Overview: Lessons from Brazil

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Why Brazil?

Brazil adopted inflation targeting in early 1999, after floating its currency and a 50 percent depreciation. This development ended a period during which the exchange rate had been the main anchor for monetary policy. Inflation targeting was one element of a wider policy regime that entailed, in particular, the announcement, a year earlier, of a sequence of higher primary budget surpluses. The new monetary regime worked well: the initial inflation targets were set at 8 percent for 1999 and 6 percent for 2000—with a 2 percent tolerance range. In December 1999 the 12-month inflation rate was 8.9 percent, and the following December 6 percent, exactly on target.

The successful start was followed by two difficult years: contagion from Argentina, a domestic energy crisis, a widening of bond spreads worldwide, a sudden reversal in capital flows amounting to 6 percent of GDP, and finally the political uncertainty surrounding by the 2002 presidential campaign. During this period the *real* depreciated again —20 percent in 2001 and 50 percent in 2002; inflation temporarily increased to as much as 16 percent, but by March 2004 it was back to 6 percent.

Overall the new policy regime survived such a severe stress test. This book is about how this happened and what lessons other countries that either adopt or consider adopting inflation targeting can learn from the experience of Brazil.

In his overview of inflation targeting in emerging market economies, Mishkin (2004, p. 29) concludes that "to ensure that inflation targeting produces superior macroeconomic outcomes, emerging market countries would benefit by focusing on institutional development, while international financial institutions like the IMF can help by providing

these countries with better incentives to engage in this development." The importance of domestic institutions, fiscal institutions, in particular, and of the incentives offered by international institutions is highlighted by the experience of Brazil: hadn't inflation targeting been accompanied by institutional development, as the adoption of the Law of Fiscal Responsibility and the agreements with states and local governments, it is unlikely that Brazil would have managed the crisis. Further, at a critical moment during the 2002 presidential campaign, an IMF agreement provided the necessary framework to coordinate the candidates' public support for maintaining sound policies in the future.

The first chapter in the volume, by Affonso Pastore and Maria Cristina Pinotti, reviews macroeconomic events in Brazil since 1999: we will refer to that chapter for understanding Brazil's macroeconomic landscape in the period we study. In this overview we focus, instead, on the factors that, in our opinion, made it possible for Brazil to manage the crisis and on the lessons that can be drawn.

Inflation Targeting under Stress

During 2002 Brazil underwent a severe "stress test." Due mainly to the uncertainties related to the presidential campaign, but also to the widening of spreads worldwide, especially on US corporate bonds, there was a sudden stop in capital flows[1] amounting to 6 percent of GDP, an exchange rate depreciation of almost 50 percent, and a substantial increase in the spread over Treasuries of Brazilian bonds. The real depreciation and the sudden stop in capital inflows required a sharp adjustment in the current account (5 percent of GDP, from 2001 to 2003) and a corresponding reduction in domestic absorption, mostly private consumption and investment.

The sudden stop and the resulting depreciation also led, because of the composition of Brazilian public debt, to an increase in the amount of debt as a fraction of GDP. Both domestic and external public debt were linked to the exchange rate: 30 percent of domestic debt was indexed to the nominal exchange rate and, as in most emerging markets, all public external debt is denominated in strong currencies. As a result the ratio of net public debt to GDP jumped, in a few months, from 0.54 to 0.63.

The composition of public debt in Brazil has been an important issue for a while. The unwillingness of the private sector to bear currency

risk limits the ability of the government to reduce the dollar-linked component of the debt. After two years (1999–2000) of continuous reduction, the proportion of dollar-linked debt increased again in 2001. Only after the crisis, since mid-2003, the government has been able to reduce once again this component of the debt. As we will discuss at the end of this overview, it remains an open question by how much and at what speed the Brazilian government should continue reducing its exposure to currency risk.

