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Brazil—Monetary Policy

The Good Convergence

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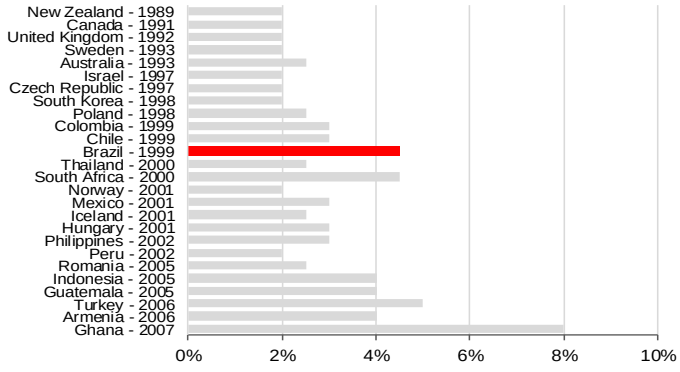
- **The National Monetary Council (CMN) is scheduled to set the 2021 inflation target in June. In our view, the committee should take the opportunity to speed up convergence toward a target of 3%.**
- **We believe a target of 3.75% (or lower) would signal to markets an intention to converge, over the coming years, to a target of 3%, more in line with other inflation-targeting emerging economies. If instead the CMN decides to set for 2021 the same 4% adopted as a target for 2020, we believe markets will read this as a sign that the committee sees this as the appropriate level for inflation in Brazil.**
- **Both literature and our own econometric exercises strongly suggest that a reduction of the target in the context of high BCB credibility tends to immediately lead to a decline in inflation expectations, allowing for lower nominal interest rates, without an impact on the real interest rate. An eventual option for a lower target in 2021 has no short-term costs for monetary policy, in our view.**

Hunting high and low

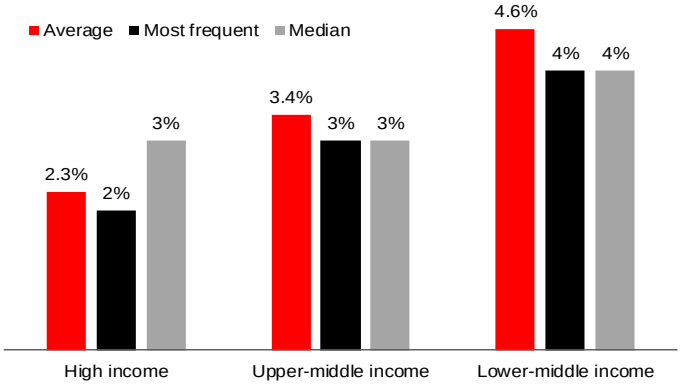
Among economists, it is a widely held belief that low inflation is conducive to a better business environment and fewer economic distortions. However, how low should inflation be? There is no easy answer to this question: the concept of an "optimal inflation level" is elusive, with no consensus around it. We observe that it is generally believed that deflation is undesirable, and that zero inflation may be risky: after all, formal measures of inflation (such as the CPI index) tend to overestimate the actual increase in cost of living, so that a zero CPI could mean deflation in the cost of living. While many share the view that some positive level of inflation might be appropriate, there is no clear policy prescription as to how much it should be. Former Federal Reserve chairmen and board members have offered their views on what could be considered price stability: Alan Greenspan said that "price stability is when households' and businesses' decision-making ceases to take inflation into account," while Alan Blinder reflected that "prices are stable when ordinary people, in their ordinary course of business, stop talking about inflation."[1] These concepts are easy to grasp, but still hard to quantify.

Figure 1. Targets in inflation-targeting countries



Countries that have adopted IT for more than 10 years. Central target for 2018; for countries that target a band, mid-point of the band. All targets are for 2018. Sources: Central Bank News, BofE (2012), Santander.

Figure 2. Inflation targets by income group



Countries that have adopted IT for more than 10 years. Considers central target or mid-point of targeted band. Classification of countries as per World Bank criteria. All targets are for 2018. Sources: Central Bank News, BofE (2012), World Bank (2018), Santander.

[1] Alan Greenspan, "Transparency in Monetary Policy," remarks to the Federal Reserve Bank of St. Louis Economic Policy Conference, October 11, 2001. Alan Blinder interview published in the Federal Reserve Bank of Minneapolis.

