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Brazil—Monetary Policy and Economic Activity

Worse Financial Conditions at the Margin Reinforce the Likelihood of Selic Remaining "Low for Long"

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- **Even though the target overnight rate (Selic) remains at its historical low (6.5% p.a.), the recent turmoil in financial markets has led to a deterioration in financial conditions that are effectively perceived by consumers and businesses at the margin.**
- **In order to capture such an effect, we estimate a Financial Conditions Index (SAN-ICF), which synthetizes relevant indicators such as forward interest rates (a better benchmark for the cost of new bank loans), exchange rate (a proxy for purchasing power), and changes in stock exchanges and country risk (indirect measures of risk aversion and perception).**
- **Our analysis suggests that SAN-ICF can be considered as a leading indicator of economic activity: deterioration at the margin in financial conditions, as captured by this index, tends to anticipate by up to one quarter a deceleration in economic growth.**
- **After a significant deterioration between May and June, the SAN-ICF showed some relief in financial conditions in July and a new round of deterioration in August, following contagion from concerns regarding other emerging markets. This trend adds some downward bias to our 2% growth forecast for this year. For 2019, nevertheless, we continue to see growth north of 3%, conditional on an (expected) improvement in financial conditions.**
- **Potentially slower growth in the near term reinforces our view of a stable Selic at 6.5% p.a. in the quarters to come, with normalization of the policy rate expected only in the second half of 2019.**

Selic Matters, but Is Not Everything

The target overnight rate (Selic) is usually at center stage in any debate on economic policy in Brazil, as its movements are believed to influence economic growth. One of the main channels through which such influence can express itself is credit: a lower target overnight rate tends to reduce funding costs for banks, reducing the final interest rate charged to borrowers and leading to a larger flow of new loans into the economy, which, in turn, would imply stronger growth.

While this relationship does exist, it is only one part of a complex mechanism that results in growth. Another critical element in the growth equation is expectations, which act on two fronts. The first, always a subject of great interest, is the decision-making of consumers and businesses: faced with lower expectations (usually well captured by existing confidence indices), these economic agents tend to postpone or modify consumption and investment plans, regardless of the prevailing financial conditions. On the second front, a worsening of expectations in financial markets – driven by either domestic or external factors – affects the financing conditions facing businesses and consumers, regardless of their confidence. To assess this dynamic, we have created what we call the Financial Condition Index – Santander (*Índice de Condições Financeiras – Santander*, SAN-ICF).

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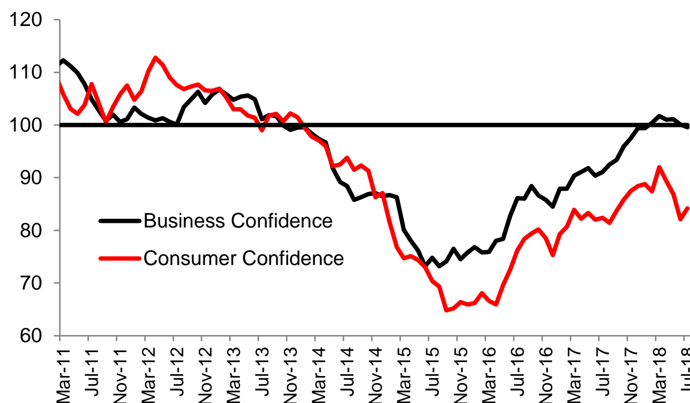
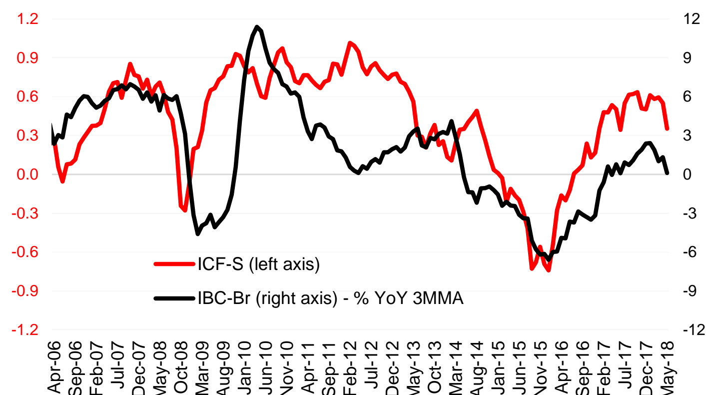
Figure 1. Confidence Indicators



Seasonally-adjusted levels. Source: FGV.

Figure 2. SAN-ICF and Economic Activity



SAN-ICF constructed such that positive values indicate stimulative financial conditions, whereas negative values suggest contractionary conditions. Economic activity as proxied by the IBC-BR, an estimate provided by the BCB of the monthly changes in real GDP, is presented here as the year-on-year changes of its 3-month average. Sources: BCB and Santander.

