

Brazil Macro

Mind the (Fiscal Risk) Premium

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- **As market observers note a hefty premium in Brazilian assets (particularly government bonds), we will try to put numbers (and our 2 cents) on the discussion. This report contains our estimates, based on the gap between the yield curve and consensus forecasts. This gauge displays a good historical correlation with standard measures of country risk (such as sovereign CDS), with the advantage of being based on more liquid assets.**
- **Overall, we estimate the nominal interest rate premium at ~80bps for the 1-year, ~170bps for the 2-year, ~260bps for the 5-year, and ~280bps for the 10-year, topping the historical average (since 2010). We calculate the inflation premium at ~120bps for the 1-year, ~90bps for the 2-year, ~110bps for the 5-year, and ~80bps for the 10-year, also above the historical average (since 2010). (Estimates as of October 2, 2020.)**
- **In general, the estimated premium stands between the low values seen months before the pandemic began and the high levels seen in previous periods of stress, such as in 2015 and 2018. We take this as an indication that while the baseline scenario (of fiscal convergence) continues to be the likely outcome perceived by analysts, the probability that alternative scenarios (of fiscal dominance) could materialize has risen lately, according to market participants.**
- **Once again, we see Brazil facing a binary (set of) macro outcomes, meaning that either the credibility of the constitutional spending cap will be maintained, leading to a (relief) rally in local bonds, or there will be a possible breach in the fiscal regime, which could feed further rounds of sell-offs in local yields. We continue to see the credibility of the spending cap as the main driver for the economy and assets after the pandemic.**

Overview

A comparison between yield curve pricing and consensus economic forecasts gives us an idea of how market participants view the local risks, in both the markets and the economy. In this report, we calculate a simple, general measure of premia in Brazilian government bonds, comparing fitted nominal yields and estimated inflation breakeven with analysts' consensus projections. We do this for both the policy rate and consumer inflation, for different horizons.

On the one hand, we recognize the difficulty in disentangling risks or elements of various natures embedded in (or influencing) this aggregate measure of premium, such as the positioning pattern, the size of issuances, the term premium, among others. On the other hand, we believe the dynamics and behavior of this gauge over time, if analyzed in tandem with the economic backdrop, allow us to quantify investor sentiment about the perceived future path of economic fundamentals. The quality or validity of the premium or risk measure presented here is supported by the high liquidity of locally traded government bonds and the good historical correlation with other well-known measures of country risk¹.

Although we show here a rather simple or unsophisticated exercise, we believe the results help us put numbers on the discussion and interpret investors' perception of risk related to Brazil's macroeconomic and fiscal fundamentals after the COVID-19 outbreak. To be sure, we cannot help associating the brisk rise in the Brazilian government bond premium recently with heightened concerns about the government debt outlook, given the (now even greater, in our view) need to address macroeconomic and budgetary reforms in order to show the will to stabilize government debt sometime in the future.

¹ As we show in Appendix 1, our measure of premium in government bonds displays good correlation with the sovereign CDS spread.

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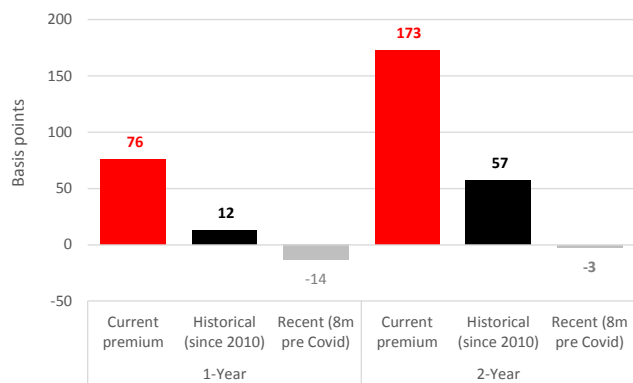
Estimating the Premium in Interest Rates

To calculate the premium in interest rates, we use the daily data on the fitted term structure for nominal-yielding government bonds, as estimated by Anbima. We compare it with the daily data on the BCB's Focus survey of professional forecasters for the Selic rate, in yearly averages. As per the latter, we do a calendar adjustment (to transform calendar-year forecasts into constant maturity estimates) and an accumulation of rates, so as to shape forecasts for each maturity into a measure comparable with spot bond yields². The estimated premium is simply the gap between these two rates (i.e., yields and forecasts).

