



**BANCO CENTRAL DO BRASIL**

Working Paper Series

37

**Monetary Policy in Brazil: Remarks on the Inflation Targeting  
Regime, Public Debt Management and Open Market Operations**

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March, 2002

ISSN 1518-2665  
CGC 00.038.166/0001-05

Working Paper Series	Brasília	n. 37	Mar	2002	p. 1 –19
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# *Working Paper Series*

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Number printed: 1,200 copies

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**Monetary Policy in Brazil:  
Remarks on the Inflation Targeting Regime, Public  
Debt Management and Open Market Operations\***

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**Abstract**

The purpose of this paper is to analyze the main features in the conduct of monetary policy in Brazil. Initially, we focus on the inflation targeting regime, reviewing the background that led to its adoption in mid-1999, the institutional framework implemented in the country, and the challenges and achievements reached so far. Then we move to the analysis of the public debt management, highlighting its objectives and results, with particular emphasis on the debt composition and average maturity. The third section discusses the open market procedures. The paper ends with a brief description of specific policy issues to be addressed by the Central Bank in the near future.

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\* Note prepared for the BIS annual meeting on “Development of Debt Markets in Emerging Countries”, Basel, December 2001. Reviewed in January 2002. The authors would like to thank Arminio Fraga, Hélio Mori and Gustavo Bussinger for relevant comments on earlier drafts of this paper.

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## 1. Inflation Targeting in Brazil

The inflation targeting regime was introduced in Brazil in July/1999, five and a half months after a largely unexpected move from a fixed to a floating exchange rate regime. Since early-1995, a pegged exchange rate had been the nominal anchor of the Brazilian economy, and the country was suddenly forced to find a new “safe harbor”.

Within available alternatives, a pure discretionary monetary policy appeared not to be appropriate due to unanchored inflation expectations and the fear of an exchange rate overshooting. Inflation targeting, a monetary policy regime characterized by constrained discretion (Bernanke and Mishkin, 1997), was considered as the correct policy for guiding expectations and for enhancing transparency. This would prevent the temporary inflation hike that followed the currency turmoil from moving inflation up in a permanent way. In other words, inflation targeting appeared to be the most advisable alternative for monetary policy, and in March 1999 Brazil started to move in that direction.<sup>1</sup>

The key questions at that point were the timing for implementation and the design of the institutional framework required for the functioning of the new policy regime. Given inflationary pressures triggered by the floating of the exchange rate, the immediate implementation of a formal inflation targeting regime carried on many risks. Risks were probably heightened as the Central Bank opted for a full-fledged inflation targeting framework with all its “bells and whistles”, instead of a more gradual approach.

In addition, the implementation of the new policy framework was to be complemented by a deepening of the research effort by the Central Bank. Brazil had barely any previous experience in controlling inflation through a forward-looking monetary approach. In the last decade, monetary policy had been accommodative. It shifted from operating in a highly inflation-indexed environment in the early 90’s, to adjusting current account imbalances under a pegged system in the mid-90’s.

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<sup>1</sup> Comprehensive analysis of the currency crises and the move to inflation targeting in Brazil can be found in the following papers, all written by Central Bank officials or researchers: Fraga (1999), Bogdanski, Tombini, and Werlang (2000), Bogdanski, Freitas, Goldfajn and Tombini (2001) and Fachada (2001).

At the outset, the implementation of the new policy regime required the development of accurate inflation forecasting techniques. With this aim, the newly created Research Department of the Central Bank developed several instruments including: structural econometric models for the transmission mechanism of monetary policy to prices; non-structural short-term vector autoregressive models; daily surveys of market inflation expectations; alternative measures of core inflation; and estimation of leading indicators for inflation. Indeed, this was not a trivial task to be undertaken by a central bank operating in such an economy with a volatile inflation background as Brazil's. Almost three years since, the outstanding track record of policy implementation indicates a high degree of success in the transition to the inflation targeting regime.

Statistical evidence suggests, as proposed in early assessments (Bogdanski *et al.*, 2000), that aggregate demand, exchange rate and inflation expectations are the relevant transmission channels of monetary policy in Brazil. The credit channel appeared less significant, as the stock of credit outstanding in Brazil was - and still is - relatively low by international standards (approximately 27% of GDP in mid-1999). Over the last two years, however, there has been growing evidence that the credit channel has acquired greater importance. In part, this is due to the Central Bank's policy aimed at increasing the efficiency of banking intermediation, and to lower reserve requirements on demand deposits, which fell from 75% in October 1999 to the current 45% rate.

