Brazil's stress test of inflation targeting

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Introduction and background

Like many other emerging market economies (EMEs), Brazil has suffered a series of major external financing shocks since the mid-1990s. Up to 1998, those shocks were resisted by a crawling peg for the exchange rate. Starting in January 1999, the exchange rate was allowed to float, and external shocks resulted in three big waves of depreciation: in 1999 itself, in the wake of the LTCM and Russian crises, then to a lesser extent in 2001, due to a variety of factors both domestic and external, and again quite severely in the second half of 2002, in the run-up to the presidential elections in Brazil (Graph 1).

Unlike in other EMEs, notably in Asia and Argentina, such sudden waves of exchange rate depreciation did not result in generalised and severe financial distress for domestic households, corporations or financial institutions. Domestic private agents in Brazil were much less exposed to currency risk, reflecting both relatively limited currency mismatches in their balance sheets and the ample provision of foreign exchange hedging instruments by the government. The provision of hedging instruments in the form of dollar-linked public debt and swaps was originally intended to allay speculative pressure against the Brazilian real and contain depreciation. However, it was arguably more successful in alleviating the credit crunch that might have ensued otherwise during depreciation episodes.

As in any debtor economy stigmatised by the so-called "original sin", a relatively mild impact on the private sector meant that exchange rate depreciation hit government finances pretty hard - if foreigners are not willing to bear the exchange rate risk in the first place and domestic private agents are to be spared, there is no one left but the domestic treasury to absorb the losses. Government debt as a proportion of GDP had already increased significantly during the crawling peg period (Graph 2), reflecting the combined effect of a lax fiscal stance during most of those years (Graph 3) and the high interest rates often required to defend the peg (Graph 4). The subsequent waves of depreciation contributed to further increases in the debt/GDP ratio. Such deterioration prompted decisive action regarding the primary budget in order to return public debt to a sustainable path. The need for fiscal adjustment was accentuated by the greater inflationary pressure stemming from depreciation, which in turn called for tight monetary policy and increased the debt service burden.

Indeed, apart from their fiscal impact, sudden stops had their most visible impact on inflation. It was likewise in the effort to keep inflation under control that sudden stop episodes elicited the most instructive policy response. Here we shall attempt to lay down the basic facts about that experience, which we regard as a veritable stress test successfully passed by inflation targeting (IT).

1999: Exit strategy

During the latter part of the crawling peg period, the inflationary impact of a sudden depreciation was a hot topic of policy discussion in Brazil. It was feared that lifting the exchange rate anchor might cause the economy to relapse into its historical pattern of chronically high or steadily accelerating inflation.

Soon after the peg was abandoned in early 1999, the Brazilian authorities announced that they would adopt an IT framework for the conduct of monetary policy, effective from mid-year, coupled with a

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floating exchange rate regime. It was of course not the first time IT had been adopted as a post hoc exit strategy for a country forcibly sent off an exchange rate peg.

Understandably, the announcement was met with a certain degree of scepticism. A great deal of groundwork would be needed to put a system like that together, in terms of both institution building and econometric modelling. Besides, explicitly announced "targets" for inflation had long been discredited in Brazil (except perhaps under the discipline of an intermediate target for the exchange rate).

There was another serious hurdle to overcome: the ink was still fresh on Brazil's ongoing IMF programme, under which the country was tied to conventional performance criteria including ceilings on net domestic assets (NDA). It was felt that emphasising a quantitative intermediate target would be incongruous with the direct focus on inflation characteristic of IT. The Fund was eventually persuaded to phase out the NDA performance criterion in favour of a formal consultation mechanism based on a quarterly target band for inflation. This was a groundbreaking development as Brazil was the first country with which the IMF agreed to tailor monetary policy conditionality to IT.

All prior misgivings notwithstanding, IT actually made a rather auspicious debut in Brazil. The exchange rate depreciated considerably in 1999: by 79% at the overshooting peak in March, and by 48% at year-end, relative to the last day of the crawling peg.[3] Yet consumer price inflation was a mere 8.9% in 1999 - nothing like the high double digit figures that had been forecast, and well within the 6-10% target range established for the year. Disinflation kept progressing and the 6% central target for 2000 was squarely hit, despite the fact that oil prices had by then increased significantly for two years in a row.

Several factors contributed to the surprisingly low degree of pass-through and thus to the initial success of Brazil's experiment with IT. A new team assembled at the central bank succeeded in restoring the country's badly damaged monetary credibility and quickly put in place an IT regime complete with all canonical bells and whistles (the first *Inflation Report* was published in June 1999). Widespread anticipation of a large contraction in economic activity, perhaps comparable to the ones seen in Asia, although later proven to be misplaced in the case of Brazil, also had a dampening effect on the upward adjustment of domestic prices.[4] Finally, the currency had been clearly overvalued, leaving greater room for the nominal devaluation to be seen as an equilibrium realignment of the real exchange rate.

