BANCO CENTRAL DO BRASIL

IMF annual meetings

April 2025

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BCB's Deputy Governor for Economic Policy

Economic outlook

External scenario

1. Initial conditions

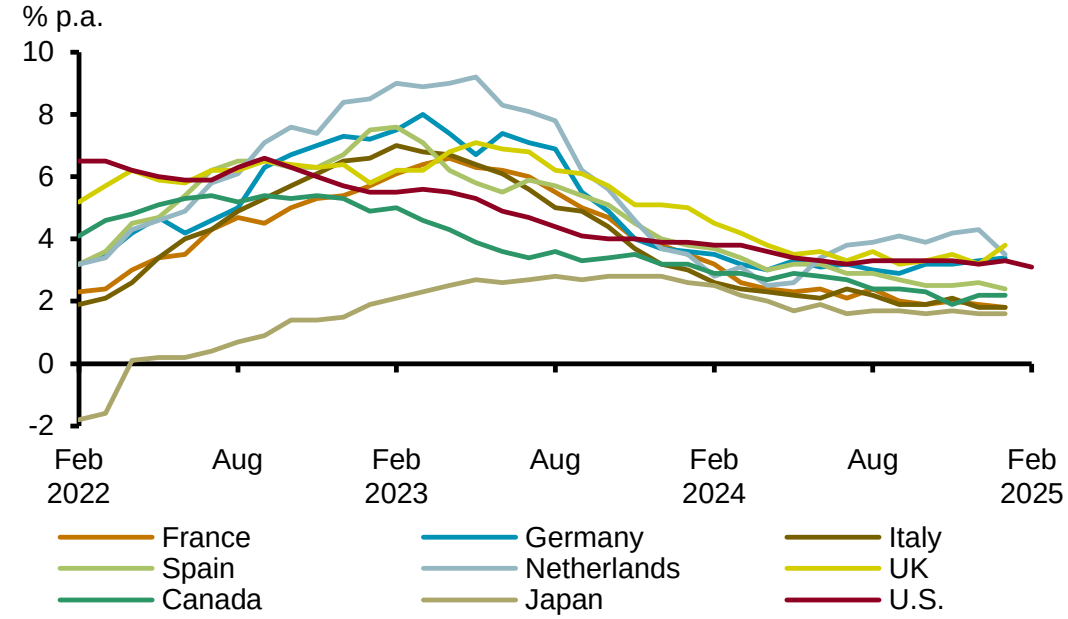
2. Shock
   a. Trade shock
      i. The shock
      ii. Quantifying the shock
      iii. Policy prescription

   b. Uncertainty shock
      i. The Shock
      ii. Quantifying the shock
      iii. Policy prescription

Initial conditions matter: not out of the woods

The central banks of major economies remain committed to bringing inflation back to its targets in a context characterized by labor market pressures.

CPI core – Advanced economies[1]



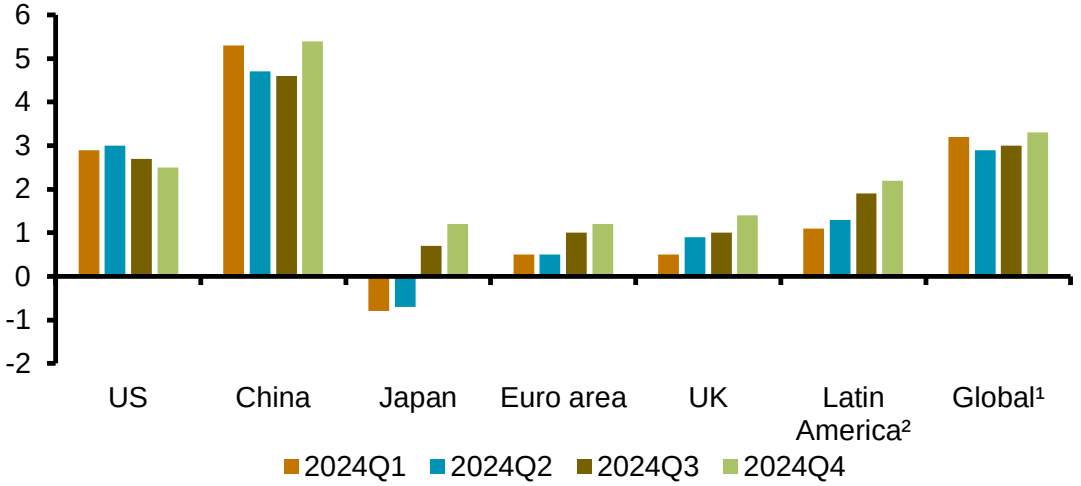
Source: Bloomberg

1/ U.S until February 2025. Other countries until January 2025.