We calculate the nominal interest rate premium in Brazilian government bonds for the maturities of 1-year, 2-year, 5-year, and 10-year. Our results show a considerable gap as of October 2, 2020, with the spot nominal yields standing way above the equivalent consensus forecasts for the Selic rate for each horizon: the estimated premium stands at 76bps for the 1-year, 173bps for the 2-year, 256bps for the 5-year, and 281bps for the 10-year (Figures 1 and 2).

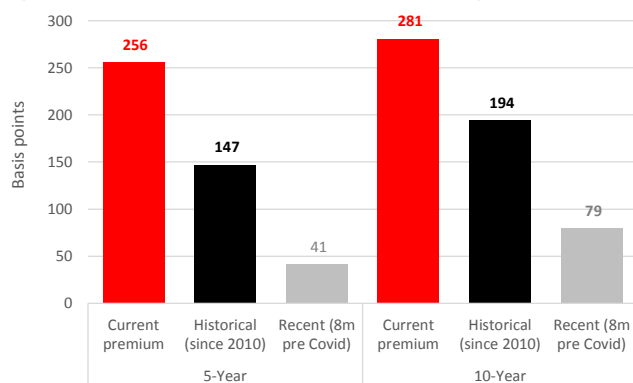
For all maturities, not only are the estimated premia much higher than in the eight-month period to February 2020 (i.e., before the pandemic, when optimism prevailed amid the advance and approval of an effective pension reform proposal), but also the numbers top their respective historical averages (for 2010-2019, a period of predominantly higher interest rates in Brazil).

Figure 1. INTEREST-RATE PREMIUM – Short Term: Yield Curve vs. Analysts' Forecasts – As of October 2, 2020



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.

Figure 2. INTEREST RATE PREMIUM – Long Term: Yield Curve vs. Analysts' Forecasts – As of October 2, 2020



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander

² See details about this procedure in Appendix-2.

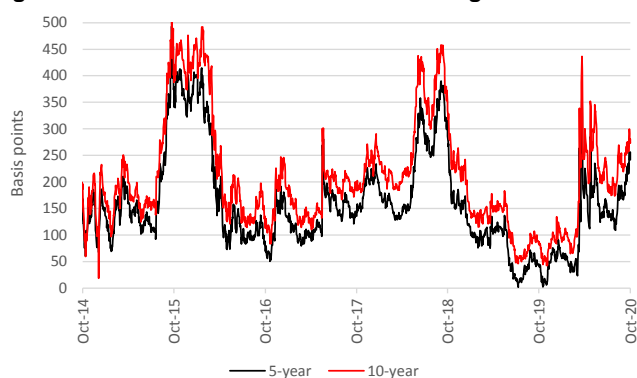


Figure 3. INTEREST RATE PREMIUM – Short Term: Yield Curve vs. Analysts' Forecasts – Historical Series (Daily)



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander

Figure 4. INTEREST-RATE PREMIUM – Long Term: Yield Curve vs. Analysts' Forecasts – Historical Series (Daily)



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.

As far as short yields go, in our view, the notable current premium seems completely inconsistent with today's below-target inflation (and expectations) and with the wide-open output gap that we envision for a considerable time ahead. Shorter yields are usually more sensitive to monetary policy, with longer yields generally more sensitive to the government debt outlook (and other macro fundamentals). In this case, we think the fat premium (especially in the 2-year) seems to reflect fears of a potential change in the fiscal regime, which could make the BCB (effectively) abort its forward guidance of "no hikes ahead". Interestingly, both the 1-year and 2-year maturities are seeing the premium running close to the levels seen during the stress period of 3Q18, when election jitters prompted a significant temporary sell-off in Brazilian assets (Figure 3).

