

PUBLIC DEBT AND THE MACROECONOMY

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Recent crises have shown that public and private debt can play a key role in generating and propagating financial crises. In these notes I will discuss three policy-relevant aspects of the issue, with special reference to public debt, namely, (1) the evolution of the market for emerging market economies, EMs, public debt, (2) Bond traps, and (3) Contagion.

The Three Stages of Public Debt. Since World War II public debt in EMs has gone through mutations. Each stage can be characterized by the type of holder, and whether holdings are mandatory or voluntary:

1. holders: central bank or, mandatorily, pension funds or commercial banks;
2. holders: (voluntarily) domestic and international commercial banks;
3. holders: (voluntarily) financial and nonfinancial institutions.

Stage 1. It is the most primitive and characterizes economies which have limited access to the world's capital market, and have a primitive domestic capital market. Under these circumstances, there exists a close connection between fiscal deficits and expansion of money supply. Moreover, since the alternatives to money are also limited, one would expect a tight connection between money and prices. As a result, stopping inflation is likely to be easily achieved by lowering the fiscal deficit. However, *currency substitution* (i.e., the use of a foreign currency for transaction purposes) could represent a major complication, because it breaks the tight link between domestic money and prices.

Stage 2. Here the connection between fiscal deficit and inflation becomes less straightforward. How does it work? Here are some relevant examples:

- *Syndicated loans*, i.e., loans organized by sets of banks. This type of loan became popular in the 1970s because, among other things, it helped to diversify each participating bank's risk. In a way, it was a first step towards *securitization*. This system blew out in the early 1980s as US interest rates rose and international liquidity dried up (see Borensztein and Calvo (1989)). There is an ongoing debate about whether these were *solvency* or *liquidity* crises.

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- The collapse of the syndicated loan market and resulting debt crisis left many key EMs outside the world capital market. Interestingly, however, several countries continued to issue public debt that was voluntarily held by *domestic* commercial banks. How come? This is puzzling because even though some countries imposed controls on capital outflows, the latter were easily bypassed. Thus, as a first approximation, one should expect that credit rationing applied to both internationally and domestically funded loans. A plausible answer to the puzzle is that the liabilities of domestic banks are close substitutes for (base) money. True, bonds usually come in large denominations and can hardly be expected to be close money substitutes for retail transactions. However, commercial banks can help “monetize” government debt obligations, e.g., by issuing (perfectly divisible) short-term bank deposits and investing the proceeds in government bonds. Banks can secure such funding by, if necessary, increasing interest on bank deposits.² In this fashion, *the fiscal deficit ends up being financed by issuing interest-bearing money* (i.e., bank deposits). Experience and theory show, however, that this mechanism for financing fiscal deficits is short-lived and typically ends up in a currency crisis.

Stage 3. The Brady plan, which helped to bring an end to the 1980's Debt Crisis, allowed the *securitization* of some of the early syndicated loans, and created the basis for the development of an international market for those countries' sovereign debt. In addition, US regulations were relaxed in the 1990s to allow institutional investors to hold that kind of debt instrument (see Calvo, Leiderman and Reinhart (1993)), and the US put strong pressure on Asian countries to open up their financial sectors. Thus, the 1990s saw a mushrooming of EMs bonds (including private sector bonds) traded in the international capital market. Conceptually, this stage is not different from Stage 2. The main difference, though, lies in the orders of magnitude. Tapping the world capital market directly, without the intermediation of large banks, represents a major jump in the amounts that can be borrowed. One reason for this to happen is that securitization increases incentives for *the market* to learn about individual countries, and facilitates risk sharing. However, as will be discussed under Contagion, risk sharing may lower incentives to collect information for the vast majority of investors, making the bond market highly susceptible to rumors.³

² For this to be possible, there cannot be binding upper bounds on bank deposit interest rates. Thus, in several instances this mechanism was preceded by financial liberalization.

³ The last two sentences may appear contradictory. However, the point is that although securitization helped to cast more light on Debt Crisis countries, the light beam was controlled by just a few hands (the *informed investors*). Thus, if informed investors are subject to a liquidity crunch, for example, and cannot carry out their preferred trades, the rest of the market loses a key source of information. Under those circumstances, market prices and informed investors' trades convey much less information to the uninformed. This may cause a great deal of confusion and even panic. For a more careful discussion of these issues, see Calvo (1998).