The modeling of the transmission mechanisms of monetary policy to prices enabled the Central Bank to simulate the effect of interest rate changes on the level of aggregate demand, and consequently, on the inflation rate. It also enabled the simultaneous simulation of the direct effects of changes in the interest rate on the exchange rate, and hence on prices. Indeed, the structural models showed that interest rate changes affect aggregate demand in a period of 3 to 6 months. Furthermore, changes in the output gap have an impact on inflation after 3 months. Therefore, adjustments in the short-term interest rate have impact on inflation after 6 to 9 months. Interestingly, this is a shorter lag as compared to econometric findings in developed countries. For the exchange rate transmission channel, the effect of interest rate changes on prices is nearly instantaneous, due to the immediate impact on tradable goods' prices.

Regarding the institutional arrangements within the Central Bank, the Monetary Policy Committee (Copom) is the policy making body which meets on a monthly basis to set up the target for the overnight interest rate (the so-called Selic rate). In order to enhance transparency, the Committee's minutes are published with an eight-day lag, discussing exhaustively the economic outlook, inflation perspectives and Copom's decisions. The Committee also publishes the *Inflation Report* every quarter. The *Report* presents inflation forecasts through a fan chart, clearly unveiling that projections are conditional on different scenarios, thus producing a probabilistic distribution of inflation paths.

The Central Bank is accountable for achieving the inflation targets. In case the target is breached, the Central Bank's Governor has to send an open letter to the Finance Minister justifying the breach, and explaining the measures required to bring inflation back to the target and the expected timing.

At the start of the new regime, the government announced the inflation targets for 1999, 2000 and 2001. These were fixed at 8%, 6% and 4% respectively, with a 2% tolerance interval. The reason for gradual declining targets is evident. Monetary policy could not thwart the process of relative prices realignment triggered by the exchange rate shock. At the same time, the government opted for a cautious stance, evidenced in the tolerance interval of 2 percentage points. There were two justifications for such an interval. First, the recognition of the high uncertainty about the inflation process in Brazil. Second, the IPCA (Broad National Consumer Price Index), the reference measure for the target, is a headline inflation index, which can be affected by temporary shocks as well as seasonal factors.

The targets are announced two years and a half in advance. For instance, the 2002 target was established at 3.5% in June 2000. For 2003, the target was disclosed last June, set up at 3.25%. Tolerance intervals were maintained at 2% for both years. Targets refer to the full year, without any formal intermediate target.

The new framework's outcome in 1999 was quite satisfactory. Despite the sharp exchange rate depreciation, inflation stood at 8.9% within the tolerance interval. This achievement could be attributed to the post-devaluation monetary tightening in parallel with a significant fiscal tightening through measures envisaging tax increases and spending cuts taken by the

government at the end of 1998 and early-1999.<sup>2</sup> Inflation expectations were lowered from as much as 20% in the aftermath of the devaluation to around 8% in May-June 1999. As soon as inflation expectations were under control, market interest rates declined gradually, and the Selic rate was reduced from 45% p.a. in March to 19% in December.

Inflation behavior, however, was not as smooth throughout the year. Several difficulties had been faced in the pursuit of the 8% target. In addition to the exchange rate depreciation, there was a substantial increase in the so-called government-managed prices, which are subject to backward-looking price adjustment rules<sup>3</sup>; in prices of oil derivatives due to the jump in the international market; and rise in food prices due to adverse weather conditions. One should consider also the market turbulence caused by instability in some important emerging markets as well as uncertainties about the working of the new regime itself. Achieving one-digit inflation rate at year-end represented an important step forward to build credibility and to consolidate the new monetary framework.

In 2000, the developments were more favorable, and the central inflation target of 6% was achieved. Again, this positive outcome was obtained despite the ongoing realignment of government-managed prices. Accompanying the inflation rate declining trend, the Central Bank maintained the gradual reduction of the Selic rate, bringing it down to 15.75% in December from 19% the year before. It is worth mentioning that the inflation target was achieved in an environment of relatively high growth rates, of 4.4% for GDP and 6% for industrial production. Growth was driven by improving consumer and business confidence and by credit expansion, boosted by the reduction in reserve requirements for demand and time deposits, fall in taxation on credit for households, and reduction in lending rates and bank spreads.