With the budgetary outlook turning way more uncertain after the pandemic, the longer maturities (5-year and 10-year) are also seeing a premium close to the levels seen just before the general election of 2018 (Figure 4). Yet we believe it is fair to say that these long premia are currently far from the levels seen during the massive stress of 2015 (with the premium at 450-500bps, following the loss of the investment grade, on the heels of fiscal weaknesses) and the levels seen during the sell-off in 1H18 (with the premium at 400-450bps, following the truckers' strike, in a context of electoral uncertainties).

Estimating the Inflation Premium

To calculate the inflation premium, we use the inflation breakeven rates³ (BEIRs) estimated by Anbima for the whole term structure and compare those numbers with the BCB's Focus survey of professional forecasters for IPCA (consumer) inflation. We use the same procedure as with nominal yields⁴, for daily data. The graphs show the inflation premium estimates for the 1-year, 2-year, 5-year, and 10-year.

Our results show that inflation breakeven rates stand way above the consensus IPCA forecasts for each maturity. As of October 2, 2020, the inflation premium was 122bps for the 1-year, 94bps for the 2-year, 112bps for the 5-year, and 83bps for the 10-year (Figures 5 and 6). Our calculations show that, except for the 10-year, the existing inflation premia for these maturities are higher than their respective historical averages, which cover a period of predominantly higher and more

³ Inflation breakeven rates are measured by the gap between nominal and real yields across the term structure of local interest rate.

⁴ See details in Appendix 2.

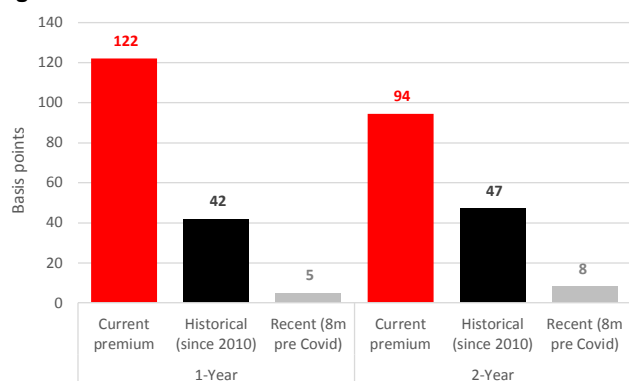


volatile inflation (2010-2019). For all maturities shown, the inflation premium is naturally way above the average seen during the eight-month period ended in February 2020, marked by (post-pension-reform and pre-pandemic) market optimism related to fiscal reforms and the macro outlook.

For the shorter maturities (1- and 2-year), we think it is possible that part of the inflation premium may follow perceived upside risks for short-term CPI (and the resulting positioning by market players), given ongoing pressures from commodity prices and food inflation. In our view, this may explain why the inflation premium for these shorter horizons is running closer to that of 2018 (Figure 7).

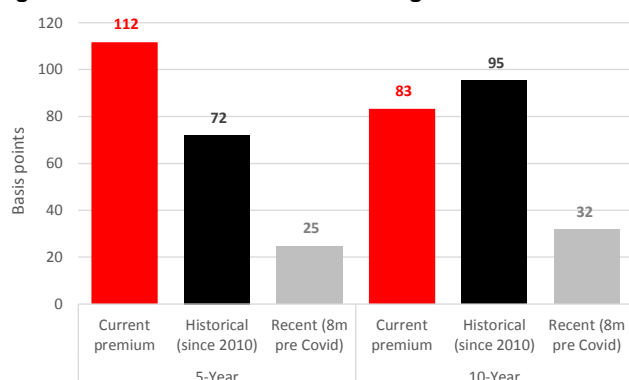
For the longer maturities (5- and 10-year), the inflation premium is still far from the major stress levels — here denoted by the levels of premia estimated for 2015 and 2018, around 200-300bps (Figure 8).