2001: Target miss

Circumstances would be somewhat different in the next wave of exchange rate depreciation, giving even greater prominence to inflation amid the adverse consequences of the sudden stop.

The external environment had been slowly deteriorating since the second half of 2000, with mounting concerns regarding worldwide economic growth and dimming hope of an orderly resolution of the serious predicament into which Argentina had fallen. Accordingly, the real had been sliding in a gradual fashion.

Starting in the second quarter of 2001, energy shortages and rationing not only had an immediate impact on the economy but also adversely affected its longer-term prospects, thus hurting the country's perceived creditworthiness. There was also some degree of unrest in the domestic political scene, which the energy crisis further stirred. Those factors accelerated the depreciation of the real. Then, to make matters worse, came the shock of 11 September. Relative to 2 January, the exchange rate had depreciated by nearly 44% at its peak in September, and the average depreciation for the year was nearly 21%.

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[3] Given that the slow crawl barely survived a couple of weeks into the year, the depreciation rates would be just slightly higher if computed with respect to the first day of the year. The rates of nominal depreciation mentioned throughout the paper refer to the rates of increase of the price of 1 US dollar in Brazilian reais.

[4] Early consensus forecasts had suggested that GDP might contract by as much as 4%. Growth forecasts had already been revised to –1% by June, then to 0% by September, and the year ended with positive 0.8% growth.

It was true that this time around there was the considerable benefit of an up and running IT framework, with a positive if short record under its belt. However, the economy was coming from robust 4.4% growth in 2000, which continued unabated into the first quarter of 2001, and inflation had already shown incipient signs of picking up even before the shocks hit in earnest, partly as a consequence of a bad domestic harvest. The energy shortage would curtail productive capacity when utilisation rates had already increased, although it was also expected to have a dampening effect of unknown magnitude on aggregate demand through consumer and investor confidence.

Furthermore, the real exchange rate was already much closer to equilibrium, although the effect of the realignment of 1999 on the current account had been somewhat disappointing. Except for some limited room for further equilibrium realignment, there seemed to be only two avenues open: either the nominal devaluation would be reversed or, if it proved lasting, inflation ought to corrode much of the observed real depreciation.

By the end of the year, much of the depreciation was indeed reversed (it was down to about 20%), but the inflation target had already been irremediably compromised. Inflation was 7.7% in 2001, almost twice the central target of 4% and outside the ±2% tolerance margin. The central bank estimated that inflation would have been 4.8% in the absence of exchange rate depreciation, and even closer to target if it had not been for an 18% increase in electricity rates.

However, even allowing for some inertia, it was believed that considerable disinflation would be achieved before the end of the following year, bringing inflation back close to the target, which had been set at 3.5% for 2002. The situation seemed comfortable enough for the monetary policy committee (Copom) to start a cautious process of monetary easing in February 2002. The Selic rate was cut from 19% to 18.75% that month, then to 18.5% in March, and then again to a yearly low of 18% in July. At the August Copom meeting a downward bias was announced which was ultimately not exercised and was actually withdrawn in September. Before this episode ended, a new one was about to begin.

2002: Sudden stop

The June 2002 *Inflation Report* carried a warning: its projections implicitly assumed that the political transition later in the year would not cause “exaggerated and/or prolonged turmoil” in the economy and that economic policy in 2003 would remain “committed to the inflation targets”. Markets would soon call these fateful assumptions into question, leading to a quite severe capital account crisis and causing a sharp depreciation of the real.

Although it happened at a time of increased worldwide risk aversion, attributable to corporate financial reporting scandals, domestic politics played a visible role as the trigger of the confidence crisis. As capital flows to EMEs dried up, the movement was magnified in the case of Brazil, as indicated by the widening gap between its country risk spreads and the EME average (Graph 5). The country suffered a USD 28 billion reversal in capital flows, and even the normally resilient trade credit lines were cut by 28%.

The domestic component of the confidence crisis involved several different considerations. Investors feared that the business environment might actually become unfriendly under a new government, or at least be perceived as such, which would suffice to depress capital flows to Brazil and sanction a speculative move against the real. There were serious concerns about the willingness of the new government to generate primary surpluses commensurate with the burden of Brazil’s public debt, which naturally led to rumours of impending debt repudiation.

Scepticism regarding monetary policy was even greater. Not only were conditions prone to fiscal dominance, but the country’s legitimate anxiety to grow faster had also been adopted as the order of the day by all parties in the presidential campaign. That would be hard to square, in the short run, with keeping inflation in check or undergoing the likely sacrifice of disinflation.