Introducing the Financial Conditions Index – SAN-ICF

The Financial Conditions Index – Santander[1] (SAN-ICF) aims at synthetizing in a single indicator the evolution of the main market variables that may influence the financial conditions facing the various economic agents. In order to select the variables that would comprise the index, we ran a two-stage analysis. First, we identified, based on the existing literature[2], which variables were good candidates to capture the impact of expectations on financial conditions. Here we opted for a simpler approach, limiting our selection to those variables related to cost of funding. From the viewpoint of businesses, the relevant variables are those that affect their cost of capital: some metrics of forward interest rates (which are usually a benchmark in pricing new bank loans and capital market debt operations), some measure of country risk and exchange rates (relevant to external financing), and some indicators correlated with their cost of equity. Such variables are also relevant, to some degree, to consumers' financial circumstances: forward interest rates affect consumers' borrowing rates, while the exchange rate affects purchasing power.

In the second stage, we analyzed several combinations of the pre-selected variables using the Principal Component methodology, a statistical approach that aims at extracting a "common factor" from a set of variables – in this case, we could consider that such a "common factor" would be representative of financial conditions. Finally, we tested the capacity of this "common factor" to predict changes in economic growth[3].

The set of variables that best predicted economic activity was selected to comprise the SAN-ICF, presented in Figure 2. It is worth noting that, besides their good predictive capacity and their intuitive composition, these variables have two other advantages: they are few (as opposed to the dozens of indicators used in building most of the existing financial conditions indices), and they are readily available, which allows us to estimate the indicator nearly in real time[4]. Per its construction, the SAN-ICF displays positive values when financial conditions are stimulative – that is, conducive to acceleration of growth. Negative values, on the other hand, represent contractionary conditions, leading to slower growth.

[1] The index was so named in order to differentiate it from other financial conditions indices calculated by other institutions. While similar in spirit, each institution's index diverges in the selection of variables. Even though such differences do not lead to material differences in the long-term trend of the various indices, they may be relevant in estimating changes at the margin, which justifies the effort of analysis and compilation.

[2] See, for instance, Hatzius et al, *Financial Conditions Indexes: A Fresh Look After the Financial Crisis*, NBER Working Paper 16150, July 2010, and Mayes and Virén, *Financial Condition Indexes*, Bank of Finland Discussion Papers 17-2001, September 2001.

[3] During the selection stage, we evaluate the adequacy of each set of variables as predictive of economic activity by means of a VAR in which endogenous variables are IBC-Br (proxying economic activity) and financial conditions (represented by the common factor of each set of variables, in turn).

[4] Indeed, four out of the five components of ICF-S are available on a daily basis (ex-ante real interest rate, spread CDI-3-month forward rate, Ibovespa and CDS), whereas a preliminary estimate for the fifth component (the real effective exchange rate) can be obtained by looking at observed daily nominal exchange rates and expected inflation differentials.

The SAN-ICF is, therefore, the "common factor" captured by Principal Component of the following variables: (i) ex ante real interest rates (1-year forward rates, minus 12-month ahead inflation expectations, as captured by the BCB's weekly survey on market expectations); (ii) the spread between overnight rates and 3-month forward rates (capturing the slope of the short end of the yield curve, which tends to react more readily to changes in expectations on monetary policy, usually driven by shocks); (iii) the 5-year CDS of Brazilian sovereign external debt (a measure of country risk); (iv) the Ibovespa – the stock exchange index (correlated with firms' cost of equity and, to a lesser extent, with the "wealth effect" that an increase in stock prices could have on families); and (v) the real effective exchange rate, calculated by the BCB on a currency basket, representing the change in the nominal exchange rate of the BRL versus such currencies minus the inflation differential between Brazil and the corresponding countries (a proxy of the firms' capacity to meet external debt obligations from cash flows in BRL).

The recent evolution of the SAN-ICF deserves some comment. As expected, the index showed a significant improvement in financial conditions in the last two years, pointing to stimulative conditions since the last quarter of 2016. The recent market turmoil, which began last May, led to a continued decline in the index to levels close to neutrality by June, suggesting that, despite the Selic remaining at its historical low, financial conditions were not stimulative at the margin and in practice. The index experienced some relief in July, but declined again in August, driven by market concerns regarding emerging markets, once again pointing to neutral (i.e., neither stimulative nor contractionary) financial conditions at the margin.

What does the SAN-ICF tell us about the coming quarters?

Figure 2 also illustrates the index's capacity to anticipate changes in economic growth: movements in the SAN-ICF anticipate by up to one quarter changes in the pace of growth of the IBC-Br (a proxy of the monthly GDP, as estimated by the BCB). In addition, it is noteworthy that a preliminary estimate of the SAN-ICF is available at the end of the reference month, whereas GDP performance is only known nearly two months after the close of each quarter – which suggests that, in practice, the SAN-ICF reading is known some four to five months prior to the GDP performance that it affects. Therefore, we believe it can be considered a good leading indicator of economic activity.