GDP Growth

from 2024Q1 to 2024Q4

% change over same quarter in the previous year



Sources: Bloomberg, BCB

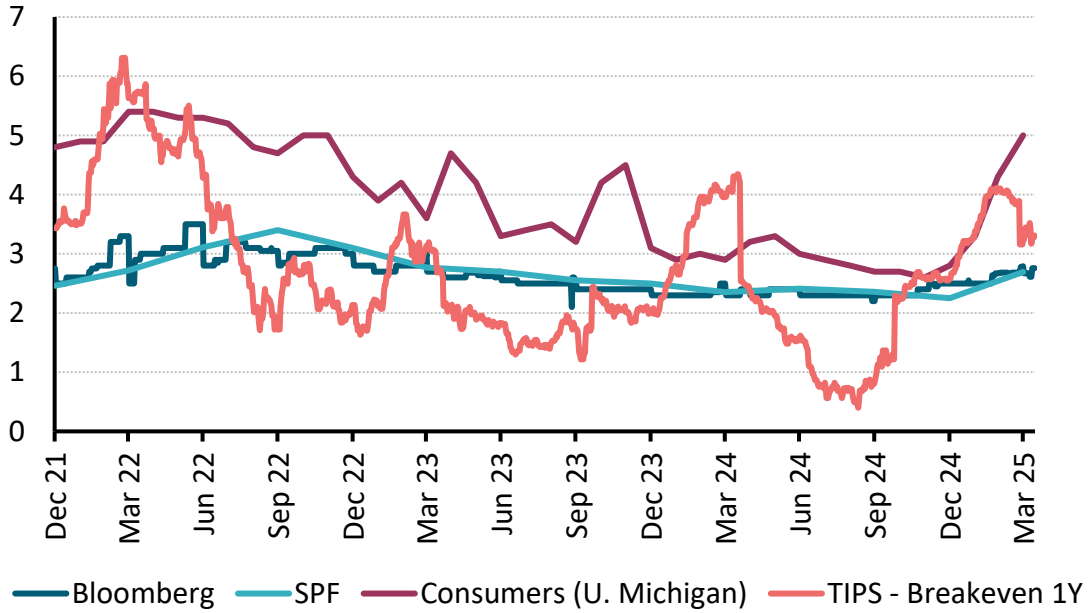
1/ Calculated as described in the box "Projections and macroeconomic analysis model of the global economy" in the September 2022 IR.

2/ Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

Initial conditions matter: perceptions of the future matter

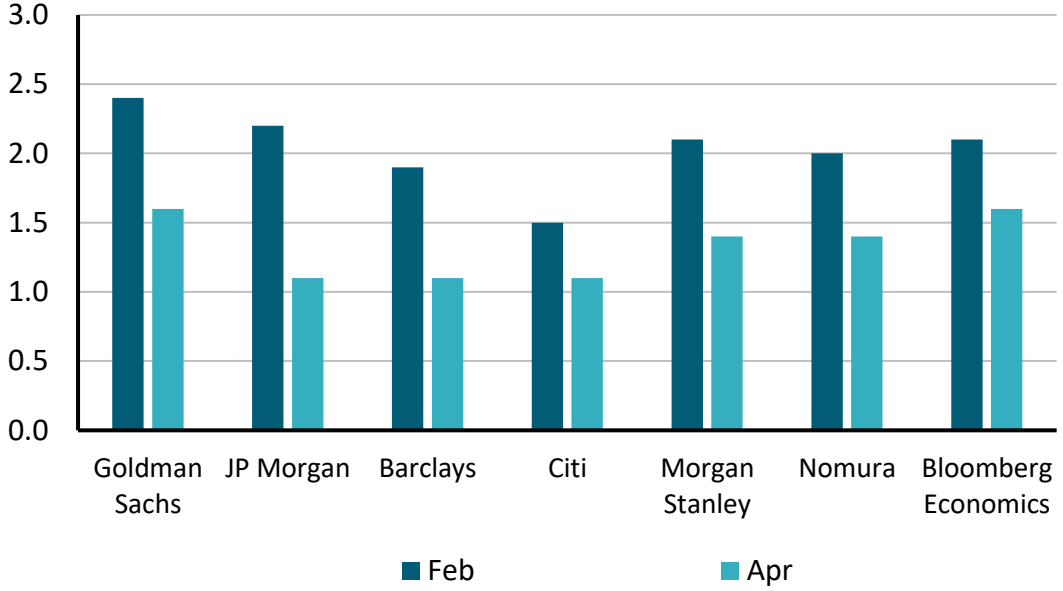
Inflation expectations in the U.S.