The exchange rate had started the year at BRL 2.30 to the dollar and fluctuated mostly within the BRL 2.30-2.45 range until early May (corresponding to a maximum depreciation of 7%). Henceforth depreciation progressively gained momentum: with respect to the beginning of the year, it was at 17% when the Copom met in June, at 25% when it met in July, up to 34% by the August meeting, then to 45% by the date of the September meeting, and it finally peaked at 71% sometime in October

(Graph 1) - threatening to breach, amid much trepidation in financial and political circles, the ominous BRL 4/USD barrier. By 31 December, despite an already consistent trend reversal, the real had still posted a 53% depreciation over the year. The yearly *average* of the exchange rate showed a depreciation of 44%, the same figure as the *peak* of depreciation observed in 2001.

Depreciation in 2002 was thus comparable in size to that of 1999, and considerably more intense than in 2001. Since it took place *on top of* the two preceding waves of realignment, which had already made the real exchange rate much more depreciated, it was even more likely to generate inflationary pressure, unless the nominal exchange rate could be expected to slip back in early 2003. Unlike the 1999 episode, the events of 2002 and 2001 shared the common feature of depreciation concentrated in the second semester, with greater likelihood of an inflationary spillover into the following calendar year.

The overall size of the inflationary impact thus remained highly dependent on 2003 monetary policy - both for exchange rate reversal and for demand management - when scepticism about its resolve was at the very root of the problem. It is only natural that inflation expectations for 2003 should have deteriorated sharply towards the end of 2002. According to a daily survey of professional forecasters regularly conducted by the central bank, median forecasts had been stable at 4% for the whole first semester, had climbed to 5% by early September, to 6% by mid-October, to 8% by the end of that same month, to 9% a week later, and had closed the year at 11% (Graph 6).

This deterioration, in turn, fed back into current inflation rates, because forward-looking price setters are understood to post higher prices in anticipation of higher future inflation. Not only were point forecasts of inflation revised upwards, but uncertainty about inflation also became considerably greater.[5] Greater inflation uncertainty translated into greater uncertainty regarding ex post real interest rates, to which an increase in perceived default risk also contributed. More uncertain real interest rates may represent less of an inducement to postpone expenditures, which detracts from the contractionary effect of any given increase in the ex ante real interest rate. There was indeed statistical evidence of a rush to consumer durables towards the end of the year.

Inflation in the fourth quarter of 2002 ran at an annualised rate of 29%, up from 11% in the third quarter, and 6% in the first two quarters of the year (Graph 7). The year ended with 12.5% consumer price inflation. The central bank estimated that inflation would have been 6.7% had the exchange rate remained constant throughout the year, and 5.1% discounting also the effect of the deteriorating expectations. If one also discounts the first-round effect of a number of identified supply shocks, inflation would have been 4.3%, a little higher than the central target of 3.5% but well within the official tolerance margin. In any event, the exchange rate was the main culprit in the target miss; inasmuch as it can be partly blamed for the deterioration of inflation forecasts, its importance exceeds the already dominating direct effect just reported.

This time the target miss begged the question of what to expect from monetary policy in 2003, if commitment to inflation targeting were indeed to be preserved. In June 2002, the government had already felt the need to revise upwards the target for 2003, from 3.25% to 4%, and to widen the tolerance margin from ±2% to ±2.5%. Even those numbers sounded utterly unrealistic given the developments in the latter part of the year.

The central bank had by then proposed to guide 2003 monetary policy by an "adjusted target". The adjustment involved the *partial* accommodation of the inflation inertia inherited from the past, and the accommodation of first-round effects of a certain class of identifiable supply shocks (which did *not* include exchange rate depreciation).[6] The new methodology served to indicate explicitly the trajectory through which inflation should be expected to return to target over the two following years, which was, however, made contingent on certain types of supply shocks that might hit in the meantime.[7]

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[5] A crude indicator of inflation uncertainty is the dispersion across forecasts in the survey. The standard deviation of forecasts was in the neighbourhood of 0.5 during most of the first semester; it had increased to 1.2 by mid-September, reaching a peak of 3.1 by mid-October.

[6] This procedure is described in detail in Chapter 6 of the June 2002 *Inflation Report*. Further discussion can be found in A Fraga, I Goldfajn and A Minella, "Inflation targeting in emerging market economies", *NBER Macroeconomics Annual 2003*.