The low readings of the SAN-ICF in May and June and, more recently, in August suggest little room for a significant acceleration in growth in the second half of 2018, even though it should be noted that such deterioration does not seem to be sufficient to drive growth into the negative territory. **Read in light of the other leading or coincident indicators (such as business and consumer confidence, total real wages, and global trade, among others), the SAN-ICF suggests some downside risk to our 2% growth forecast for this year, particularly if market conditions remain under pressure in the coming one or two months. At least in theory, this should be consistent with lower inflationary risk and, therefore up to a certain extent, with chances that the policy rate (Selic) remains low for longer than initially expected.**

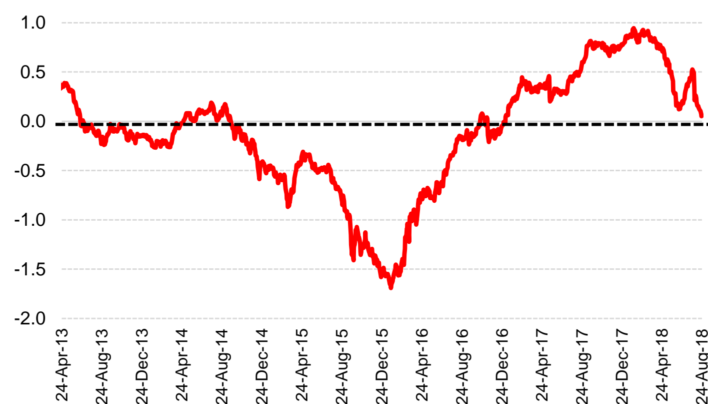
At the same time, in the base-case scenario – which assumes continuity of economic policy and some advance in reforms from 2019 onward – it seems reasonable, in our view, to expect the index as well as its components to show some improvement in the coming months, especially after electoral uncertainties have dissipated. Therefore, even though we acknowledge some downward bias to our 2018 forecast, we continue to see growth north of 3% in 2019 under the base-case scenario.

Figure 3. SAN-ICF Components: Recent Evolution

Variables	Variation in Selected Periods			
	Jan - Abr	Mai - Jun	Jul	Ago*
Ibovespa (%)	13.6	-17.0	11.9	-5.0
Real Exchange Rate (%)	0.6	5.7	0.1	6.6
CDS (pontos-base)	11.2	96.1	-55.6	72.0
Ex-Ante Interest Rate - 1 year (bps)	0.1	1.1	-0.2	0.5
Spread 3-month (bps)	-1.6	-0.4	-0.1	-0.2

Ex ante real interest rates, spread CDI-3-month forward rate, and CDS: change in basis points. Ibovespa and real effective exchange rate: percent change. *Through August 24. Sources: BCB, Bloomberg, and Santander.

Figure 4. SAN-ICF: Recent Daily Evolution



From July on, based on daily observed data, except for real effective exchange rate (where we compute daily estimates for a preliminary reading of the index). Source: Santander.

Appendix

The statistics below illustrate the results of the Principal Component analysis (Tables 1 and 2), with the five variables mentioned in the text. Note that the first principal component (Number 1 in the first table) accounts for nearly 75% of total variance of the factors (meaning that it could be considered as sufficiently representative of the underlying financial conditions). Once the index was constructed, we moved on to test its predictive capacity by means of a Granger-causality test. We used the IBC-Br as a proxy for monthly GDP and ran the test with the SAN-ICF (Table 3). According to this test, we can rule out the null hypothesis that the SAN-ICF does not Granger-cause (that is, that it does not precede) economic activity, which suggests that the SAN-ICF can be considered a leading indicator of economic activity.

Tables 1 and 2. Principal Component Analysis

Sample: 2003M01 2018M05
Extracting 5 out of 5 possible components
Eigenvalues: (Sum = 5, Average = 1)

Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion
1	3.731683	2.976227	0.7463	3.731683	0.7463
2	0.755456	0.462632	0.1511	4.487139	0.8974
3	0.292824	0.177527	0.0586	4.779963	0.9560
4	0.115297	0.010557	0.0231	4.895260	0.9791
5	0.104740	---	0.0209	5.000000	1.0000

Ordinary Correlations:

	CBIOR	CDS	IBOV	JUROR	SPREAD_3M
CBIOR	1.000000				
CDS	0.783289	1.000000			
IBOV	-0.849766	-0.644718	1.000000		
JUROR	0.720485	0.750095	-0.583267	1.000000	
SPREAD_3M	0.349715	0.634438	-0.178519	0.417934	1.000000

Sources: Central Bank of Brazil, Bloomberg, and Santander estimates

Table 3. Granger-Causality Test

Sample: 2003M01 2018M05

Null Hypothesis	Obs	F-Statistic	Prob.
IBCBR does not Granger Cause ICF	185	0.44483	0.7213
ICF does not Granger Cause IBCBR		**3.13804**	**0.0268**

Sources: Central Bank of Brazil and Santander estimates.

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