1 year ahead (%)



Growth revisions for 2025 U.S. GDP

%



Trade shock: timeline

- **Jan 20 - World:** Memorandum outlining trade priorities for the administration, directing departments and agencies to complete studies by April 1st .
- **Feb 1st - Canada, Mexico and China:** 25% on imports from Canada and Mexico and 10% on imports from China and on energy resources from Canada.
- **Feb 1st - Canada retaliates:** US exports including orange juice, peanut butter, wine, beer, coffee, appliances, apparel, footwear, motorcycles, cosmetics, and others.
- **Feb 3 - Canada and Mexico (US puts on hold):** Mexico and Canada agree to implement measures related to their boarders.
- **Feb 4 - China retaliates:** Tariffs, export controls, and unreliable entity designations, besides threatening new antitrust investigations into Google.
- **Feb 10/11 - World:** 25% on steel and aluminum, adjusting the Section 232 tariffs on those metals first imposed in March 2018.
- **Feb 13 - World:** Measures defining the problem and outlining the Trump administration's plan to counter nonreciprocal trading arrangements.
- **Mar 4 - Canada and Mexico**: 25% on all imports from Mexico and Canada and 10 % on imports of Canadian oil and energy (ending the 30-day pause of the Feb 3 announcement).
- **Mar 4 - China:** 20% on all imports from China (raised from 10% amending the executive order of Feb 1st.)
- **Mar 4 - Canada retaliates:** plans to retaliate by imposing 25% on C$155 bi of imported goods from the US. Going into immediate effect tariffs on goods announced on Feb 1st .
- **Mar 4 - China retaliates:** Tariffs on US farm exports (soybeans, chicken, wheat, corn, cotton, pork, beef, seafood, fruits, vegetables, and others). Antidumping investigation into US optical-fiber products, 10 US companies being added to the unreliable entity list, 15 companies facing export controls, and a ban on imports of Illumina's gene sequencers.
- **Mar 6 - Canada and Mexico (US exemptions USCMA):** Exemption for imports satisfying USMCA rules of origin requirements. Lowering the tariff on potash to 10 %.
- **Mar 12 - EU retaliates:** Restores the EU's "rebalancing" tariff packages (from 2018 and 2020). A second part retaliation will eventually impose additional countermeasures on approximately €18 billion worth of US goods exports.
- **Mar 12 - Canada retaliates:** plans to retaliate on March 13; 25% on a list of US goods totaling C$29.8 bi (C$12.6 bi of steel products, C$3 bi of aluminum products, and other US goods worth C$14.2 bi, including tools, computers and servers, display monitors, sport equipment, and cast-iron products).
- **Mar 26 - World:** 25% on automobiles and certain automobile parts, such as engines, transmissions, powertrain parts, and electrical components. Also announced are special tariff exemptions for USMCA-compliant auto parts as well as for the value of US content embedded in autos imported under USMCA.

Trade shock: timeline

- **Apr 2 - World (US Liberation day - reciprocal tariffs):** 10% starting on April 5, on virtually all countries and then additional "reciprocal" tariffs starting April 9, on countries that contribute to large, persistent US trade deficits.
- **Apr 3 - Canada retaliates:** 25% on non-USMCA compliant vehicles imports from the US, 25 % on non-Canadian and non-Mexican content of USMCA compliant vehicles imports from the US, and intention to incentivize auto production and investment in Canada.
- **Apr 4 - China retaliates:** 34% in response to tariffs announced on Apr 2. New export controls on samarium, gadolinium, terbium, dysprosium, lutetium, and others; antidumping investigation into US medical CT X-ray tubes; more 11 US companies added to unreliable entity list; export controls on 15 companies; and a ban on imports of Illumina's gene sequencers.
- **Apr 8 - China:** Additional 50% on China for retaliating (34% announced April 4): Amends the duty rates of the separate executive order of April 2 ending de minimis shipments from China.
- **Apr 9 - China retaliates:** Additional 50% in response to US tariffs announced on April 8. China also announces the addition of 6 US companies to the unreliable entity list and export controls on 12 companies.
- **Apr 9 - EU retaliates:** Tariffs on the US worth €22 billion of steel and aluminum.
- **Apr 9 - World (US pauses reciprocal tariffs):** tariffs announced on April 2 will be paused for 90 days, remaining in effect 10% on nearly all countries. Because it retaliated, China will now also face a higher tariff of 125% (plus the specific tariff of 20% announced on February and March, the total amount of tariffs applied to China is 145%).
- **Apr 10 - EU pauses retaliation:** On hold the countermeasures announced on April 9 for 90 days.
- **Apr 11 - China retaliates:** Additional tariffs in response to US tariffs announced on April 9, so that its most recent combination of retaliatory tariffs matches the total amount of new US additional tariffs of 125%.
- **Apr 11 – World (US exemptions some reciprocal tariffs):** Some products that contain semiconductors, including smartphones and some consumer electronics will not be subject to the reciprocal tariffs.