As public debt increased, and investors became suspicious regarding the economic policies that would be adopted after the election, doubts regarding the sustainability of the debt mounted. At one point, in mid-2002, the market began to price into Brazilian bonds a risk of default within the coming 12 months. The EMBI spread (the difference between the yield on dollar-denominated bonds issued by Brazil and that on equivalent US Treasury bonds) moved from 700 basis points in the spring to 2,400 at the end of July.

The uncertainty regarding the sustainability of public debt induced market participants to reduce their exposure to public debt or seek shorter government securities. As a result the discount on long-term domestic government securities widened substantially and the debt maturity was shortened. The average maturity of Selic-indexed debt held by the market fell from 36 months in March 2002 to 20 months in January 2003 and the percentage of debt coming due in the following 12 months rose from 6 percent to about 50 percent.[2]

The inflation-targeting regime also underwent a direct stress test: the exchange rate depreciation had led to higher expected inflation: one-year-ahead inflation expectations increased from 4.5 percent in the spring to 5.3 percent in early August and 10 percent in October.

How Brazil Managed the Crisis

The sudden stop confronted the government with a number of challenges. First, the government had to restore confidence on future policies to avert the net capital outflows and reduce doubts regarding debt dynamics. Second, the central bank had to evaluate whether the impact of the exchange rate depreciation would be limited to a once and for all change in the level of prices, or inflation would remain higher even after the exchange rate had stabilized. In this regard, how fast and by how much should interest rates be raised? Third, the government had

to manage the sharp fall in the demand for longer term government securities and avoid a rollover crisis.

Inflation Targeting and Debt

As was noted above, the depreciation had rapidly increased the ratio of public debt to GDP. This called for an increase in the primary surplus if the level of the debt was to remain stable at the new level; alternatively, the debt level could fall as the result of a reversal of the exchange rate depreciation. Confidence in future fiscal policies was necessary, but there was widespread uncertainty as to the policy that the future government would adopt.

In a situation of uncertainty about future fiscal policy, monetary policy alone may not be sufficient to stabilize the economy. In chapters 2 and 3 Blanchard, and Favero and Giavazzi, argue that in 2002 raising interest rates to offset the inflationary effects of the exchange rate would have added doubts regarding debt dynamics. This could have led to more capital outflows and further currency depreciation.[3]

Given the need for a coordinated approach and while evaluating the consequences of the shock to inflation, the central bank refrained from raising nominal interest rates. In mid July 2002 the target Selic rate was in fact cut from 18.5 to 18 percent. Real rates, measured using the one-year-ahead inflation forecast, fell, though it remained at a still relatively high level of 11 percent.

The situation called for a change in expectations regarding future fiscal and monetary policy. But, how to achieve a commitment on future fiscal policy by the leading candidates in the midst of the campaign? And how should monetary policy act in the process?

A first response came in August 2002, when the IMF granted Brazil a US$30 billion loan—the largest ever in IMF history—conditional on Brazil maintaining "responsible policies" in the next few years: fiscal primary surpluses, inflation targeting, a floating exchange regime and respect of contracts, including the public debt. The purpose of the loan was not only to provide the central bank with foreign exchange reserves but also, and importantly, to provide a mechanism that would help the main candidates coordinate their public support for sound policies—precisely as suggested in Mishkin (2004). The statements from the candidates came, though some were more vague than had been hoped, but they certainly helped avoiding a further deterioration of market conditions ahead of the October elections. More important,

the leading candidate started sending stronger signals that he was prepared to adopt the fiscal stance required to stabilize debt dynamics.

At the same time, it became progressively clearer that the exchange rate depreciation would have persistent effects on inflation (we explain in detail below how the central bank confronted the rise in inflation). At this point monetary policy acted aggressively: on October 15 the Selic was raised from 18 to 21 percent, followed by a further rise to 25 percent in mid-December; the real rate jumped from 11 to 18 percent, consistent with a monetary policy rule that responds more than proportionately to an increase in inflation expectations. Eventually President Lula delivered on his promises: the new government maintained the floating exchange regime and inflation targeting, made clear that public debt would be honored, and increased the primary surplus by a half percent of GDP.