Figure 5. INFLATION PREMIUM – Short Term: Yield Curve vs. Analysts’ Forecasts – As of October 2, 2020



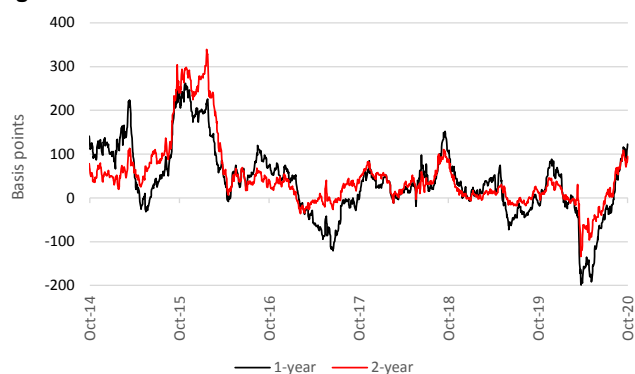
Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.

Figure 6. INFLATION PREMIUM – Long Term: Yield Curve vs. Analysts’ Forecasts – As of October 2, 2020



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.

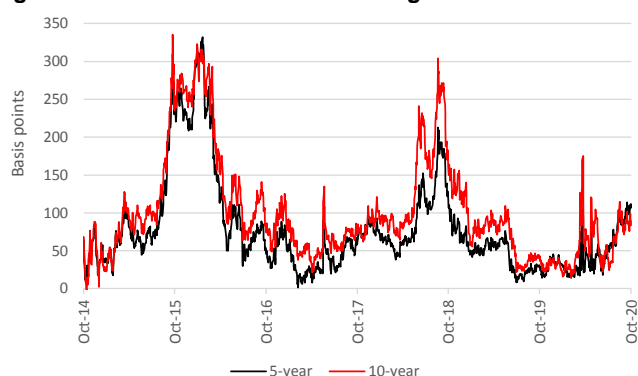
Figure 7. INFLATION PREMIUM – Short Term: Yield Curve vs. Analysts’ Forecasts – Historical Series (Daily)



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.



Figure 8. INFLATION PREMIUM – Long Term: Yield Curve vs. Analysts' Forecasts – Historical Series (Daily)



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.

Conclusion

There is clearly a gap between macro forecasts and asset prices in Brazil, at least from the standpoint of fixed income. Unlike economists — who usually have to report only one (usually the baseline) scenario in forecasting surveys — the markets price in something similar to a linear combination of (mutually exclusive, and sometimes very different) macroeconomic circumstances and outcomes. We believe this is precisely the case now, with the already thick (and still widening) premium in Brazilian government bonds reflecting significant uncertainties about the process of macroeconomic reforms and fiscal consolidation after the pandemic.

That said, the widening gap between analysts' forecasts and assets prices (which we call “premium” here, in generic terms), follows the circumstance that while the baseline scenario (of fiscal convergence) apparently remains the most likely outcome perceived by analysts (including ourselves), the likelihood that alternative scenarios (of fiscal dominance) will materialize has been on the rise lately. In this regard, we see Brazil as returning to a situation of binary future outcomes (or group of outcomes), meaning that either we will see the maintenance of the spending cap's credibility — prompting sort of a relief rally in Brazilian government bonds — or we will observe an actual deterioration in the fiscal outlook resulting from a change in the fiscal regime — prompting an additional sell-off in local (especially nominal) yields.

As we discussed in our latest monthly report (*Reaffirming the Recovery but Recognizing the Risks*, September 25, 2020), we believe a scenario of fiscal dominance could follow a choice to change policy priorities, with an eventual breach in the spending cap leading to a loss of confidence in the (now even more necessary, in our view) fiscal consolidation process. As we show in Figure 9, damage to the credibility of the spending cap would make it difficult to achieve the primary budget surplus necessary to stabilize government debt in the long run, even if we assumed the maintenance of conditions that are constructive for debt dynamics (i.e., with a debt-neutral primary surplus at ~1% of GDP).

Even if an increase in mandatory expenses is partly funded by new taxes, we believe that any reduced credibility of the constitutional spending cap, following an eventual breaching of it, could prompt a deterioration (at least vis-à-vis the baseline scenario) in key macro parameters conditioning the debt dynamics, such as the neutral level of interest rates and potential (or sustainable) GDP growth. This would mean an even higher level for the debt-neutral primary fiscal balance (compared to the 1% of GDP estimated in our baseline scenario). Thus, we believe that a deterioration in the debt outlook following a fiscal slippage scenario would probably prompt a sell-off in Brazilian assets (mainly the BRL) and mark-ups in inflation expectations, leading to a spiral of higher inflation and nominal interest rates.