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<sup>2</sup> The fiscal outlook in 1998 was certainly one of the major sources of vulnerability that led to the currency regime collapse at the beginning of 1999. Contradictorily enough, the measures adopted by the government in the second half of 1998, the so-called PEF (Fiscal Stability Program), ended up by producing a solid public sector primary surplus in 1999 that helped the implementation of the new monetary regime.

<sup>3</sup> In regard to the backward-looking prices dynamics in the period, see Bogdanski, Goldfajn, Springer and Tombini (2001). For the accumulated 1999/2001 period, adjustment in administered prices, which include oil derivatives, public utilities (electricity, telecom and water and sewage fees), urban transportation, housing taxes and health insurance, among others, averaged 48.2% compared to an inflation rate of 24.3% measured by the IPCA.



In 2001, the monetary policy management was more challenging. At the end of 2000, the Central Bank inflation forecast for the year had pointed to a 3.9% rate. The Bank was not alone with such a number, as market consensus indicated a similar projection, which proved to be rather optimistic. As the Brazilian economy was affected by a series of external and domestic adverse shocks, inflation accelerated to 7.7% and GDP growth slowed down.

These shocks included, on the external front, the slowdown in world economy and trade, led by a steeper-than-expected slump in the U.S. economy; a continued deterioration in the economic and financial outlook in Argentina; and the “flight to quality” of foreign investors from emerging markets, shrinking foreign direct investment and capital flows to Brazil.<sup>4</sup> All these external factors were aggravated by the September 11th events.

Domestically, shocks were also equally destabilizing. Brazil experienced an energy crisis that forced the government to implement a severe rationing program in May with detrimental impact on public’s confidence. Government-managed prices were adjusted upward for the third year in a row, this time magnified by the energy shortage. In the first half of the year, an additional pressure on inflation came from a shock, though temporary, in food prices. Finally, investors’ confidence deteriorated due to the partial halt of the reform agenda by Congress.

Those unfavorable factors put pressure on the foreign exchange market (Figure 1). From January to mid-October, the exchange rate depreciated more than 40%, fuelled by market uncertainties about the balance of payments and the hike in Argentina’s sovereign risk premium. Even if a low pass-through to inflation is considered, of say 15% in four quarters, the magnitude of the depreciation would be high enough to jeopardize the objective of achieving the inflation target for 2001.<sup>5</sup>

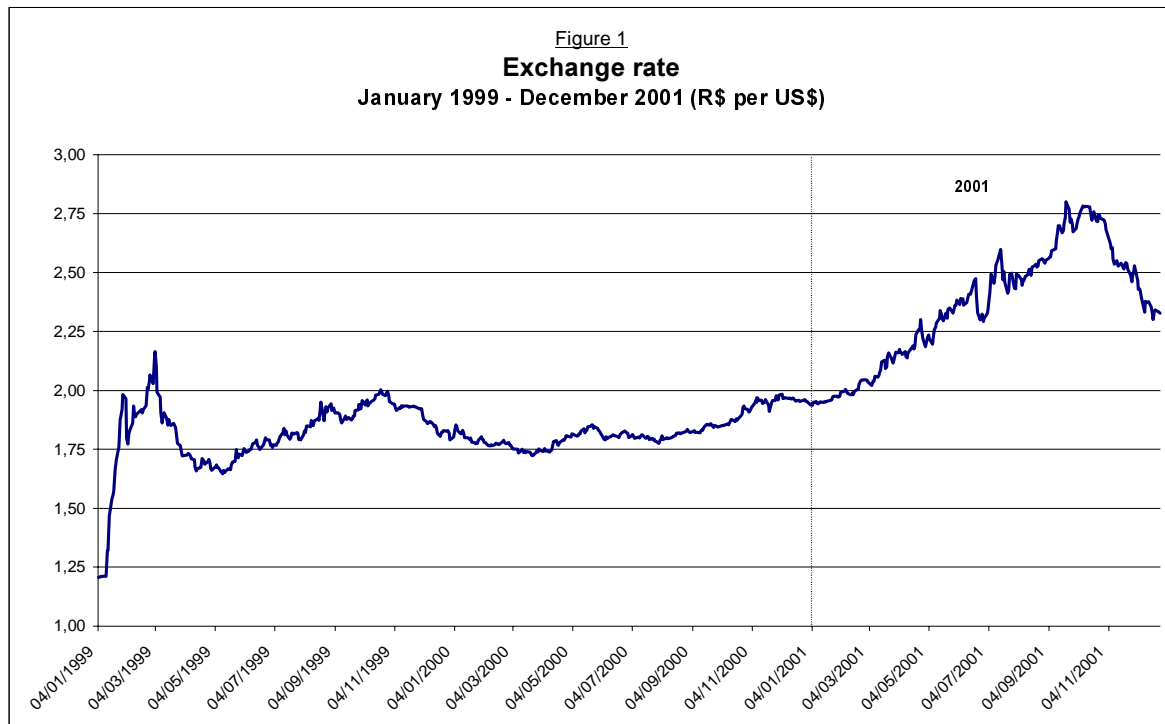
The government response to these challenges entailed initiatives on the fiscal, external and monetary fronts. On fiscal, the targets for the public sector primary surplus were risen from 3% of GDP to 3.35% for 2001 and from 2.7% of GDP to 3.5% for 2002. On the external front, a new program supported by the IMF was agreed, and the Central Bank disclosed on

