

Medium-term expectations are key for the Copom's strategy to work



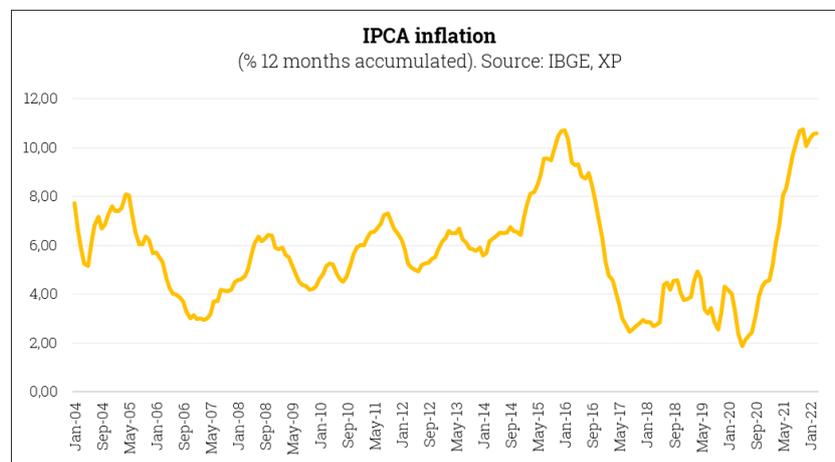
Caio Megale
Chief economist
caio.megale@xpi.com.br

Tatiana Nogueira
Economist
tatiana.nogueira@xpi.com.br

Introduction

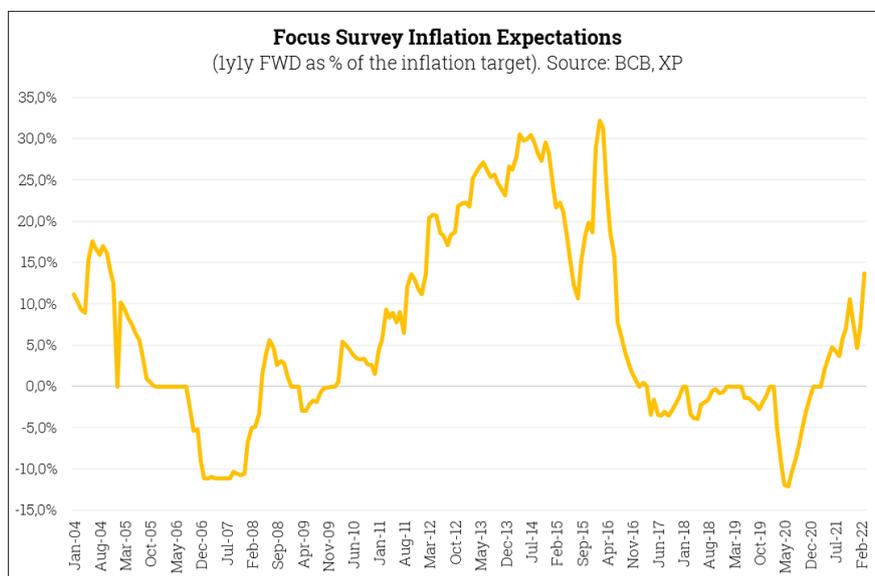
In its official communication, Central Bank has been signaling that the Selic rate at 12.75% is sufficient to bring inflation to the target path. Will it work? Keeping long term inflation expectations anchored is key to answer this question. This note tries to show why.

The Brazilian CPI (measured by IPCA) reached double digit levels during the pandemics, spurred by both demand and supply drivers. The Central Bank reacted promptly, taking the Selic rate to contractionary levels. Thus, when (and if) global inflationary pressures fade, IPCA should gradually converge back to the target path.