Precisely because low but positive inflation is considered desirable by economists, several countries have adopted inflation-targeting (IT) frameworks. When the inflation targeting framework is working properly – that is, with the appropriate conditions and high credibility – the economy (be it developed or emerging) tends to benefit on a variety of fronts: inflation expectations are anchored to the targets, costs of disinflation decline, and GDP growth becomes less volatile. Among the "appropriate conditions" for the success of inflation targeting, we highlight a solvent public sector, an independent (or at least operationally autonomous) Central Bank, and trade openness: the more these conditions are present in the economy, the larger the benefits of targeting inflation, in our view. Even when some of these conditions are not fully met, however, we believe that targeting inflation still seems like a good policy – as highlighted by the well-known success of this framework in stabilizing countries with historically high inflation, such as Israel, Mexico, and Brazil.

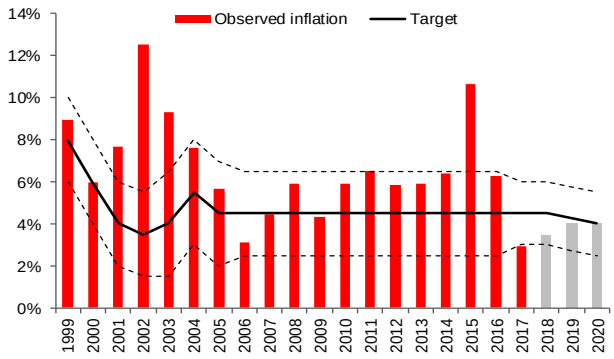
The level of the targets adopted by each country vary, but the majority of countries that have long-established frameworks (i.e., those that have been in place for at least 10 years) currently have targets between 2% and 3% (Figure 1). When these countries are classified by level of income (using World Bank criteria[2]), a pattern emerges: the higher the income, the lower the inflation target tends to be (Figure 2). High-income countries tend to set their target around 2%, upper-middle-income (or "emerging") countries are more likely to target 3%, whereas lower-income ("developing") countries settle for an objective of 4%.

Swing of things

The inflation targeting framework in Brazil started out ambitiously, but we believe it is fair to say that somewhere along the line it lost its momentum. When the policy was first implemented in 1999 – in the aftermath of the introduction of a free-floating currency – the National Monetary Council (CMN) outlined aggressive targets for the first three-year period: a single-digit 8% target for 1999 (quite bold after a currency shift of more than 30% in January), declining to 6% in 2000 and 4% in 2001, all within +/- 2% of interval. In the following two years, the CMN took one step further and announced targets of 3.5% and 3.25% for 2002 and 2003, respectively, signaling the adoption of an inflation target commensurate with that of other countries. Another bout of currency weakness in 2002 led the CMN to revise up to 4% the target for 2003 and, later, to exceptionally set 5.5% as a target for 2004, also widening the fluctuation interval to 2.5%. Between 2005 and 2016, however, the CMN settled for a rather high center target of 4.5% (within +/- 2% of interval) – which makes Brazil stand out as having the highest target among the countries that adopted IT before the end of the1990s, and also above the average, median, and mode target of upper-middle-income countries. Only in 2017 did the CMN targets resume a gradually declining trend, with the goal set as 4.25% and 4.0% for 2019 and 2020, respectively – nonetheless, still above those of its peers.

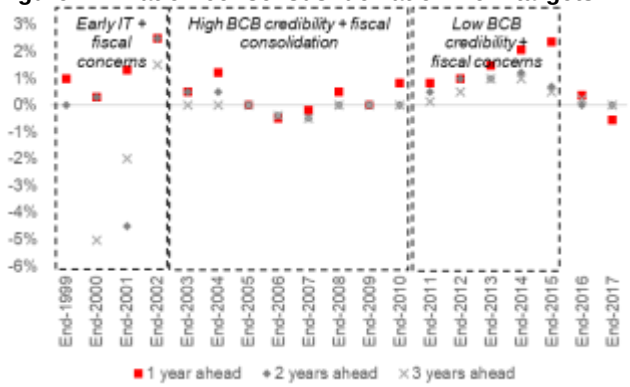
In our view, Brazil is now at a point when it can take a bolder step toward a target of 3%, approaching the practice of other emerging economies with long-stablished IT frameworks. For such a move to bear fruit at minimum cost to society, however, it is crucial that monetary authorities enjoy high credibility. In this piece, we attempt to answer two questions: (i) how has BCB credibility evolved recently? and (ii) what would be the cost to the society of moving to a lower inflation target?

Figure 3. Brazil: evolution of inflation targets



Targets are set each June for the three following years. The target for 2003 was revised up from 3.25% to 4% in 2002, and in 2003 again to 8.5%; also in 2003 the target for 2004 was revised up from 3.75% to 5.5%. Sources: BCB and Santander.

Figure 4. Inflation consensus: deviation from targets



Median market expectations for inflation one, two and three years ahead, minus the center point of the target for each year, measured at the last working day of each year. The closer these values are to zero, the more credibility they signal. Sources: BCB and Santander.