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<sup>4</sup> At the beginning of 2001, the Central Bank predicted FDI to reach US\$ 24 billion, already accounting for a substantial drop when compared to the US\$ 32.8 billion flow of 2000. Actual FDI stood at US\$ 22.6 billion at year-end.

<sup>5</sup> For a discussion about the pass-through ratio, refer to the March of 2001 issue of the *Inflation Report*, cap. 5, pg. 104 to 106.

several occasions time-consistent projections for the financing requirements in 2001 and 2002, in order to dissipate concerns about a potential external gap.



Initiatives on monetary policy included not only rise in the Selic rate to 19% since July from 15.25% in March and increase in reserve requirements on time deposits (to 10%) since September, but also measures aimed at fostering liquidity in the foreign exchange market. These comprised the announcement in July of daily sales of US\$ 50 million in the foreign exchange spot market, totaling US\$ 6 billion until the end of year, the increase in the issuing of dollar-linked domestic debt, and revision of capital requirements for financial institutions regarding their foreign exchange exposure.

Those measures had no instantaneous impact to revert the exchange rate overshooting and to control inflationary expectations, but they proved to be appropriate as since mid-October the exchange rate appreciated by around 20%. The improved market sentiment was a result not only of the monetary initiatives of the Central Bank but also a better prospect for the external accounts in 2001 and 2002. Indeed, the trade balance reverted from an accumulated 12-month deficit of US\$ 1.6 billion in June to an actual surplus of US\$ 2.7 billion at the end of the year. It should be noticed that the turnaround in market sentiment took place despite further

deterioration of the Argentine financial outlook that culminated with the resignation of the country's President and a moratorium on its external debt payments in December.

From the developments of 2001, one could conclude that the exchange rate depreciation and the adjustment of government-managed prices were the main factors to frustrate the achievement of the inflation target, as highlighted in the open letter by the Central Bank's Governor to the Finance Minister and to the public at large.<sup>6</sup> Our assessment, however, is that the Central Bank's policy decisions were in the right direction and the inflation targeting proved to be an adequate framework to deal with the diversity of difficulties faced by the economy, so that the rise in inflation in 2001 would not propagate into coming years' rate. Market inflation expectations at the end of 2001 (4.5% for 2002 and 4% for 2003) enforce our assessment.

## **2. Public Debt Management**

At the end of 1999, the National Treasury and the Central Bank announced a series of guidelines regarding domestic debt management. These objectives included lengthening the average maturity of the debt, increasing the share of fixed-rate securities in total debt outstanding and reducing simultaneously the share of dollar and overnight rate-linked securities, and fostering the secondary market of public debt.