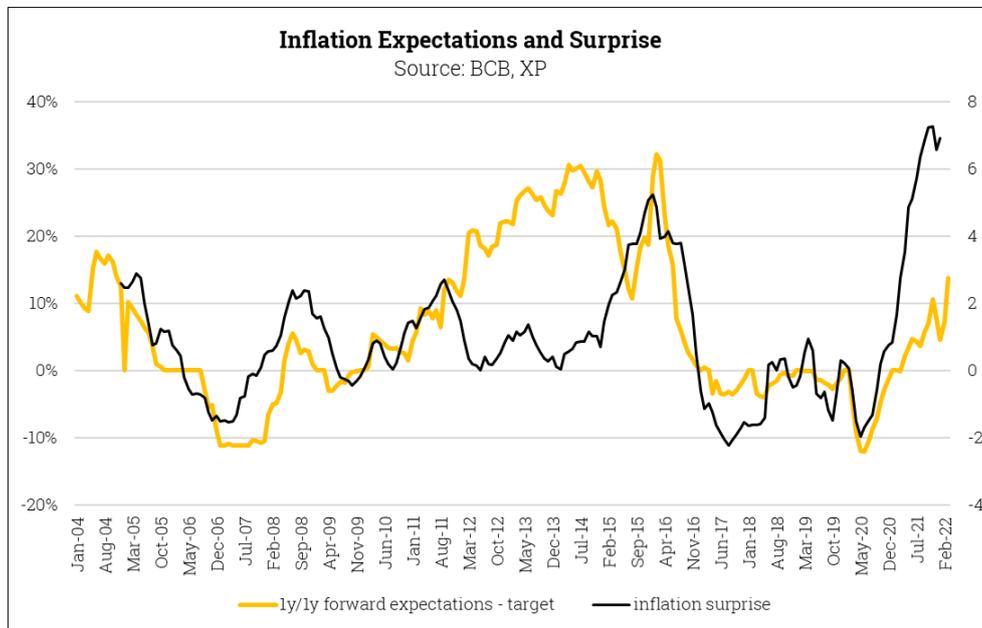
Inflation expectations is a key variable to assess the speed this convergency. If medium-term expectations are not well-anchored, the task for monetary policy becomes more challenging.

In this sense, recent news is not encouraging. The chart below shows inflation expectations 1-year/ 1-year forward, collected by the BCB's Focus Survey. this variable considers a "forward" measure of inflation expectation, and, thus, is not directly affected by short term inflationary pressure. The graph shows that medium-term expectations are on the rise and **stand 15.3% above the target for the period.**



Rising medium-term expectations is normally related to lack of monetary policy credibility. We do not believe it is the case this time around. The BCB has been reacting to rising inflation since March last year (much before most Central Banks in the world). Recent approval of BCB's independence bill in the Congress reinforce that view.

The chart below has the same measure of expectations de-anchoring as the chart above. Still, we plot it together with inflationary surprise (measured by the difference between 12-month accumulated inflation and 12-month-ahead inflation expectation for the observed period). We note that the recent unanchoring movement is associated with increasing surprises.



It is more likely that rising expectations are connected to the intensification of global commodity-prices shock, that is taking another lag in 2022. It suggests that the effect on CPI inflation (in Brazil and in most other countries) will probably last beyond 2022.

Another pressure on inflation expectations may come from domestic fiscal risk. Market forecasts that Brazilian debt-to-GDP ratio will rise in coming years, from an already high level today (above 80%). Fiscal unsustainability may eventually lead to higher inflation. The Copom has been point out this risk in its official communication: "the Committee pondered that the risk of deanchoring longer-term expectations, derived from developments in the fiscal scenario, sustains an upward bias for the projections of its reference scenario"

This note quantifies the effect of rising expectations on medium IPCA forecasts.

Transmission channels from fiscal policy to prices

The main channel through which fiscal policy affects inflation is activity. When placed in the expansionist camp, with a declining primary result to the previous period, the fiscal policy makes GDP grow more (at least in the short term). An increase in government spending directly increases aggregate demand. At the same time, lower taxation leads to increased disposable income, consumption, and private investments.

When fiscal policy is contractionary (with a drop in spending or an increase in taxes), the opposite occurs.

However, it is worth noting that this mechanism is not always so simple. Let's take as an example the drop in taxes (IPI) on automobiles in Brazil in 2012. The initial effect was falling prices and lower inflation, but this was not sustainable. That taxes should rise again in the following years. Thus, a tax drop in the current situation of the Brazilian economy could cause inflation to fall in the short term (due to the realignment of prices). Still, it would rise again (price increases would be incorporated into expectations and the prospect that fiscal policy would remain expansionary and necessitate further tax increases in the future).

Another channel through which fiscal policy can affect the price level is debt sustainability, as explained by the Fiscal Theory of Price Level. The higher the public debt, the more difficult it will be to sustain it at reasonable

levels over time, with the market demanding higher interest rates to roll over government debt (which rises both through structural deficits and interest rates)—consequently, risk premiums and exchange rate depreciation (which increases inflation) increase.