[2] GNI per capita of $1,005 or less in 2016; lower-middle-income economies are those with a GNI per capita between $1,006 and $3,955; upper-middle-income economies are those with a GNI per capita between $3,956 and $12,235; high-income economies are those with a GNI per capita of $12,236 or more. For more details see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519

Evaluating BCB credibility

In the nearly 20 years of inflation targeting in Brazil, the policy went through a rough start, a successful period followed by a subsequent loss of credibility, to recently – over the last two years – regaining the lost credibility. In a matter of two years, inflation declined from 10.7% in 2015 to 6.3% in 2016 and 2.95% in 2017, an impressive and fast convergence after several years with above-target inflation, which reflected, in our view, the combination of a credible Central Bank, good economic policy coordination, and a strongly negative output gap.

The increase in credibility can be gauged by an intuitive measure: the deviation of inflation expectations from the target for the years ahead. Under a credible IT framework, considering around a nine-month lag between a monetary policy decision and its effect on prices, some deviation from the target one year ahead is to be expected. However, if the monetary authority is credible, its commitment to a target suffices for anchoring inflation expectations to the announced objectives two and three years ahead. Hence, the greater the credibility, the smaller the deviations of consensus from longer-range targets. Figure 4 illustrates how those deviations have evolved since end-1999, and a visual inspection allows us to (rather simplistically) identify four periods. The first period is comprised of the first years after the implementation of the framework, in which there was no track record for the policy, which further struggled amid high currency volatility and adverse fiscal dynamics. The second period encompasses a period of eight years in which the market seemed to see the BCB policy as credible for its consistent monetary policy decisions and the results it achieved. In that period, BCB's job was facilitated not only by a strengthening currency but also by a remarkable fiscal consolidation. A third period followed, in which failure to deliver targets amid a deteriorating fiscal environment eroded the credibility of the IT framework. Finally, the last two years have marked the return of coordinated policies, and the re-anchored inflation expectations (negative output gap aside) highlight the regained credibility of the framework, in our view.

This intuitive appraisal is confirmed by a simple yet more rigorous exercise. In a simple approach, we ran two Phillips curves: a restricted LS for inflation and an unrestricted LS for inflation expectation 12 months ahead; additionally, we estimate a traditional Taylor rule equation. We ran a restricted Phillips curve to break down inflation into its main drivers: inertia, inflation expectation, output gap, and exchange rate pass-through, in order to measure the importance of each to inflation throughout Brazil's inflation targeting history. For this purpose, we ran this restricted Phillips curve in five-year rolling month windows, with monthly data from January 2003 through December 2017. The estimated coefficients come from the following equations:

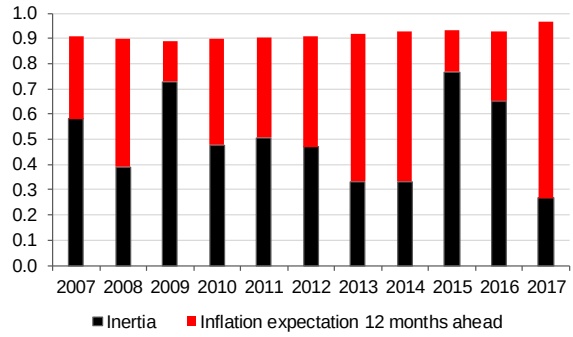
$$\pi_t = \beta_1 \pi_{t-1} + \beta_2 \pi_t^e + \beta_3 \gamma_t + (1 - \beta_1 - \beta_2 - \beta_3) e_t \qquad (1)$$

$$\pi_t^e = \beta_1 \pi_{t-1} + \beta_2 \pi_t^{*lp} + \beta_3 \gamma_t + \beta_4 e_t \qquad (2)$$

$$i_t = \beta_1 i_{t-1} + (1 - \beta_1)[\beta_2 (\pi_t^e - \pi_t^*) + \beta_2 \gamma_t] \qquad (3)$$

where π_t is headline inflation y/y; π_t^e is the expectation for inflation 12 months ahead; π_t^{*lp} is the long-term inflation target (inflation expectations three years ahead); π_t^* is the short term inflation target; $\pi_{t-1}$is the inertia (past inflation); e_t is exchange rate variation; γ_t is the output gap (measured by the IBC-BR – the BCB proxy for GDP growth); and i_t is the target overnight rate (Selic, as announced by the Monetary Policy Committee).

Figure 5. Philips curve coefficients: inertia vs. inflation expectations



Estimates based on equation (1) in the previous page. For each year, the estimate represents the outcome of the 5-year rolling period ending in that year. These estimates represent the relative weight of each component in inflation. Source: Santander.

Figure 6. Inflation expectations: short term vs. long term

Source: BCB.