[7] Note that fully specified state-contingent trajectories for reverting to the medium-term targets for inflation were one of the improvements on the typical implementation of IT recently urged by Michael Woodford, in *Inflation targeting and optimal*

The supply shock contingency aroused some protest among specialists, as targets for any year could be adjusted in the course of that year. However, through automatic (that is, *non-discretionary*) adjustment of the targets for headline inflation it accommodated the first-round effects of certain supply shocks, thus producing the same results one might obtain by targeting a measure of core inflation. The initial calculation at the end of 2002 resulted in adjusted targets of 8.5% and 5.5%, respectively, for 2003 and 2004. These numbers reflected the premise that monetary policy should only fight one third of the inflation inertia in the first year, accommodating the remaining two thirds. The degree of accommodation was the only choice parameter involved in the whole calculation of the adjusted targets. It was selected taking into account explicitly the central bank's econometric estimates of the output sacrifice required to achieve the resulting adjusted targets. The candid admission of output stabilisation objectives, along with the notion that first-round effects of supply shocks ought to be accommodated, should be enough to disabuse those who insist on depicting IT practitioners as "inflation nutters".

2003: Disinflation

Interest rates had already been raised in the last months of 2002, as inflation and inflation expectations quickly deteriorated. On 14 October, the Copom convened for an extraordinary meeting, something that had never happened since IT was first implemented. The sense of urgency was heightened by the fact that the Committee could not wait for a regular meeting already scheduled to take place a week later. It decided to raise the Selic rate by 300 basis points, to 21%. In November and December it made two more hikes, of 100 and 300 basis points respectively, bringing the Selic rate to 25% at the end of the year.

Rates were increased further early in 2003 - already into the new government's term - first by 50 basis points in January and then by 100 basis points in February, thus reaching 26.5%. In February the interest rate hike was complemented by an increase in the reserve requirements of commercial banks. In March the rate was kept unchanged but an upward bias was announced, which, like the August 2002 downward bias, would not be exercised and would be removed a month later.

Even before it took office on 1 January, the new government had spared no effort to assert a market-friendly and fiscally austere policy stance. It also confirmed its commitment to IT aimed at the adjusted targets proposed by the central bank. Although the foreign exchange market had quieted down and the real had appreciated somewhat after the elections, the 2002 sudden stop left a challenging legacy for the new year: a legacy of inflation running very high - at 22% per year on average in the first quarter - and inflation expectations that kept deteriorating - from 11% in early January to 12.3% in late March, for calendar year 2003.

The task at hand was then best characterised as a major disinflation, not as the routine stabilisation of garden-variety inflationary shocks. Unlike in the previous episodes described earlier, inflation expectations had resolutely shifted upwards. There was also evidence that the degree of inflation inertia had increased in the economy. To complicate matters further, 12-month accumulated inflation, an important indicator in the presence of backward-looking indexation (either contractual or by rule-of-thumb price setters), would remain high for most of 2003, to fall precipitously only in the last quarter when the very high inflation of the last months of 2002 would finally drop out of the computation.

Unfortunately, there was limited public understanding of the mechanics of disinflation under an IT floating exchange rate regime, with a nominal interest rate as the monetary policy instrument. There was little international experience to draw on, since most IT countries that had undergone disinflations of comparable magnitude had done so with the aid of exchange rate management or targets for monetary aggregates. One soon realises that, compared to IT with a nominal interest rate instrument, the beauty of exchange rate or monetary aggregate targets is the greater ease of communication with the public. Monetary policy can be represented by the exogenous setting of an instrument or

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monetary policy, mimeo, Princeton University, 2003. Of course, there is no claim that the scheme of adjusted targets as implemented in Brazil in 2002 satisfied the criteria envisaged by Woodford for policy optimality.

intermediate target, supposedly leading to inflation in a one-directional causal chain of disarming simplicity, as captured by a basic quantity equation or PPP relation.[8]

A number of arguments were also circulated suggesting that particular circumstances somehow impeded or distorted the transmission mechanism of monetary policy, which was then bound for defeat against inflation. Historically low aggregate credit levels in the economy would presumably detract severely from the effectiveness of monetary policy in demand management. In turn, the inertial or cost-push nature of the ongoing inflationary process supposedly made demand management entirely ineffective in containing inflation - a great pain with no gain. Some observers went as far as suggesting that monetary policy might actually work in reverse, given Brazil's large stock of public debt. Increases in interest rates would worsen debt dynamics, increasing country risk and making the exchange rate depreciate; with the pass-through from depreciation, tight money would make inflation higher rather than lower.[9] However, Brazil did succeed in securing disinflation through monetary tightening, with a perceptible contribution from the aggregate demand transmission channel. This indicates that Brazil did not satisfy the conditions under which such conjectures, no matter how plausible, would in fact be valid.