- **Others:** investigations/measures about pharmaceutical products, semiconductors, critical minerals, copper, timber and lumber, low value shipments, unfair practices and tariffs on countries importing Venezuelan oil, among others.

Trade shock: quantifying it

- if you add supply chains (Kalemli Ozcan et al 2025)…
  - 0.6 p.p. decline in U.S. output, a 0.8 pp rise in inflation, and a 4.8 % appreciation of the dollar in response to a retaliatory trade war linked to tariffs announced on “Liberation Day”;
  - tariff threats are self-defeating—leading to a 4.1% appreciation of the dollar, 0.6% deflation, and a 0.7 pp decline in output, as agents re-optimize in anticipation of future distortions;
  - demand and supply shock.
- - if you think of optimal policy (Ignatenko 2025 and Itkshoki 2025)
  - the U.S. experiences a welfare loss of nearly 1%.
- - if you think of the financial shock (Benigno 2025)
  - simple characterization links R** to the valuation of risky assets and credit spreads along with the supply of liquidity in the system;
  - in the case of a tariff shock, as asset prices fall and credit spreads widen, R** declines: it tightens financial conditions even without rate hikes;
  - the drop in R** reflects heightened risk aversion, deleveraging pressure, and rising liquidity demand.
- GTAP

	Exports of goods	GDP	Consumer price	Labor: demand*	Labor: wages*	Household welfare	Terms of trade
USA	-23,0%	-0,6%	3,0%	2,8%	1,6%	-0,4%	2,26%
Brazil	-5,6%	0,1%	1,0%	-1,2%	1,3%	0,2%	0,60%
Japan	-2,2%	0,0%	0,5%	-1,0%	0,7%	0,1%	0,55%
Canada	0,5%	-0,1%	0,3%	1,8%	-0,5%	-0,6%	-1,36%
China	-3,2%	-0,5%	-2,5%	1,4%	-3,9%	-1,4%	-2,82%
India	-2,7%	0,0%	0,7%	-0,7%	0,9%	0,1%	0,65%
Mexico	-1,4%	0,0%	0,6%	0,0%	0,0%	-0,4%	-0,98%
EU27	-1,5%	0,1%	0,6%	-0,9%	0,8%	0,2%	0,15%