Thus, the concern with Brazilian fiscal accounts is justified and influences inflation expectations.

Methodological framework

To estimate the impact of the change in expectations and inflation, we will use a Phillips curve for market-set price inflation; IS curve, which describes the output gap trajectory; and a curve for the 360-day pre-DI swap premium.

The Phillips curve for market price inflation has as explanatory variables the lagged IPCA, the inflation expectation four quarters ahead, the CRB commodity index (already in reais) weighted by the lagged market-set price inflation and the output gap, according to the specification below:

$$\pi_t^L = (1 - \beta_1 - \beta_2) \pi_{t-1} + \sum_4 E \pi_{t+i} + \beta_2 \text{dlog}(\sum_4 \pi_{t+i}^L * CRB_{t-1}) + \beta_3 \text{hiato}_t + \beta_4 \text{seas}_1 + \beta_5 \text{seas}_4$$

The IS curve, which describes the output gap dynamics, is defined as a function of its lag, the difference between the ex-ante real interest rate and the real neutral rate, the global GDP gap weighted by the importance of Brazilian trading partners and the recurring fiscal primary result.

$$\text{hiato}_t = \beta_6 \text{hiato}_{t-1} + \beta_7 \frac{\left(1 + \frac{\text{selic}_{t-2}}{100}\right)}{1 + \frac{\sum_3^{-1} E \pi_{t+i}}{100}} - 1) * 100 + \text{tx_real}_{t-2}) + \beta_8 \text{hiato}_t^* + \beta_9 \text{primário}$$

The Taylor rule, where the nominal interest rate, Selic, is a function of its own values in the past and of central bank responses to deviations from expectations from the inflation target.

$$\text{selic}_{t+4} = \beta_{10} \text{selic}_{t+3} + (\beta_{11}) \text{selic}_{t+1} + (1 - \beta_{10} - \beta_{11}) (\text{tx_real}_t + \text{meta}_t + \beta_{12} (\sum_4 E \pi_{t+i} - \text{meta}_t))$$

Finally, the inflation expectations curve is a function of the current inflation, the inflation target, the deviation of the inflation expectation calculated by the Focus survey in relation to the inflation target and the variation of the exchange rate.

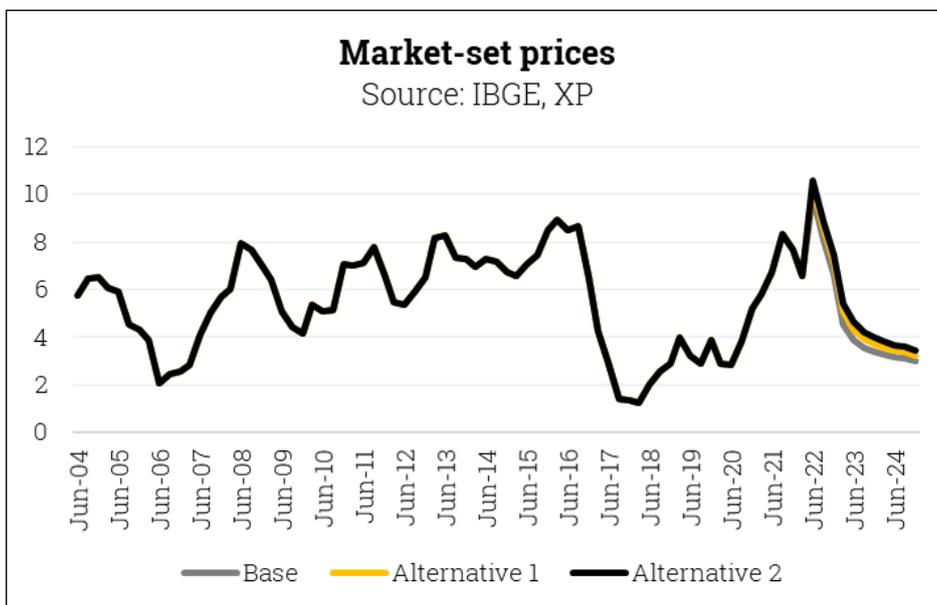
$$\sum_4 E \pi_{t+i} = \beta_{13} \sum_4 \pi_{t+i} + (1 - \beta_{13}) \text{meta}_t + \beta_{14} (\sum_4 E \pi_{t+i} - \text{meta}_t) + \beta_{15} \Delta e_t$$