Given the types of outcomes following a hypothetical fiscal slippage scenario, we believe that, while the premium is large currently, it could potentially increase further depending on the policy signals on the fiscal front — at least until economists begin changing their minds about the baseline scenario and, as a consequence, their own forecasts (i.e., meaning forecasts catching up with higher asset-implicit forecasts for interest rate and inflation). In any case, we believe that breaching the spending cap would take inflation breakeven, CPI, nominal yields, and policy rates in one clear direction: up.

By the same token, we believe a decision to reinforce a commitment to the constitutional spending cap and fiscal consolidation after the pandemic (preferably, in our view, via reforms aimed at curbing mandatory expenses) would likely prompt a major erosion of premium in Brazilian assets, including the exchange rate and the yield curve.



Figure 9. Santander – Brazil Macro Forecasts and Simulation of Alternative (Fiscal-Slippage) Scenario

| Macroeconomic variables | | Baseline | Alternative |
|------------------------------------|------|----------|-------------|
| GDP (%) | 2020 | -4.8 | -4.8 |
| | 2021 | 3.4 | 1.4 |
| | 2022 | 2.6 | 1.1 |
| IPCA (%) | 2020 | 2.3 | 2.3 |
| | 2021 | 2.7 | 4.5 |
| | 2022 | 3.2 | 6.5 |
| Selic Rate (% end of period) | 2020 | 2.00 | 2.00 |
| | 2021 | 2.00 | 6.00 |
| | 2022 | 4.00 | 9.00 |
| FX Rate - USDBRL (end of period) | 2020 | 4.90 | 5.10 |
| | 2021 | 4.60 | 6.70 |
| | 2022 | 4.15 | 6.70 |
| Current Account Balance (% of GDP) | 2020 | -0.6 | -0.7 |
| | 2021 | -0.5 | 1.3 |
| | 2022 | -1.6 | 4.3 |
| Primary Fiscal Balance (% of GDP) | 2020 | -12.6 | -12.6 |
| | 2021 | -3.5 | -4.7 |
| | 2022 | -2.6 | -3.9 |
| Gross Public Debt (% of GDP) | 2020 | 95.8 | 95.8 |
| | 2021 | 96.2 | 98.5 |
| | 2022 | 98.3 | 102.4 |

Source: Santander.



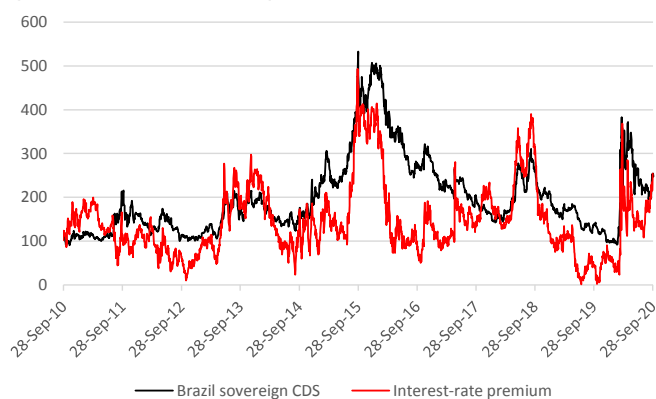
Appendix 1: Correlation of Our Estimated Interest-Rate Premium with Sovereign CDS for the Long Term

For a 5-year maturity, our series for the interest-rate premium shows an interesting correlation with the sovereign CDS spread. For daily data, the correlation is 0.56; for average monthly data, the correlation is 0.61. In both cases, the numbers are way above the critical values (0.02 and 0.07, respectively). We use a series begun in 2009 for both cases.

We see two implications from this correlation. First, the data seems to support the idea that our estimates' measure of premium has economic significance. Second, given the significant reduction of liquidity in sovereign CDS markets in recent years⁵, possibly with some loss of the economic meaningfulness, we think the calculation of premium for such highly liquid assets (i.e., locally traded Brazilian government bonds) might eventually prove an interesting instrument, or an actual replacement for the sovereign CDS, when it comes to modelling BRL for the purposes of consistency of macro scenarios.