Far from falling into a vicious circle, the economy rapidly stabilized. By the end of December the EMBI spread had fallen to 1,500 basis points: a year later, when Brazil's rating was raised from a B to B+, the spread fell to 450 bp, 100 less than in February 2002, before the crisis had started. As it had happened on the way up, part of this reduction can be explained by a simultaneous reduction in the US corporate bond spread, which fell 200 bp between October 2002 and December 2003, nevertheless, there is little doubt that market perceptions of Brazil had shifted. The exchange rate stabilized and inflation expectations, which had been rising for six months, by December 2003 were back to 5.8 percent. Eventually the central bank could lower rates: by late 2003 the Selic was reduced to 16.5, two points below its level before the crisis had started.

Why was such a small shift in fiscal policy—half a percent of GDP—sufficient to produce a large change in expectations and put the economy in equilibrium? As we explain in the following paragraphs, much hard work on the budget had already been done and the perceived change in fiscal policy stance was—notwithstanding the small shift in the actual primary surplus—quite large. In mid-1998, before the exchange rate peg was abandoned and Brazil shifted to inflation targeting, the primary surplus was close to −1 percent of GDP. In early 2002, before the crisis, the primary surplus had reached 3.5 percent. The composition of the change in the surplus is also important. Two-thirds came from improvements in the federal budget, and one-third from improvements in the fiscal positions of the states. The sharing of

the burden of fiscal adjustment between the federal government and the states is at the core of Brazil's success—another theme of the book: it is also, in our view, the main underlying reason why Brazil eventually survived while Argentina collapsed. We explain how Brazil managed to get the states to contribute to the fiscal consolidation of the federal government in the next section.

Inflation Targeting and the Exchange Rate

Understanding the response of price setters to changes in the exchange rate was crucial to determine the optimal monetary policy response. In theory, the larger and the more persistent the effect is on prices, the longer is the horizon needed for inflation to return to the target path. Brazil's most recent experience prior to the crisis was that of 1999: after a 60 percent depreciation, inflation increased temporarily to 9 percent, but at the end of 2000 it was back to 6.0 percent, the midpoint of the central bank's target range.

There was, however, a big difference between 1999 and 2002: the level of the real exchange rate before the depreciation. In 1999, before the devaluation, Brazil's effective real exchange rate (measured relative to 13 currencies and normalized to 100 in 1994) was 95.7—a fall in the index indicating a real appreciation. In 2002, it was 150. As shown by Goldfajn and Werlang (2000) the level of the real exchange rate before a devaluation is an important factor in determining the pass-through from the exchange rate to prices. When the real exchange rate is weak, foreign exporters enjoy large margins and can afford to cut them to preserve their market shares, thus dampening the pass-through. This was the case in 1999, but not quite the situation in 2002.

In January 2003, as soon as the new administration came into office, the central bank recognized that inflation would overshoot the initial target: adjusting the target was thus necessary to retain credibility. By discussing alternative paths for inflation and why a new path using the adjusted target was chosen, the central bank was able to demonstrate that it was not an "inflation nutter" who only cares about controlling inflation and gives no weight to output fluctuations. In an open letter sent to the Minister of Finance in January 2003,[4] the bank first explained why the exchange rate had overshot, and made explicit estimates of the size of the shocks and their persistence. It estimated the shock from administered prices to be 1.7 percent and the inertia from past shocks to be 4.2 percent of which two thirds was to be accepted, resulting in a further adjustment of 2.8 percent. The central

bank added these two numbers to the previously announced target of 4 percent to get an adjusted inflation target for 2003 of 8.5 percent ($= 4 + 1.7 + 2.8$ percent). Specifically, the bank indicated that an attempt to achieve an inflation rate of 6.5 percent in 2003 would entail a fall of 1.6 percent in GDP, while trying to achieve the nonadjusted target of 4 percent would lead to an even larger decline of GDP of 7.3 percent. As a result inflation in 2003 ended up at 9.3 percent, very close to the adjusted target, and the GDP declined by 0.2 percent. As noted by Mishkin (2004), the role of the central bank in this accomplishment provides a good example for other emerging markets considering adopting inflation targeting: the way the central bank articulated the reasons why the initial inflation target was missed, how it responded to the shock, and how it planned to return to its longer-run inflation goal.