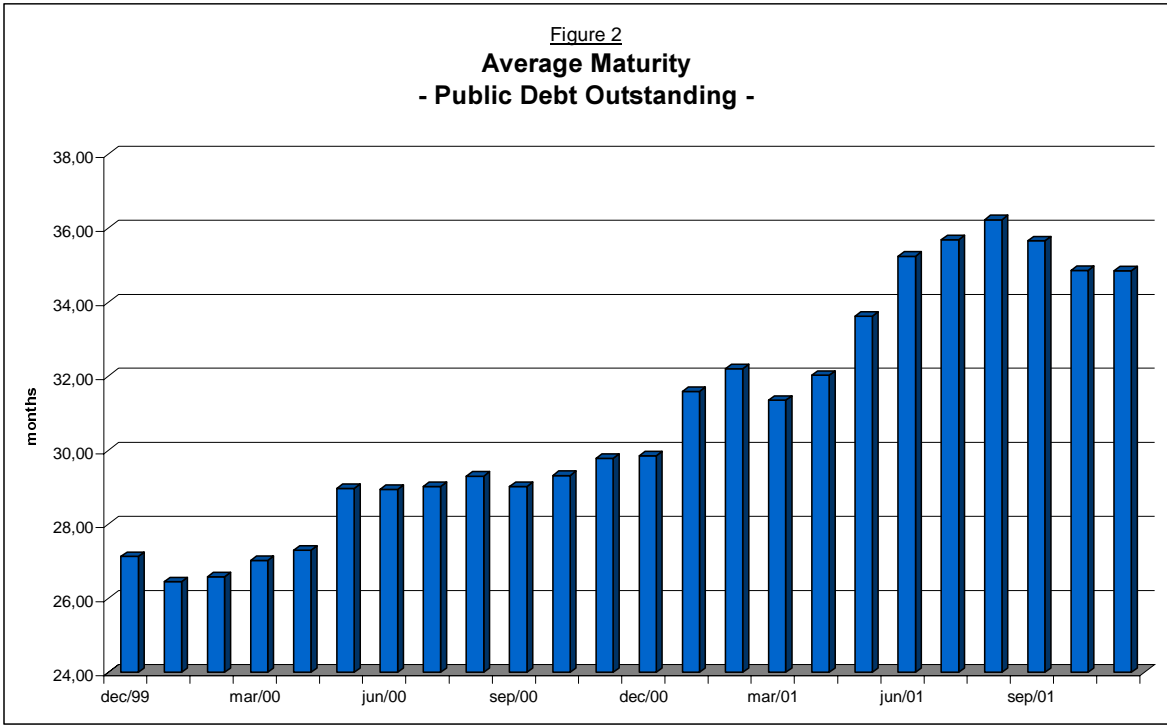
The most important measures implemented under the guidelines were: (i) to concentrate maturities using re-offerings; (ii) to make auctions of long term fixed income securities after presentation of firm bids by financial institutions; (iii) to repurchase government securities through regular auctions by the National Treasury; (iv) to allow separate trading of principal and coupons (strips); (v) to allow financial institutions to hold short positions of government securities; (vi) to develop a registration system for forward operations with government securities; (vii) to make flexible leverage limits for financial institutions in operations with government securities; (viii) to change the selection process of Central Bank primary dealers in order to stimulate their market-making ability; (ix) to enhance transparency through monthly press releases on public debt and open market operations; (x) to increase predictability through an advanced release of monthly auctions schedules; (xi) to introduce

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<sup>6</sup> The open letter is available at the Central Bank webpage, [www.bcb.gov.br/ingles/relinf/inftarget.pdf](http://www.bcb.gov.br/ingles/relinf/inftarget.pdf)