Bond Traps. It is common for economies moving up through the above stages to feel that “there is no budget constraint.” However, I will stay away from discussing this “mirage of riches” and focus on two traps that have proved relevant in practice, namely, the bond-repudiation trap, and the bond-inflation trap.⁴

Bond-Repudiation Trap. This trap was highlighted in Calvo (1998a) as a possible explanation for the 1994/5 Mexican Tesobono Crisis that resulted in 6.4 percent output contraction during 1995. The idea is simple. To illustrate it, let us assume that there exists a positive stock of dollar-denominated short-term public bonds. In a good scenario, investors are willing to refinance those bonds and there is no negative effect on output. In a bad scenario, bonds cannot be refinanced and the government is forced to make a gigantic fiscal effort, which results in a sharp output loss. The example is interesting because the bad equilibrium could be stable, in the sense that, upon reconsidering, no rational investor might be willing to rollover this country’s debt. The reason is that strong fiscal adjustment often requires imposing highly distorting taxes. Distortion may be so large that the country becomes *insolvent*.

A way to guard against bond-repudiation traps is for the government to issue long-maturity bonds. In practice, however, this may not be feasible, since just the suspicion of insolvency or unwillingness to pay will drive long-term interest rates through the ceiling.

Bond-Inflation Trap. The mechanics of this case are similar to the earlier one, but it involves other variables. Consider a situation in which there exists a stock of *nominal* short-term public debt. Under normal circumstances, the debt can be fully serviced. In contrast, suppose that something happens somewhere that leads investors to expect a devaluation in the country in question. This will sharply raise nominal interest rates and, if devaluation does not take place, *real* interest rates will also go up sharply, increasing the fiscal deficit. The situation may become unsustainable if devaluation expectations are persistent. Brazil before the *Plano Real* seems to have fallen in that trap. At some point in time, inflation was hovering around 30 percent per month. Authorities tried and failed several times to stop inflation. To illustrate the nature of the problem, consider a fiscal adjustment program that would be consistent with a fixed exchange rate *if the program was credible*. What happens if the program is not credible? Suppose, for example, that the program is not credible and nominal interest rates remain (as in Brazil) at the 30 percent level. Under these circumstances, even a government that sticks to its guns may run into trouble, because the dollar-equivalent interest rate would also be 30 percent per month. Interest rates that high are hardly sustainable even if initial debt is low (in Brazil domestic public debt was only around 20 percent).

A key feature of the above example is that interest rates on the *entire* stock of debt quickly reflect devaluation expectations. This is a result of short maturities. However, the same holds true if

⁴ This should not be taken as saying that the Mirage-of-Riches phenomenon is not relevant. In fact many a politician has fallen for it. However, it is just one of many examples in which policy ends up been conducted as is there was no budget constraint.

bonds have long-term maturities but their interest rate is indexed to some short-term interest rate. A solution is to issue long-term fixed interest rate bonds. Moreover, to increase their marketability, bonds could be indexed to the exchange rate or some relevant price index (like in Chile), subject to the caveats discussed above under Bond-Repudiation Trap.⁵

Contagion. This is a popular term which few people care to define. Here I will say that country B is infected by country A, if a crisis in country A has repercussions on country B which go far beyond what could be justified by *fundamentals* (like international risk-free interest rates, terms of trade, etc.). The ultimate example of contagion occurred in connection with Russia's debt default in August 1998 (see Calvo (1998b)). As a result all emerging markets were badly hit, even though Russia represents less than 1 percent of world output, and many of those countries had little or no trade with Russia. A dominant hypothesis is that contagion was provoked by the way *Wall Street* operates, not directly by Russia. As the story goes, Russia default caused a liquidity crunch in *Wall Street*, which in turn forced those institutions to liquidate other EMs securities. In particular, to build up liquidity informed investors had to sell their holdings to uninformed investors. This created confusion (see footnote 2 above), and sent a signal that things might not be looking well in EMs, all of which led to a collapse in EM security prices.

For our purposes here, the main lesson is that the market price of EM debt could be affected by factors that are not under the control of the countries in question. This gives an additional argument in favor of long-term debt as an instrument that helps EMs to insulate their economies from the effects of contagion, and other external factors.

References

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⁵ Indexation to the exchange rate could increase the costs of running a floating foreign exchange regime. See Calvo (1999)