Fiscal Achievements and Fiscal Failures in the Late 1990s

As noted by Mervin King (2004, p. 11), "the key to macroeconomic success in emerging market economies is not primarily their choice of exchange rate regime, but rather the health of the countries' fundamental macroeconomic institution." Starting in mid-1998 Brazil increased substantially its overall primary fiscal surplus: a shift of 5 percentage points of GDP, when comparing 1997 to 2003. Figure 1 through 3 show why Argentina eventually collapsed, while Brazil was able to withstand the consequences of the crisis: the reason is the sharp difference in fiscal policy.

Strong fiscal adjustments require developing rules and institutions over time. In Brazil there were two main developments: (1) the agreements between the federal government and the states and local governments since 1997, and (2) the Fiscal Responsibility Law, an important piece of legislation on fiscal rules and limits, approved in May 2000.

The Consolidation of State Debts

Starting in 1997 (with discussions as early as 1996), 25 of Brazil's 27 states signed debt-restructuring agreements with the federal government. According to such agreements the federal government accepted to consolidate the states' debts transforming them into 30-year bonds with a fixed real interest rate of 6 percent. In turn, the states agreed to commit a minimum of 13 percent of their income to servicing the debt,

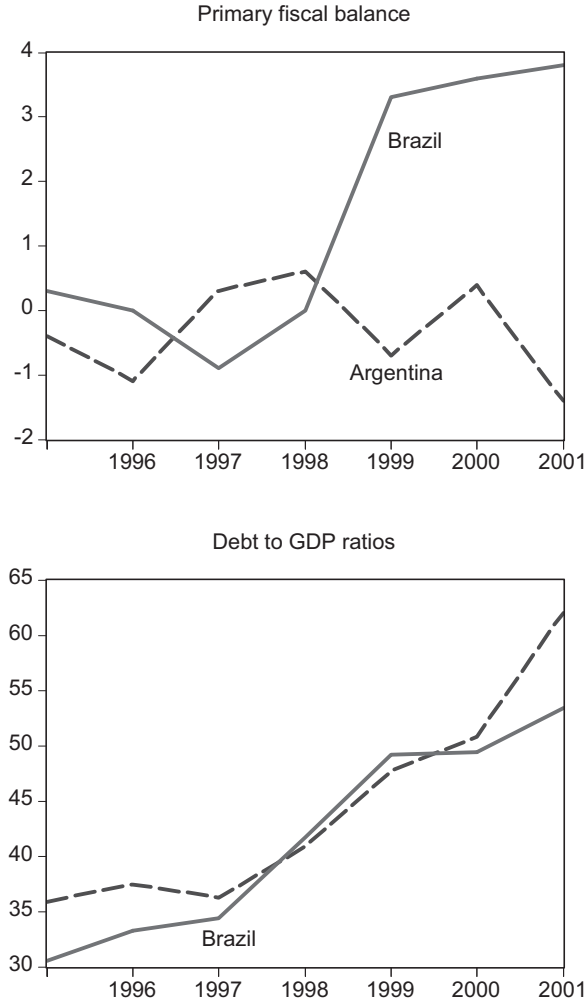

Figure 1
Brazil and Argentina: Primary budget surplus and percentage of GDP compared

