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SPECIAL REPORT

TIGHTEST FINANCIAL CONDITIONS SINCE 2009

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- In 1Q20, the Brazil Central Bank (BCB) presented a new financial conditions indicator (FCI) for Brazil. In this report, we aim to replicate the indicator and provide sequential updates as new data becomes available each month.
- Despite the strong monetary policy tightening seen in Brazil, domestic financial conditions remained loose until mid-1H22, owning mainly to external tailwinds. This easing stance corroborates the healthy steam of domestic activity in the first half of the year.
- However, since May, we have seen domestic financial conditions entering in the contractionary field, now facing both domestic and external headwinds. At the margin, our proxy reached the tightest level since 2009, with all subcomponents contributing positively to more restrictive financial conditions.
- In contrast to the encouraging activity performance in 1H22, we expect the contractionary effects of the recent tightening to kick in 2H22, likely in the final quarter of the year. Given our expectations of tight financial conditions throughout 2023, we anticipate a recessionary outlook for domestic activity next year: we forecast a 0.6% YoY contraction of real activity in 2023.

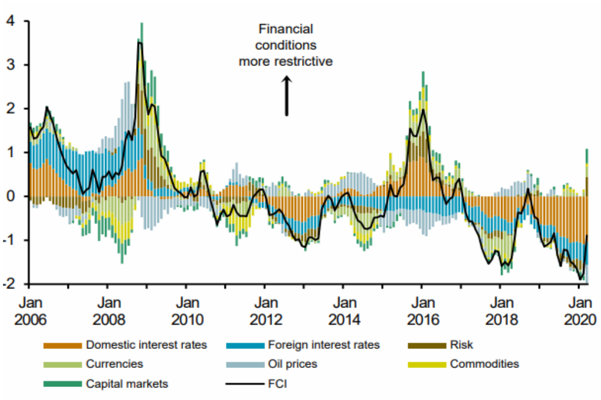
In its first quarterly inflation report of 2020, the BCB presented a new daily financial conditions indicator for Brazil[1], aimed at improving the assessment of the domestic financial environment in a timely manner. Financial conditions play a major role in (i) the analysis of a business cycle and (ii) the understanding of the mechanisms related to monetary transmission to real economy. The idea behind this new indicator is to widen the information set to not be restricted only to the basic policy rate, but also to consider information available on several others domestic and external daily assets prices. In this report, our goal is to replicate this indicator and present it on a monthly basis, providing sequential updates as new daily data becomes available each month.

The BCB's report highlights that the index is built through a selection of financial and economic variables with a view on future economic activity and a greater relative weight for external variables. These series are grouped into seven groups, notably (i) domestic interest rates, (ii) foreign interest rates, (iii) risks measure variables, (iv) currencies, (v) oil prices, (vi) commodities prices, and (vii) capital markets indexes. In the methodology, all daily series were aggregated monthly, and based on BCB's report, the series belonging to groups (iv) to (vii) were detrended through a Hoodrick-Prescott (HP) filter[2]. Moreover, all series were scaled (zero-mean and unitary variance), and for each group the first principal component was extracted and multiplied by the group weight defined in BCB's report. Ultimately, the index was built by aggregating each group contribution and scaled to present zero mean and unitary variance[3].

[1] Please, see *"Financial Conditions Indicator – 1Q20 BCB's Quarterly Inflation Report"* https://www.bcb.gov.br/content/ri/inflationreport/202003/ri202003b8i.pdf.
[2] We applied the HP filter considering each series forecasted six months ahead (through univariate ARIMA model automatic estimated in R software).
[3] As usual in FCI literature, positive values mean tight financial conditions, while negative values mean loose financial conditions.

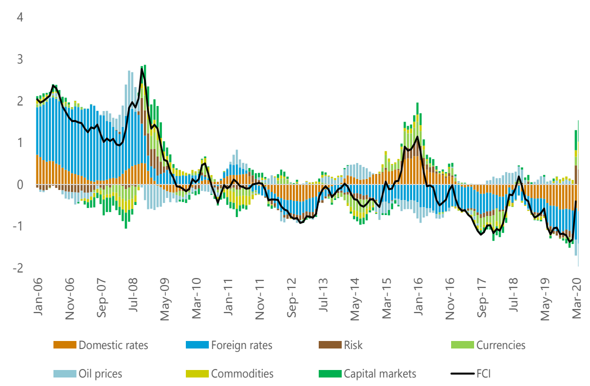
In Figures 1 and 2, we present BCB's FCI chart and Santander's proxy, respectively (both displayed until March 2020). In a visual analysis, our proxy shows some differences in levels relative to the official FCI, owing mainly to the contribution from domestic and foreign rates from 2006 to 2008; however, we understand our proxy captures the main movements from FCI headline and components, both in restrictive and easing financial conditions periods.

Figure 1 – BCB's FCI (2016 to 2020)



Sources: BCB, Santander.

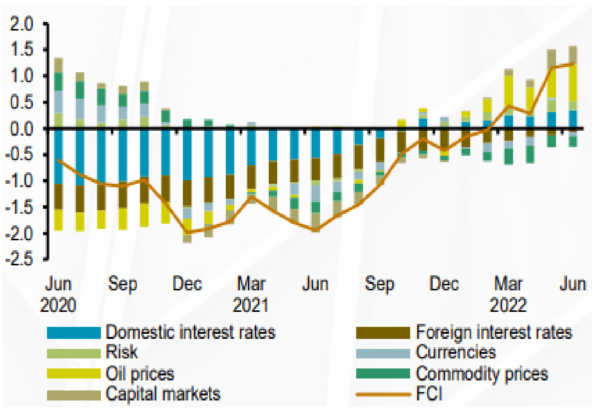
Figure 2 – Santander's FCI Proxy (2016 to 2020)



Sources: BCB, Santander.