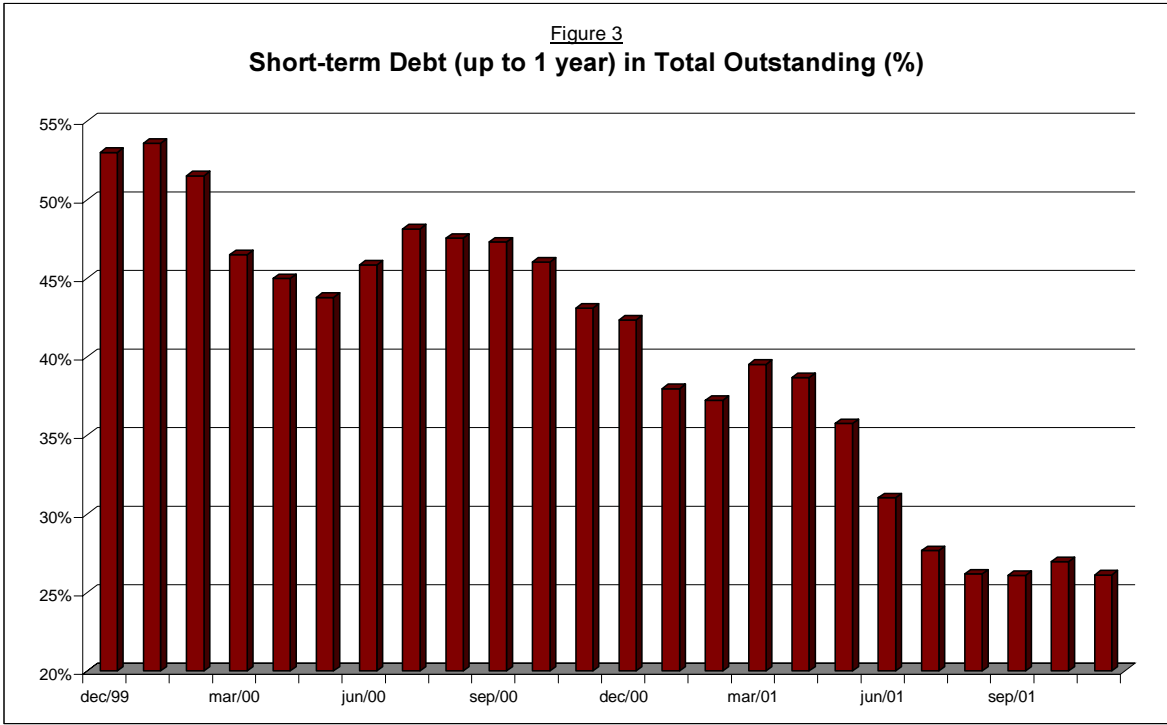
electronic trading of government securities; and (xii) to organize periodic meetings between the Central Bank, the Treasury and primary dealers.

Backed by a sound fiscal policy, these guidelines for domestic debt have produced satisfactory results. The average maturity of domestic debt has lengthened to 35 months in November 2001 from 27 in December 1999 (Figure 2). In the same period, the share of short term (less than one-year) securities in total outstanding declined to 26% from 53% (Figure 3). The liquidity in the secondary market has been increasing, albeit at a slow pace, but further improvement is expected to occur with the introduction in April 2002 of the new Brazilian Payments System, which is designed to mitigate systemic risk. Finally, enhanced transparency has helped to lower financing costs for the Treasury and has allowed financial institutions to increase their exposure to government securities.



Nevertheless, as noted above, the macroeconomic environment in 2001 was less friendly, forcing an upward move in the slope of the domestic yield curve. The Treasury had thus to face a trade-off between lengthening the average maturity of the debt or increasing the share of fixed-rate securities. The first option was chosen. Simultaneously, the Central Bank increased the issuance of dollar-indexed securities in order to contain the exchange rate overshooting. As a result, the share of fixed-rate bonds returned to 8% in November 2001

(below the initial level of December 1999), after growing to 15% in December 2000. As for dollar-indexed securities, the share in public debt outstanding peaked in October (32.8%) from 22.3% in December 2000 (Figure 4), due not only to the net issuance of bonds but also to the exchange rate depreciation in the period.