Impact of higher expectations on inflation forecasts

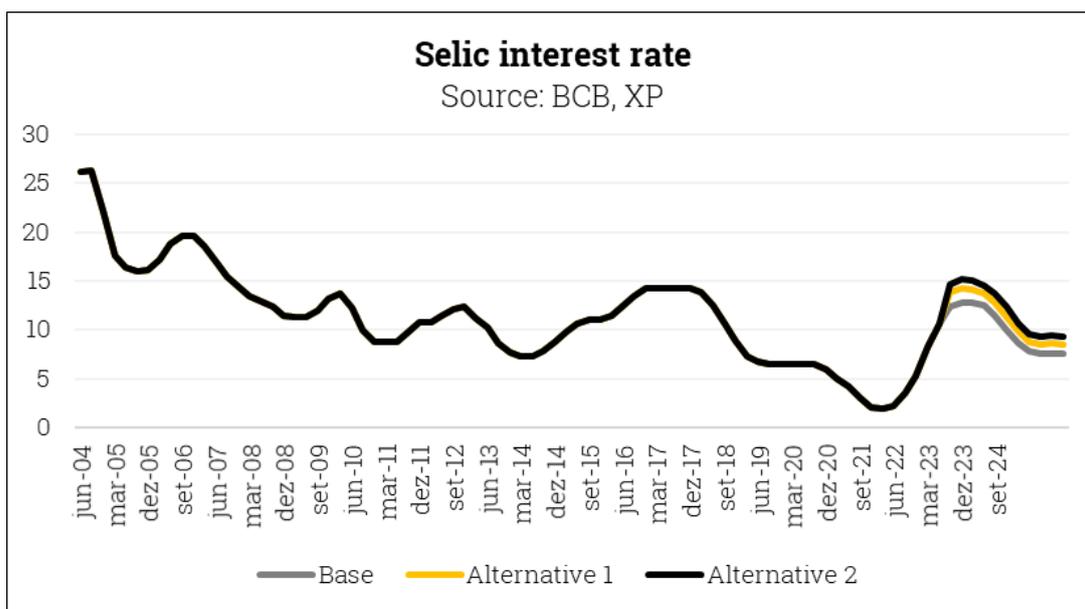
Using the same hypothesis for exogenous variables, except for inflation expectations, we sought to estimate the impact on inflation projections, considering the direct and indirect effects through the inflation, pre-DI 360 swap and output gap.

In our baseline scenario, with the Selic rate at 12.75% the inflation and inflation expectations will converge to the target until 2024. It means that 1y1y forward inflation expectations will be at the target at the beginning of 2013.

What if expectations formation change, becoming more backward looking? Changing the coefficients of the inflation expectations curve, giving more weight to the de-anchoring of expectations, in line with what we have observed now and for the period between 2014-2016, we get scenarios in which inflation can be between 0.5pp and 0.85pp more high in 4 quarters, respectively.



Despite the inflation de-anchoring having a significant impact on price setting, part of the effect is corrected with higher interest rates. In the scenario of a current de-anchoring shock, the Selic rate needed to bring inflation to the convergence path is 14%, while in the scenario of bigger de-anchoring, the Selic rate should reach 15% in the monetary tightening cycle.



Keeping medium-term expectations anchored is key for Central Bank strategy to work

In its official communication, Central Bank has been signaling that the Selic rate at 12.75% is sufficient to bring inflation to the target path. **Will it work?**

Our simulations show that, if global supply shock does not deteriorate further, it may work. But it is key to keep medium-term inflation expectations well-anchored. 2022 and 2023 expectations may be somewhat above the target, but 2024 and 2025 expectations must stay anchored – which means that 1y1y fwd inflation expectations will be back to target in coming quarters.

For that to happen, it is critical that i) Central Bank keeps work independently; ii) Fiscal policy rule rebuilds its credibility, in order to improve debt-to-GDP dynamics; iii) next government focus on structural reforms, such as tax reform, administrative reform, concessions and privatizations.

As we show above, inflation expectations become more backward looking and continue to drift away, the monetary policy effort needed to keep inflation on target on coming years will be more intense.



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