Inflation expectations for 2003 kept deteriorating until the date of the April meeting of the Copom, when they stood at a peak of 12.5%. Expectations for 2004 inflation remained stubbornly at 8% all that time. It was only when the Copom decided, at its April meeting, to maintain rates at 26.5% for a third month in a row, despite tremendous public outcry, that monetary resolve showed signs of paying by lowering expectations. These started subsiding for both 2003 and 2004 horizons. The Selic rate went unchanged again in the May meeting, and by the time of the June meeting expectations were down to 11.8% for 2003 and 7.4% for 2004. The Copom opted for a modest 50 basis point rate cut in June. When it met again in July expectations had fallen to 10.4% for 2003 and 6.5% for 2004, which prompted a further 150 basis point cut, bringing the Selic rate to 24.5%.

At the end of June the government adopted the 5.5% adjusted target as the official inflation target for 2004, in a public display of support for monetary policy as conducted thus far. Unlike adjusted targets, official targets are firm, not state-contingent, but a $\pm$2.5% tolerance margin is set around them. It was felt that the dust had settled sufficiently to warrant a return to firm targets, which are more easily understood by the general public. However, the originally planned trajectory of convergence to the long-run targets would be maintained. In that spirit, an official target of 4.5% for 2005 was also announced, with $\pm$2.5% tolerance margins.

In June and July, helped by the appreciation of the real, monthly inflation rates became very low - indeed the consumer price index (IPCA) registered deflation in June. The level of activity had also reached a trough in the second quarter. Public pressure naturally mounted for drastic monetary easing, as inflationary pressures seemed to have been completely quashed. The very low inflation rates in these months were interpreted by the central bank as a non-recurring event, not representative of the actual deceleration of the underlying trend in inflation. Good news with more staying power was instead the estimated reduction of the coefficient of inflation inertia, which boded well for further progress with disinflation.

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[8] By comparison, the modern theory of monetary policy with a nominal interest rate instrument is quite obscure, riddled as it is with notions inaccessible to anyone except macroeconomists with advanced training. Take, for instance, the need for interest rates to be set regularly with a strong enough reaction to inflation to constitute a proper nominal anchor - the so-called "Taylor principle". With the policy instrument setting turned endogenous (as a function of inflation, itself an endogenous variable), there is the question of how to build the choice of disinflation trajectory into a dynamic model correctly treating the formation of expectations, an ingredient deemed crucial in the context of disinflation. The easiest answer is to depict policymakers as choosing the trajectory of an "implicit target" for inflation, with the prescription that interest rates shall be raised more the greater the departure of inflation from that implicit target, according to a predefined reaction coefficient. Disinflation results from implementing such a reaction function while making the implicit target approach the long-run inflation target over time. However, if there is inflation inertia (an empirically reasonable assumption), inflation will not be made to fall as fast as the implicit target. One ought, therefore, to distinguish between the implicit target trajectory rationalising the setting of interest rates and the intended disinflation path. Otherwise, policy can be taken as promising something it simply cannot deliver. Alternatively, if the public mistakes the intended trajectory of disinflation for the "implicit target" monetary policy will be regarded as overly restrictive if inflation does fall according to plan. The reader who finds all this terribly convoluted is not alone. The point is that, in the context of disinflation, the technical state of the art is a communications nightmare!

[9] This point is best articulated by Olivier Blanchard, *Fiscal dominance and inflation targeting. Lessons from Brazil*, mimeo, MIT, 2003.

Central bank officials signalled in a series of statements and in the Copom minutes that interest rate cuts would be forthcoming as long as disinflation progressed, but that the reduction would be gradual, not drastic. Efforts were made to spread the familiar message that monetary policy affects the economy through shifts in the entire term structure of interest rates, which in turn depends not only on the current overnight rate but also on where overnight rates are expected to be in the future. In a process of disinflation, the current Selic rate was, by itself, a particularly poor measure of monetary policy stance, as market rates for longer maturities already incorporated expected rate cuts. Too steep a (negatively sloped) yield curve could undermine the intended contractionary stance, jeopardise the disinflation path and risk precluding future cuts as fast as those built into the curve. Therefore, some signalling about the future trajectory of interest rates seemed valuable in order to avoid excess volatility in the term structure.

Market forecasts of inflation stood at 9.7% for 2003 and 6.2% for 2004 on the date of the August 2003 Copom meeting. Forecasters started seriously contemplating the possibility of 2003 inflation ending up very close to the 8.5% adjusted target, a prospect greeted with derision earlier in the year. As some were quick to point out, inflation was headed towards a figure well within a putative $\pm$2.5% tolerance margin around the adjusted target (although, as already mentioned, adjusted targets were regarded as indicative rather than as a performance criterion for the monetary authority, and as such carried no formal tolerance margins around them). At that meeting the Copom made a more significant 250 basis point cut, and then cut 200 basis points more in September, bringing the Selic rate down to 20%.