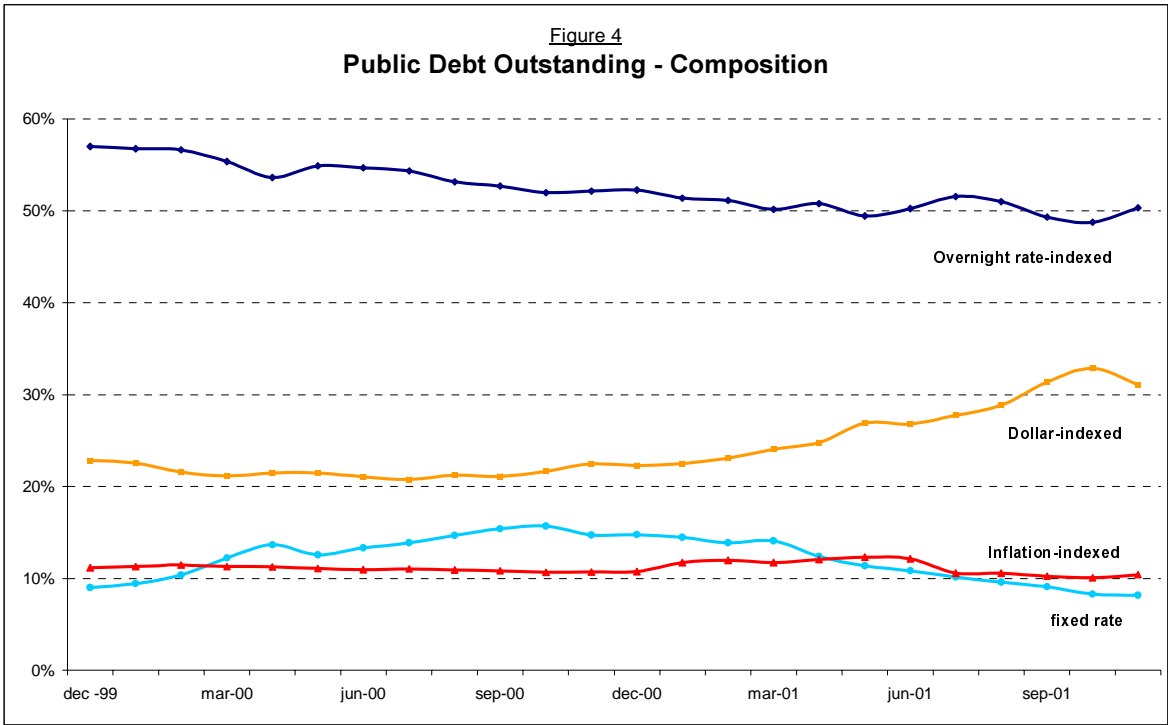


The currency depreciation, the increase in real interest rate and the deceleration of GDP growth in 2001 led the domestic public debt outstanding/GDP ratio to more than 51% in the September/October period, from 44.8% in December 2000. Notice, however, that these figures are not fully comparable, as the debt/GDP ratio was inflated by a transfer of bad assets from state-owned banks (Caixa Econômica Federal and Banco do Brasil) to the Treasury, with an estimated impact of around 3% of GDP on debt outstanding.

One should notice, however, that the exchange rate appreciation since mid-October has already produced a positive impact on debt outstanding, and the year-end exchange rate was below the average issuance rate of R\$/US\$ 2.44 for the whole year. If sustained, this appreciation will tend to reduce the debt/GDP ratio.

On external debt management, which will be a responsibility of the Central Bank until 2003, the objectives have been to build up yield curves for the Brazilian sovereign bonds in different currencies (US dollar, euro and yen), to establish a benchmark for private sector bond

placements, and to raise funds at appropriate costs and risk levels. Despite the deterioration in the external economic environment in 2001, the market remained open to Brazil's sovereign issues, and the country raised a total of US\$ 6.8 billion at reasonable spreads. The external debt profile continued to improve, and the share of external debt maturing within one-year fell to 8% in June 2001 from 17% in December 1999, while the average maturity lengthened to 9 and a half years from below 8 years in the same period.



### 3. Open Market Operations

Brazil, like most countries adopting an inflation targeting framework for monetary policy, uses the overnight interest rate as the instrument in the conduct of monetary policy. The Monetary Policy Committee, therefore, sets up the target for the overnight-Selic rate in its monthly meetings, and under the Committee's directives the open market trading desk adjusts market liquidity on a daily basis to maintain the effective overnight interest rate close to the target.

Open market operations are the main instrument for liquidity adjustment of the system. Standing facilities, charging penalty rates, are not used to balance supply and demand for

bank reserves. The demand for bank reserves is determined by reserve requirements on demand deposits, which despite substantial reduction in the last two years (from 75% to 45%), are still high compared to international standards. On the supply side of bank reserves, factors affecting them are the usual: (i) currency held by the public; (ii) The Central Bank's operations in the foreign exchange market; (iii) tax revenue, government spending and budgetary endowments; (iv) placing and redemption of government securities; (v) discount window facilities; (vi) reserve requirement adjustments; and (vii) open market operations.

The Central Bank has been operating in its open market desk through repurchase agreements, using as collateral National Treasury and Central Bank securities. Outright operations are less frequent, as, depending on the traded volumes, they can cause volatility in bonds prices, and hence in the yield curve. On a daily basis, the Central Bank forecasts the market liquidity needs, that is, estimates whether there is shortage or excess of bank reserves, and carries an informal auction aimed at balancing liquidity. Repo tenures usually vary from one to three days, and government securities are priced below market prices (with a haircut) to protect the lender against credit risk.

