year *assuming no debt rollover*. Debt obligations include both domestic and external public debt and are expressed in dollars, using as a deflator the year's average exchange rate. Needless to say, these estimates can be improved and should only be taken as a first pass at these issues. On this basis, however, Brazil shows, by far, the highest ratio. With a stable exchange rate (which the government has promised to keep), less than one-fifth of Brazil's potential debt service could be honored by totally depleting



international reserves. Four-fifths would, thus, have to come from a reduction in the current account deficit.<sup>8</sup> Therefore, if potential debt service were 20 percent of GDP (it is actually larger), the current account deficit would have to contract by 16 percent of GDP, an enormous amount.<sup>9</sup> The situation is less critical in Mexico, and Chile could finance its entire public debt service obligations by running down its reserves. The ratio for Argentina is a bit misleading because the central bank has to keep a large share of its reserves as backing for base money. Thus, for example, if no reserves could be utilized for servicing the public debt, the current account deficit would have to contract between 3 and 4 percentage points of GDP. This is a large number for Argentina given the sensitivity shown in 1995 to a smaller reduction in the current account deficit (see note 9).<sup>10</sup>

## VI. Final Words

Previous analysis suggests that the virulence of the Russian shock stems from capital market failure. The shock hit the better-informed segment of the market and, thus, left pricing of EM securities in the hands of (what the note calls) non-informed investors. Problems are compounded when such investors interpret the liquidity-motivated sellout by informed investors as indication that the countries themselves are undergoing serious difficulties in their fundamentals. It is still too early to assess the full relevance of this conjecture. However, the high correlation across EM bond prices, given the absence of easily identifiable common country shocks, makes me confident that,

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<sup>8</sup> To avoid misunderstandings, it should be kept in mind that I am computing *potential* capital outflows, but I am saying nothing about their likelihood. In fact, some analysts suggest that a run on this debt is unlikely to happen because it is held mostly by domestic institutions. See Section VI for further discussion.

<sup>9</sup> During the Tequila episode in 1995, the current account deficits contracted in about 8 percent of GDP in Mexico, and about 2.5 percent in Argentina; in turn, GDP fell by more than 6 percent in Mexico and more than 4 percent in Argentina.

whatever the right explanation might be, the answer must lie in the workings of the capital market itself.

Why was Tequila so much less virulent? The salient difference between Tequila and Russian crises is that in the Mexican crisis bondholders came out whole, while in Russia they were wiped out. Shareholders got badly hit in both instances, though. Thus, if the arguments developed here apply to *all* EM securities, a complete answer would still have to wait for further quantitative analysis. However, I suspect that there is an important difference between stocks and bonds in this respect. Just a cursory look at EM stock markets reveals a high degree of volatility. This is especially true in Latin America where booms led in some cases to more than quadrupling market values, followed by meltdowns in which stock prices were cut in half in the span of a few weeks. Thus, it seems unlikely that informed investors strongly leveraged their Latin American long stock positions. The situation is, of course, different with fixed-income instruments, especially short-term debt, which can be held until maturity and, hence, price volatility becomes less of an issue. Thus, I would expect leveraging to be more prevalent in the bond market.

Consequently, with the above discussion as background, I feel confident to offer the following conjecture: *Russia's crisis was more virulent than Mexico's crisis because fixed-income holders (especially informed investors) were wiped out in the former, but came out unscathed in the latter.* This perspective also helps to evaluate the possible consequences of debt repudiation in Brazil. Word of mouth has it that informed investors are out of that market, and that the main holders are Brazilian institutions for which those

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<sup>10</sup> A complete analysis of these issues should also take into account the maturity structure of private sector's debt obligations.

instruments are attractive substitutes for domestic money. Thus, in the first place, a massive run on those bonds is less likely because the private sector needs transactions balances for its daily operations. And, second, the absence of informed investors in the Brazilian debt market may keep the effects of debt repudiation from spreading beyond regional confines.

What is reasonable to expect next? Available information suggests that the liquidity crunch may still claim more victims, and that it has already landed in the US. Thus, I do not foresee a quick reactivation of the EM bond market in the near future. Countries are, thus, likely to go through a wrenching Sudden Stop process. This might be especially painful in Latin America because the region had, until now, benefited from widening current account deficits. In this context, crisis in Brazil cannot possibly help and, if anything, will likely make investors even more jittery.

Can this be prevented? It is hard to say. However, a large bailout package for Brazil should bring calm and confidence. The package has to be large enough, though. Otherwise, it could speed up exit and end up in a replay of the Russian crisis (in which the package was spent almost instantaneously, leaving behind a large stock of yet unpaid short-term debt).

A parallel line of attack would be further cuts in the US interest rates, although I would not place a great deal of faith on this. We are witnessing a *non-uniform* deleveraging process: not all segments are hit likewise. Thus, to become effective, monetary policy may have to be complemented by direct credit-market enhancements. In other words, the world economy could presently be caught in a “liquidity trap” where extra liquidity does not per se increase spending because of dysfunctional credit markets.

**Chart 1. Potential Public Sector Debt Service / Reserves Ratio  
(Foreign & Domestic)  
Selected Countries - 1992-98**