Disinflation is still a work in progress at the time of writing, but at this already advanced stage one can conclude that it has entailed relatively moderate costs in terms of output loss. Contraction in the level of activity was sharpest in the second quarter, but consistent signs of recovery were already visible in the third. That result comes in spite of the fact that 2003 output was also negatively affected by the halting of investment plans during the turbulent political transition, the impact of which is hard to disentangle from the effects of tight monetary policy.

Conclusion

Among all EMEs adopting IT, Brazil may very well be the one displaying the largest deviations of inflation from target. Considering, however, the sizeable shocks hitting the Brazilian economy during its experience with IT, the outcome is still quite encouraging.

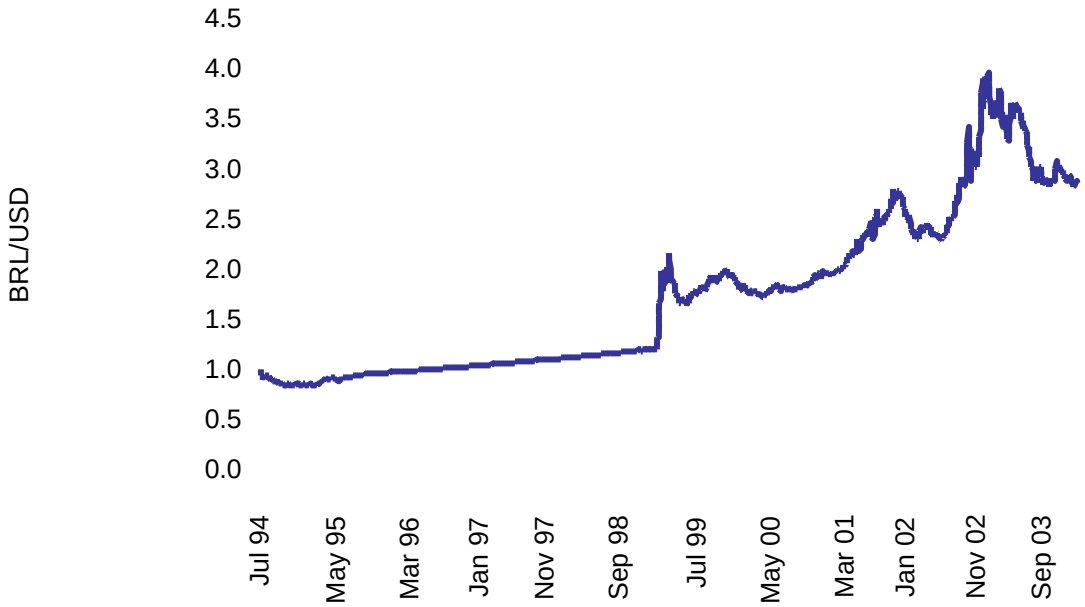
Between January 1999 and the third quarter of 2003, the real depreciated by 140%. It had traversed much higher overshooting peaks along the way, with up to nearly 230% depreciation, and yet inflation over that whole period was approximately 50%. Given its long prior experience of depreciation-inflation spirals, Brazil would not have been expected to emerge from a 60% *real* depreciation with 50% cumulative inflation.

Of course, the 1999-2003 average annual GDP growth falls far short of the country's potential and aspirations for a long-run growth trajectory. However, given the uncommon intensity of economic turbulence marking the period in question, with its direct impact on output compounded by a constant need to fend off inflationary pressures, the trajectory of output was not at all unsatisfactory either in terms of average growth or in terms of the amplitude of fluctuations. In particular, the output costs of disinflation were relatively small, especially considering the degree of credibility to which a newcomer to IT, without much of a track record for monetary austerity, might dare to aspire.

Brazil's experience also bears witness to IT's resilience as an expectation coordination mechanism. The 2003 disinflation indicates that monetary resolve could be credibly reasserted even when inflation targets had been missed for three years in a row, out of a total of only five years on IT. That seems possible provided that the misses are understood to be legitimately due to force majeure, and indeed to represent a reasonable compromise between adherence to the inflation targets and the need to smooth output fluctuations, in accordance with the best practices of "flexible" IT.