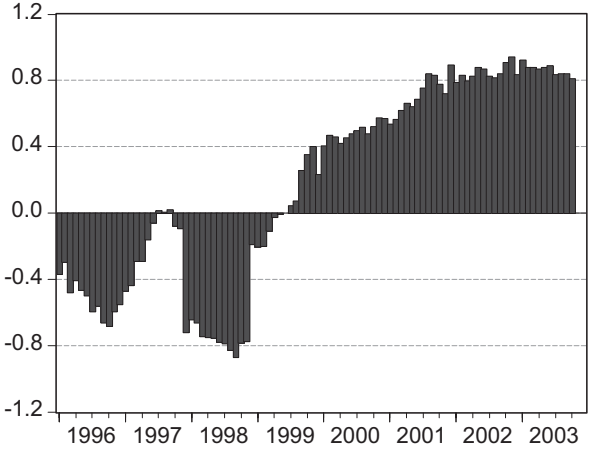

Figure 2
Primary fiscal balance of states and municipalities in Brazil, 1996 to 2003, as percentage of GDP

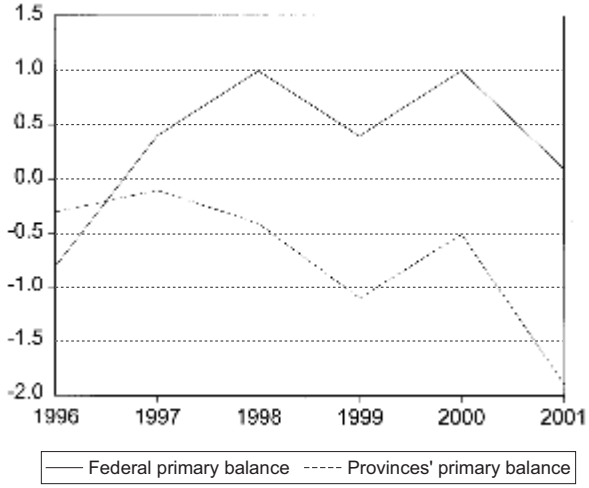

Figure 3
Primary fiscal balance of the federal government and the provinces in Argentina, 1996 to 2003, as percentage of GDP

and to earmark privatization proceeds to redeem it. These commitments were accompanied by a guarantee that gives the federal government direct access to the states' income and to the transfers they receive from the federal government itself. In the case of a default, the contracts give the federal government the authority to seize the transfers or, if this is not enough, to withdraw the amount due directly from the state's bank accounts.[5]

The agreements produced a rapid shift in the fiscal position of the states; they also survived, which is rare for fiscal rules of this kind. As shown in figure 2, the aggregate annual primary surplus of states and municipalities improved by 1.1 percent of GDP over the period 1999 to 2003. The fiscal adjustment mostly came from a reduction of payroll expenditures: in 1997 personnel expenditure represented more than 70 percent of the net revenue of the states; in 2001 it was reduced to less than 60 percent. As a result state and municipal debt has stabilized, despite low growth and the exchange rate devaluation.

The Fiscal Responsibility Law

In 2000 Congress passed the Fiscal Responsibility Law which sets a general framework for budgetary planning, execution, and reporting for the three levels of government.[6] The law consists of three fiscal rules: general targets and limits for selected fiscal indicators, corrective institutional mechanisms in case of noncompliance, and institutional sanctions for noncompliance.

The law introduced several important changes in fiscal procedures: limits for expenditure on personnel, annual fiscal targets and ceilings on the public debt, rules requiring the compensation of any new permanent expenditures and any reduction in tax revenues, and rules to control public finances in electoral years. But the most important innovation was the prohibition of the federal government from financing state and local governments beyond the yearly legal transfers. This guaranteed that the debt rescheduling agreements would be respected.

The Rise in the Debt Ratio

Before 1999 the underlying reason for the increase in the debt ratio was low primary surpluses. Only in 1999 did Brazil start producing significant and consistent primary surpluses. Notwithstanding the improvements in fiscal policy and the new fiscal rules, Brazil's debt–GDP ratio kept rising, from 35 percent in 1998 to 57 percent in 2002. Two factors pushed the debt ratio up. First, as already mentioned, the depreciation of the exchange rate (figure 1.1 in chapter 1 by Pastore and Pinotti

documents the correlation between the debt ratio and the real exchange rate). Second, the recognition, over time, of previously hidden liabilities, "skeletons" in Brazilian jargon.