Figure 5, which illustrates the estimated coefficients for the components of inertia and the inflation expectations, provides some interesting insights. First, it can be seen that the relative importance of inertia and expectations oscillates over time: the weight of expectations (guided by targets) increases over time as IT matures, and then fades again, losing importance to inertia, when the credibility of the policy erodes. At the end of the period of the exercise, expectations regain importance, evidencing increased credibility – in 2017, we estimate the coefficient of inflation expectation at 0.7, well above the average 0.4 seen in the full sample.

A second interesting point is that the long-term target is important in explaining inflation expectations, with a coefficient of 0.7 (using full sample). This conclusion is based on our estimates in the second equation, which was run using inflation expectations three years ahead (which could be seen as the market's perception of BCB's long-term target inflation), mainly because what should be changed by the CMN decision in June is the long-term inflation target. Finally, we ran the Taylor rule for Brazil, which showed that the coefficient of inflation deviation from the target is 1.5, in line with the inflation-targeting framework[3].

Evaluating costs of convergence

Based on these exercises, it is also possible to venture an estimate on what would be the costs and benefits (from the standpoint of monetary policy) of converging to a lower inflation target. **In line with most of the literature, our econometric exercises for Brazil's inflation targeting history show that, as long as the monetary policy is credible, a reduction in the inflation target promotes a reduction in inflation expectation 12 months ahead, leading to a reduction in the nominal interest rate, without any change for the real interest rate in the long term.**

Under high credibility (that is, with market expectations driven by the targets), we conclude that there is a potential collateral gain to announcing a lower target for three years ahead: in our view, that move would not only anchor market expectations over that horizon but also influence inflation expectations for 12 months ahead. According to our estimates, a 100bps reduction in the long-term inflation target implies a 70bps reduction in forward-12-month inflation expectation as well, creating a -70bps gap from the target (considering that with a credible BCB, the gap was previously zero). Furthermore, our results suggest that, as per the Taylor rule response, such a decline in short-term inflation expectation would allow a 100bps reduction in a nominal interest rate. In this case (high credibility of the monetary authority), there is no impact on the real interest rate, considering that the nominal interest rate is the sum of the real interest rate and the inflation target, in this case.

However, if monetary policy is not fully credible (that is, if the inflation target does not fully drive inflation), a 100bps reduction in the long-term inflation target implies a less than 70bps reduction in inflation expectation 12 months ahead, and consequently, a less than 100bps reduction in the nominal rate. In this case, the real interest rate has to increase, mainly because of the lack of credibility. In a simple mathematical calculation, it is possible to see the real interest rate increasing because the reduction in the nominal interest rate will be less than the magnitude of the reduction in the inflation target.

In both cases, a lower inflation target means a lower nominal interest rate, and the difference between these two cases is, *ceteris paribus*, the degree of the monetary authority's credibility. However, even in the less favorable case, the increase of the real interest rate should be temporary, if the monetary authority remains committed to its target.

Conclusion: we believe now is the time to be bold

International experience shows that credible central banks can make nearly costless changes in their inflation targets, particularly if the movement occurs under appropriate economic circumstances, as was the case, for instance, for New Zealand[4]. If Brazil wants to join its peers by moving closer to such a practice, we believe this may be a good time to take a bolder step in that direction. As suggested by our exercises, BCB is enjoying sufficiently high credibility to influence inflation expectations, the current macroeconomic conditions are disinflationary, and observed inflation has, for the past nine months, been running below the lower bound of the target for the first time in 20 years – which further favors convergence of inflation expectations even to long-term targets, in our opinion. Hence, in our view, when the National Monetary Council meets at end-June, they should debate the merits of setting a target below 4% for 2021. The pace of decline could be the same 25bps outlined in last year's announcement, but there are no rules set in stone preventing a bolder movement to speed up convergence to a target of 3%. There is no way of knowing whether this would be the ideal level for inflation, but we believe simple math suggests that it would be much easier in the current environment to – as Greenspan would put it – "cease to take into account" in multiyear plans the former unambitious target of 4.5%.

[3] The coefficient of inflation expectation deviation from the target - $(1-\beta_1)\beta_2 > 1$ - indicates that the monetary policy responds sufficiently strongly such that the real interest rate rises whenever expected inflation increases, and vice versa.)

[4] A study has shown that the several changes in inflation targets introduced by the monetary authority in New Zealand – the pioneer country in IT – led to corresponding changes in inflation and inflation expectations, with no significant changes in real variables over the long term. For further details, see Lewis and McDermott (2016), "New Zealand's Experience with Changing Its Inflation Target and the Impact on Inflation Expectations", RBNZ Discussion Paper Series.

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