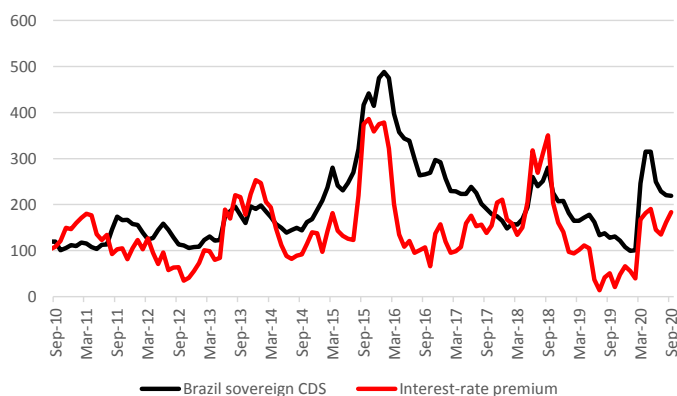
Thus, this estimate of premium could potentially prove useful for those whose job description includes the daunting task of forecasting the FX rate. However, we need to test the effectiveness of this premium gauge as a component of FX modeling, and we may come back to this topic in a later piece.

Figure 10. Brazil Sovereign CDS and Interest Rate Premium – 5-Year Rates (daily)



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.

Figure 11. Brazil Sovereign CDS and Interest Rate Premium – 5-Year Rates (monthly average)



Sources: Anbima, Bloomberg, Brazilian Central Bank, Santander.

⁵ In general, EM governments have been seeking to get the bulk of their funding via local currency bonds, avoiding risks from the so-called "original sin" problem (i.e. debt-issuance in hard currency). This is usually considered a factor explaining the lower liquidity in sovereign CDS markets of late. This working paper by the World Bank sheds a little light on this discussion (<http://pubdocs.worldbank.org/en/235641510086545399/PDM-Publication-DomesticDebtMarketDevelopment-ForeignInvestmentInLocalCurrencyBondsConsiderations.pdf>)



Appendix 2. Making Analysts' Projections and Spot Yields Comparable

In order to calculate the yield-curve premium — here defined as the gap between economists' forecasts and spot yields for each different horizon and maturity — we had to adapt the data series of analysts' projections so as to make those comparable with market interest rates⁶.

Our procedure follows two steps. First, we seek to translate the BCB's daily data series on analysts' forecasts⁷ — usually set for calendar-year horizons — into constant maturity horizons. To do this, we simply use a daily-rolling linear combination between forecasts for the focal year and the subsequent year.

$$Fy(d) = [(1 + Ft)^{(Dt - dt)/Nt} \cdot (1 + Ft+1)^{(1 - ((Dt - dt)/365))} - 1]$$

t = 2020, 2021, 2022, 2023, 2024
Ft = forecast for calendar-year (the focal year) t
Dt = Dec 31, t
Nt = 365 or 366 for leap-years
dt = current day for the (focal) year t
d = current day
y = t + 1 - 2020

Second, with these constant maturity forecasts in hand, we calculate the compounded rates to make those comparable with spot yields for each horizon/maturity. We nickname those “spot forecasts” (SF).

$$SFy(d) = [\prod (1 + Fy(d))] - 1$$

Finally, we take the estimates⁸ for the nominal daily estimates for both nominal yields and inflation breakeven in Brazilian government bonds and subtract from those the spot forecasts. This leads to our daily estimate for the “premium” in nominal interest rate and inflation.

$$Py(d) = [(1 + Ry(d)) / (1 + SFy(d))] - 1$$

⁶ An alternative (and also valid) approach would be to use forward rates in the yield curve and compare those with analysts' projections for each horizon.

⁷ The time series on economists' projections, as per the Focus report, can be found at the BCB website (<https://www3.bcb.gov.br/expectativas/publico/en/serieestatisticas>)

⁸ Anbima calculates the fitted (constant maturities) yield-curve estimates of government bonds for both nominal and real years, as well as inflation breakeven rates.



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