Lessons from Brazil

The experience of Brazil during 2002 to 2003 points to four main lessons that may be of more general interest:

- Fluctuations in the exchange rate and/or in risk premia cause corresponding fluctuations in the debt ratio—the wider, the larger is the share of dollar denominated debt. If the debt is perceived as unsustainable, the economy may fall into a circle of further depreciation and further increases in the debt ratio. In such a situation monetary policy cannot work alone; fiscal policy has to be adjusted to the change in the real exchange rate or risk premia.
- The share of dollar-linked debt is partly the result of history, partly it is a choice by the government. When the private sector wishes to reduce its exposure to exchange rate risk, as was the case in Brazil during 2001, the government can limit the depreciation of the exchange rate by issuing dollar debt or currency swaps. If the shock is deemed to be permanent, this is essentially an intertemporal choice between depreciation today or tomorrow (a decision to smooth the shock). In contrast, in the case of overshooting, there might instead be an argument for intervention. In both cases intervention could take place using foreign exchange reserves. We are not aware of analyses of such trade-offs in the literature.
- Economic policy in an emerging market economy is often portrayed as an impossible task: it is not necessarily so. Provided that the authorities have the willingness to act and the correct framework to build upon, much can be done in a relatively short period, in fact at a speed not very different from that of financial markets. But this depends on previous institutional development.
- In Brazil, inflation targeting (coupled with a floating exchange rate regime) helped absorb the severe shocks that hit the economy, while at the same time maintaining inflation under control. The latter was an essential ingredient for producing the real exchange rate depreciation (as opposed to only nominal depreciation) and therefore the external adjustment. Following the depreciation the central bank assessed the nature and persistence of the shock; then it built different inflation and

output trajectories associated with different interest rate paths. Based on its aversion to inflation variability, it chose the optimal path for output and inflation. If the shock is abnormally large and/or persistent, its inflationary effect may last more than a year. In such a case the optimal inflation path may imply a 12-month-ahead inflation above the previous annual target. In such a case it is not possible, nor optimal, to pursue blindly the central point of the old target. The target should be adjusted in order to take into account the effects of the change in relative prices. Eventually, although at longer horizons, inflation must converge to its target path.

Looking Forward

Looking forward, it is clear that a successful path in the case of Brazil requires a continuation in the institutional development that allows the country to reduce uncertainty arising from economic policy, in particular, from fiscal policy. Charles Wyplosz in chapter 3 discusses how the Fiscal Responsibility Law can be improved.

The next issue is the level of real interest rates. Brazil has emerged from the crisis with a level of real rates that remains unusually high. There are two common explanations for the level of real rates: (1) Brazil is caught in a bad equilibrium of high real interest rates and bad debt dynamics, and simply lowering real rates would be sufficient to shift the economy to a good equilibrium; (2) real rates are high because fiscal fundamentals are still perceived to be weak. (Chapter 5 by Garcia and Rigobon shows how an increase in macroeconomic volatility raises the level of the primary surplus that is required to stabilize the debt. In the presence of macroeconomic risk there are paths along which the debt will be unsustainable). We share the view expressed by Arminio Fraga, in his comments in the book: real rates are temporarily high and will come down over time, provided that fiscal policy keeps being consistent. Arida, Bacha, and Resende pursue, however, in chapter 8, an alternative and potentially interesting explanation, based on "jurisdictional uncertainty." They argue that interest rates are high because investors do not want to extend long-term credit in the domestic jurisdiction.