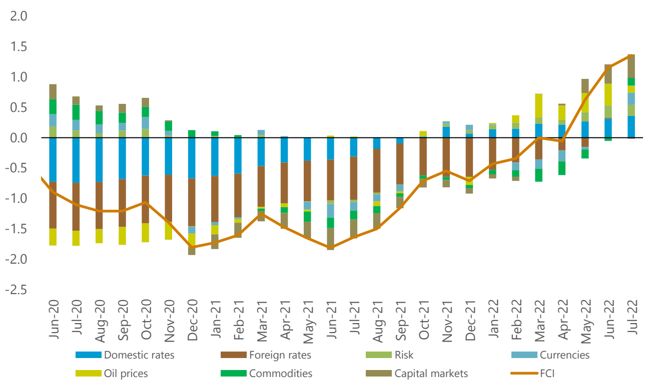
In its 2Q22 report, the BCB released an update on its FCI until June 2022 (considering the daily average until June 10); below, we present both, the official index and our proxy (considering the daily average until July). Again, our proxy shows some differences in levels but preserves the main moves from the official series, from a visual standpoint. Our proxy highlights the intense cycle of monetary tightening seen in Brazil, with domestic interest rates (blue bar) showing a rapidly rising contribution to the tightening of financial conditions throughout 2021. However, despite the rising domestic interest rates, financial conditions remained loose until mid-1H22, owing mainly to negative contributions (to loosen FCI) from foreign interest rates, commodities prices, and capital markets. Moreover, despite the rising oil prices (with positive weight in FCI) seen after the Eastern-Europe conflict outbreak in end-February, we saw commodities prices rising and emerging countries' currencies appreciating, partially offsetting the worsening effects on domestic financial conditions.

Figure 3 – BCB's FCI (2020 to 2022)



Sources: BCB, Santander.

Figure 4 – Santander's FCI Proxy (2020 to 2022)



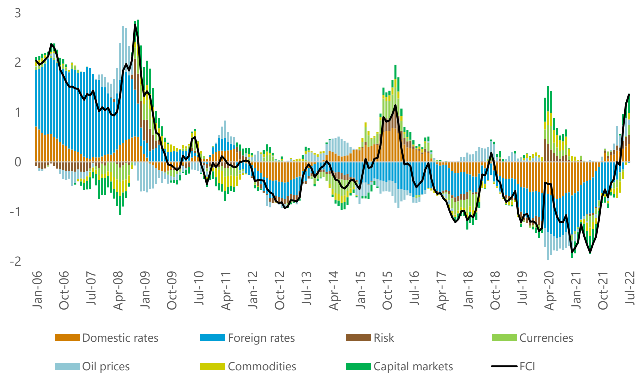
Sources: BCB, Santander.

This still easing stance of FCI at the start of 2022 helps explain the positive results of domestic activity in 1H22 (in line with our scenario[4]), once the contractionary effects of tight financial conditions kick in with delay. However, at the margin, the picture paints a worrying scenario, once our proxy reached the highest level in July (more restrictive) since February 2009, reflecting not only domestic factors but also external headwinds,

[4] **Santander Brazil Special Report: *"Special Report: Resilience Factors for 2022 GDP Growth"* –** January 14, 2022 **–** Available on: https://bit.ly/Std-special-011422

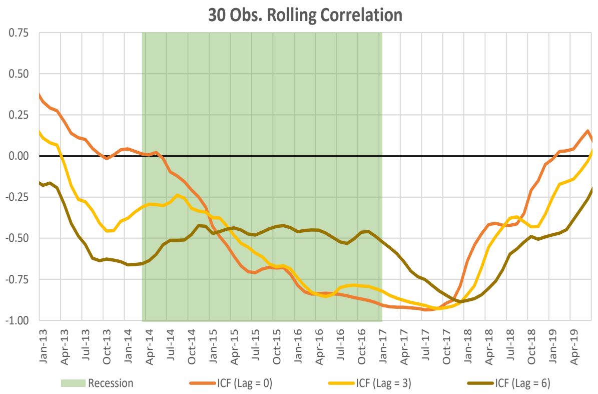
amid rising foreign rates and developed countries recessionary outlook. Moreover, all the components are currently contributing to tight financial conditions, something not seen since October 2008 (see Figure 5). In order to improve our understanding of which lag FCI correlates with activity/GDP, we present in Figure 6 a rolling correlation exercise[5] comprising a pre-pandemic time window (from January 2013 to June 2019), which suggests roughly six months as the most stable lag in the analyzed window. That said, we expect the effects of this recent steep tightening of the FCI proxy to kick in 2H22, likely in the final quarter of the year. Given the outlook of the still high domestic interest rates and global growth deceleration (or recession) in 2023, we expect financial conditions to remain tight throughout 2022. This corroborates our recessionary outlook[6] for domestic activity in 2023: we forecast a 0.6% YoY contraction in real activity in 2023.

Figure 5 – Santander's FCI Proxy (2016 to 2020)



Sources: BCB, Santander.

Figure 6 – Correlation between FCI Proxy and GDP (% 3mma-YoY)



Sources: FGV, BCB, Santander.

[5] We considered FGV's monthly GDP proxy (*Monitor do PIB*) to calculate the rolling correlation (applying each lag for FCI and considering 30 observations).

[6] **Santander Brazil Special Report: "*A Model to Forecast Probability of Recession in Brazil*"** – June 08, 2022 – Available on: https://bit.ly/Std-special-060822

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