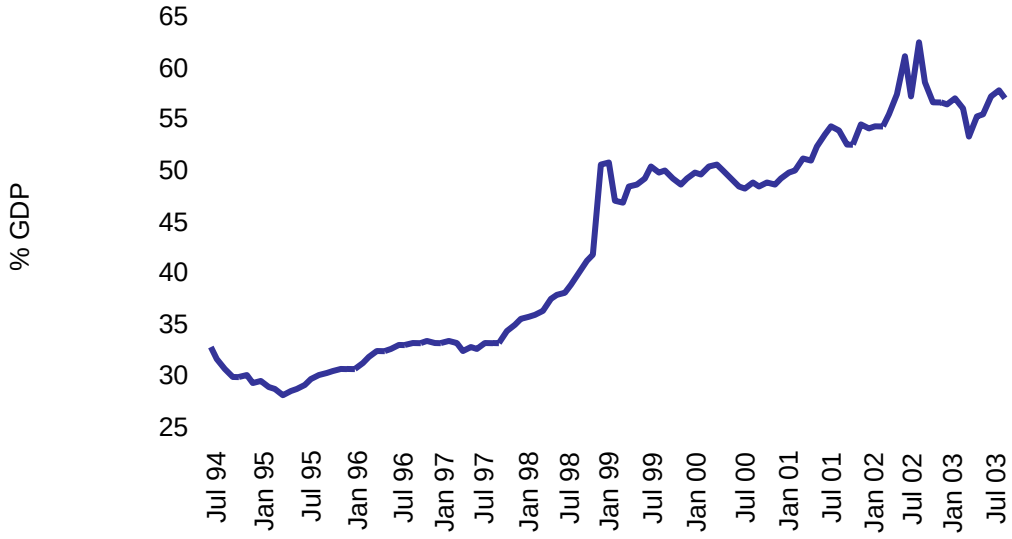
Graph 1

Nominal exchange rate



Graph 2

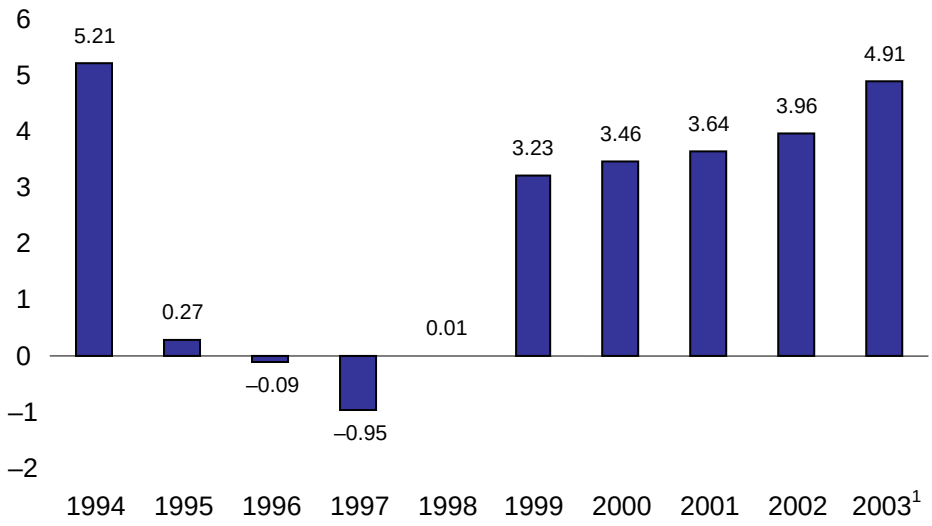
Debt/GDP ratio



Graph 3

Primary budget surplus

As a percentage of GDP

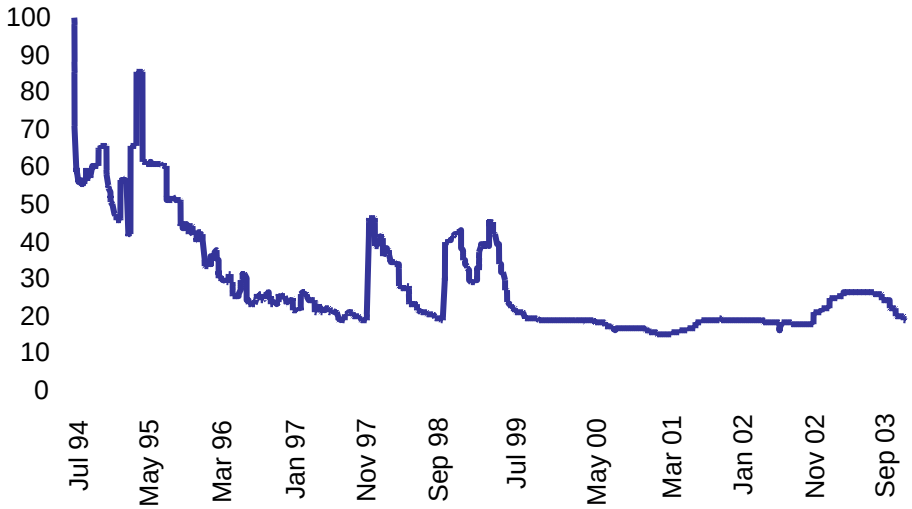


[1] January to August.