Vulnerability will not be reduced until the duration and maturity of the debt are lengthened and its link to the dollar is reduced. Missale and Giavazzi in chapter 4 discuss the optimal structure of the Brazilian public debt: they conclude that the portion of the debt that is linked

to foreign currencies should be as small as possible, and argue in favor of price-indexed and fixed-rate nominal bonds. They find that issuing fixed-rate bonds in exchange for Selic-indexed bonds increases the probability of debt stabilization even if the 12-month term premium is as high as 4 percent.

As mentioned above, one of the reasons such a large share of the domestic debt is indexed to the dollar is the demand for hedge by the private sector. In Brazil most of the exchange rate risk is borne by the government and the central bank: the private sector hedges its dollar exposure by entering into swap contracts with the central bank. Such a large amount of outstanding hedge may not be rapidly reduced: the currency tends to fall whenever the central bank announces that it will not fully roll over the outstanding stock of hedge. The current account surplus that Brazil is now running offers an opportunity to reduce the demand for hedge by the private sector. In fact in March 2004 the stock of dollar-linked debt had fallen to 17 percent of total domestic, almost one-half of its level during the crisis.

Since vulnerability to exchange rate risk is valued by investors, an even lower share of dollar-denominated debt could reduce the risk premium on the Brazilian debt. A more aggressive retiring of dollar-linked debt would leave, however, less room for the accumulation of reserves, and vice versa. A higher stock of foreign exchange reserves reduces the likelihood of liquidity or self-fulfilling crises. Additionally a number of "vulnerability indicators" depend on the stock of reserves, such as the ratios of exports to reserves or M2 over reserves. So what is the optimal strategy? How much is a dollar of debt retired worth, compared with one more dollar of reserves?

The experience of Brazil does not offer an unambiguous answer to this question: it points however to a missing link in the literature on financial crises in emerging markets, one that we would hope is soon addressed. The ingredients are all there: a model of self-fulfilling crises (e.g., à la Obstfeld 1996) where vulnerability depends on two parameters, the reserve ratio and the composition of the debt.

The volume starts with a survey by Affonso Pastore and Maria Cristina Pinotti who carefully describe Brazil's macroeconomic landscape in the period we study. This is then followed by three chapters: the first analyzes the interaction between monetary and fiscal policy; the second looks at fiscal institutions and debt management; finally, chapter 4 analyses the Brazilian experience with the spectacles of the "political economist."

Notes

1. The expression "sudden stop" reflects a rapid collapse in net capital inflows into the country and is defined and analyzed in Dornbusch et al. (1995).

2. Mutual funds, which held 30 percent of the domestic public debt, were particularly vulnerable to the widening of the discount on longer term securities. Since these institutions were issuing de facto very liquid liabilities against long-term government bonds, the losses on their assets induced heavy withdrawals from depositors. Moreover some funds were delaying the recognition of the losses on their balance sheets, increasing the risks of runs on their liabilities. In order to avoid this, the central bank forcefully enforced the mark-to-market regulations, leading in the short run to more recognized losses and withdrawals. Eventually, and partially as a result of central bank intervention, the discounts stop widening, further losses were prevented, cutting short the withdrawals.

3. The evidence analyzed in these chapters could also be of interest for a growing literature that has extended the "fiscal theory of the price level" to open economies and to debts bearing risk premia (see Daniel 1999; Uribe 2003).

4. Under the presidential decree that introduced inflation targeting, the Central Bank of Brazil is required to submit an open letter to the Ministry of Finance explaining the causes of any breach of the inflation target and what steps will be taken to get the inflation rate back down.

5. When tested, the guarantees proved to be effective: the governors of Minas Gerais, Itamar Franco, and of Rio de Janeiro, Rosinha Garotinho, (among others), all had their revenues and transfers seized by the federal government when they stopped paying. Furthermore states failing to comply are denied federal guarantees on new state borrowing (even if within the limits agreed upon by the federal government), and violations can trigger interest penalties on the debt rescheduled with the federal government.

6. This law has the status of a complementary law. Thus any modifications require a qualified majority of Congress.

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