The Central Bank carries out the open market operations directly with 25 primary dealers, selected twice a year among the more active institutions in the financial system. These dealers act as an interface with other market participants, and are chosen according to performance criteria, including each institution's performance in the primary and secondary markets for government bonds. As noted, open market operations are conducted only through primary dealers, but, differently from other countries, all financial institutions can participate in the primary offerings of government securities, besides the primary dealers.

Participation in auctions is restricted to financial institutions keeping an account in the *Sistema Especial de Liquidação e de Custódia* (SELIC), which is an electronic book-entry system that controls the custody and registers all operations regarding domestic government securities. The two parties (buyer and seller) must input every transaction in the SELIC and the system makes a two-sided matching of their commands. The seller's position in securities and the buyer's position in bank reserves are checked. The transaction is settled in a DVP (Delivery versus Payment) basis, if and only if securities and cash are immediately available.

Electronic trading has had a major impulse with the implementation in August 2000 of the Sisbex – Trading System of Public Bonds and other Assets – by the Rio de Janeiro Stock Exchange. In the second half of 2001, Sisbex accounted for around 20% of government securities market turnover, trading that surpassed 30% in the November/December period.

Currently, the most heavily traded bonds issued by the Treasury are the *Nota do Tesouro Nacional - série D* (NTN-D), the *Letra Financeira do Tesouro* (LFT), and the *Letra do Tesouro Nacional* (LTN). The NTN-D is indexed to the R\$/US\$ exchange rate, the LFT to the Selic rate, and the LTN is a discount bond. The Central Bank, on the other hand, issues only the *Nota do Banco Central - série E* (NBCE), which presents the similar features as the NTN-D. More recently, the Central Bank interrupted the issuing of NBCE, anticipating a requirement of the Fiscal Responsibility Law, which prohibited the Bank from issuing its own bonds after May 2002.

Since August 2001, the shortage of bank reserves has been increasing because of the following factors: (i) the net selling of government securities, in particular those dollar-indexed; (ii) the policy of daily sales of foreign exchange reserves by the Central Bank in the spot market; and (iii) the primary surpluses of the public sector. In December 2001, this shortage outpaced R\$ 20 billion. As the initiative to provide or not bank reserves through open market operations stands on the Central Bank side, though there is a presumption that this would be the case, the shortage of reserves in the system facilitates the conduct of a tight monetary policy.

#### **4. Policy Issues for the Medium-Term**

The consolidation of the inflation targeting regime by no means ends the need for institutional reforms in Brazil. A fundamental aspect for monetary policy is the Central Bank's autonomy with fixed-terms for its Board of Directors. This topic is currently being discussed in Congress as part of a broader bill that regulates the financial sector.

Within the jurisdiction of the Central Bank, it is essential to maintain efforts to strengthen the financial sector in Brazil to face the challenges posed by innovations and developments in the market. The integration of the Brazilian economy, and especially its financial system, to the



world economy makes this objective key to improve competitiveness and to increase the resilience to external shocks. In this context, important actions have been taken to enhance prudential supervision and regulation. The strengthening of financial sector and of its prudential oversight by the Central Bank will allow further liberalization of the capital account.

One important element in the reform agenda is the project to restructure the payments system, which will be fully implemented in April 2002. The main concern of the project is to reduce systemic risk and to transfer credit risk from the Central Bank to the private sector. The new payments system has been designed by adopting internationally accepted standards and practices, including: (i) a clear definition of the role of the Central Bank in the payments system and establishment of a well-founded legal basis to allow better risk control devices; (ii) set up of a large-value fund transfer system at the Central Bank operating on RTGS (Real Time Gross Settlement) basis and the monitoring of bank reserves in real time; (iii) enabling clearinghouses to ensure certainty of settlement through proper safeguard mechanisms; and (iv) clear definition of all the risks involved in every stage of the pre-settlement and settlement process.

Other initiatives of reforms aimed at strengthening the financial sector include the stimulus to the market-making activity among market participants, the modernization of the bank's insolvency procedures, the introduction of a new bankruptcy law, and the restructuring of housing credit system.

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