Graph 4

Selic rate

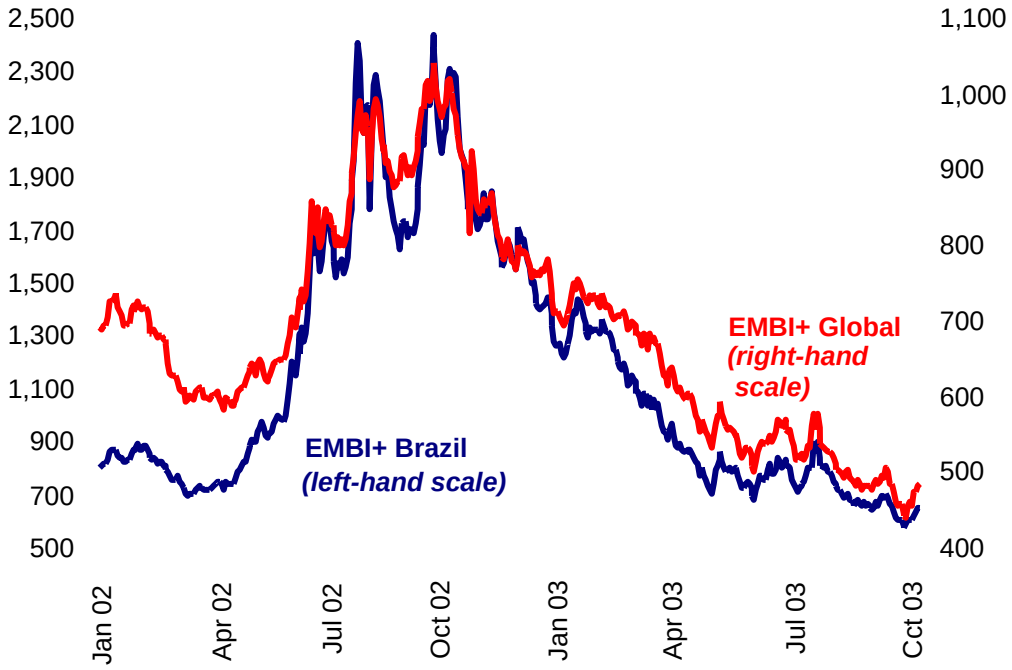
In per cent



Graph 5

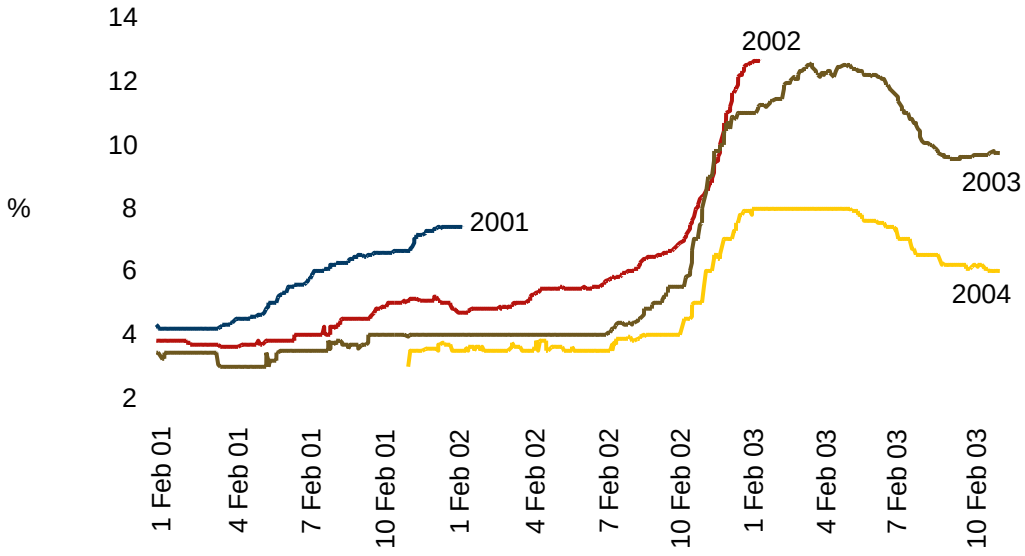
Country risk - Brazil versus EME average

In basis points



Graph 6

Median inflation forecasts for calendar years 2001-04



Graph 7

IPCA inflation rates

In per cent per year