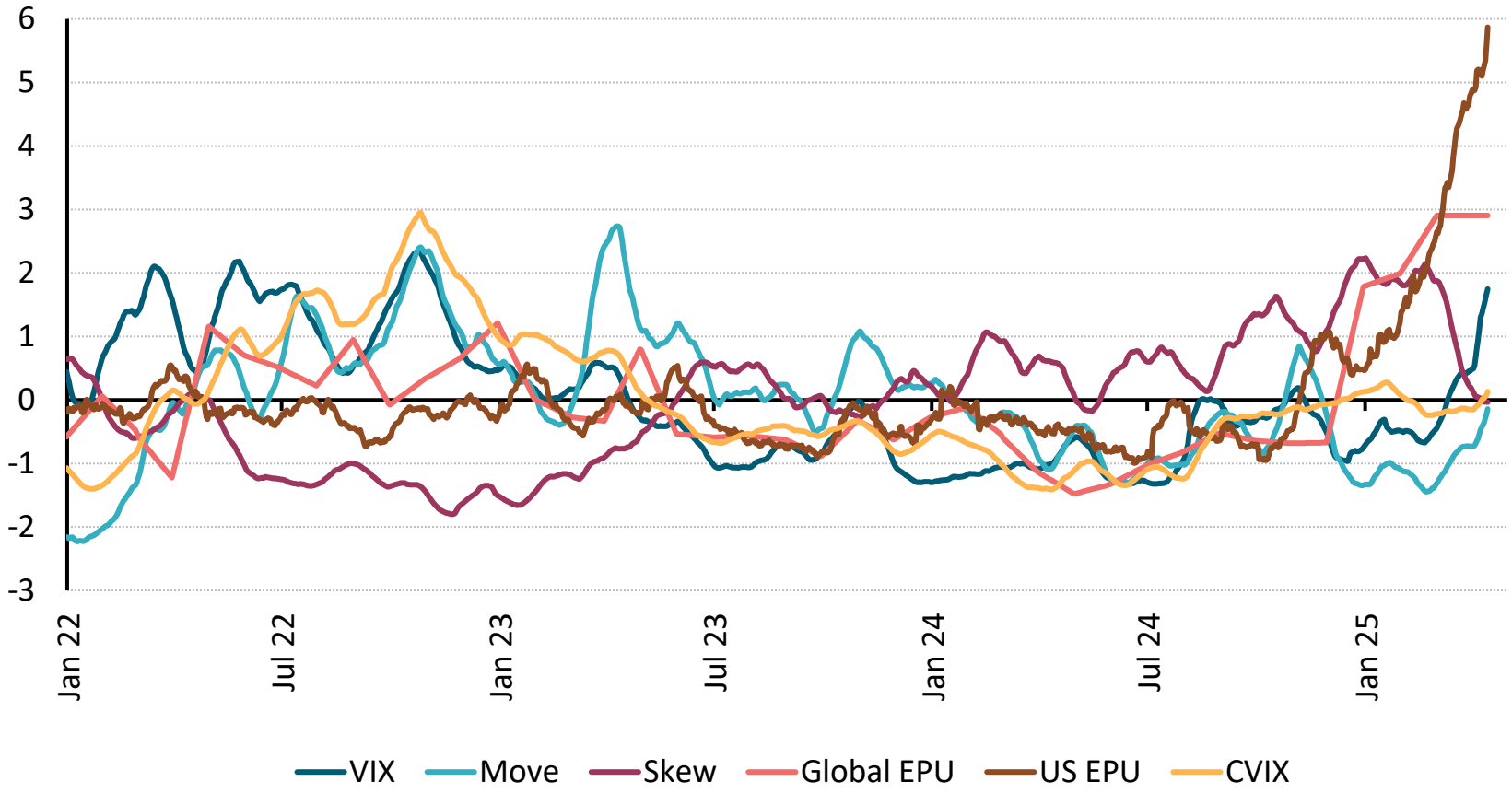
Trade shock: policy prescription

- Price level shock and terms of trade shocks
- Misallocation
- Look through supply shocks vs anchored inflation expectations
- … until it pivots (Beaudry, Cortes and Lahiri 2022)
- Dilemmas

Uncertainty shock

Volatility and uncertainty measures

30-day moving average normalized (s.d.)



Source: Bloomberg

U.S. shocks: uncertainty and trade

Articles	Shock	Growth	Inflation	Rates	Investment
Ascari , Fasani , Grazzini and Rossi (2023)\1	Uncertainty (Inflation expectations' shock)	-	+	+	-
Bansal, Croce, Liao and Rosen (2019)\2	Uncertainty	-			-
Bianchi, Kung, and Tirskikh (2023)\3	Uncertainty	- -	-	-	-

Articles	Shock	Growth	Inflation	Rates	Investment
Amiti, Redding and Weinstein (2019)\4	Trade	-	+		
Barattieri,Cacciatore and Ghironi (2018)\5	Trade	-	+	+	-
Furceri, Swarnali, Ostry and Rose (2018)\6	Trade	-	+		

\1 Ascari , Fasani , Grazzini and Rossi (2023). Endogenous uncertainty and the macroeconomic impact of shocks to inflation expectations. Journal of Monetary Economics 140.
\2 Bansal, Croce, Liao and Rosen (2019). Uncertainty-induced realocations and growth. NBER Working Paper 26248.
\3 Bianchi, Kung, and Tirskikh (2023). The origins and effects of macroeconomic uncertainty. Quantitative Economics, 14.
\4 Amiti, Redding and Weinstein (2019) . The impact of the 2018 tariffs on prices and welfare. Journal of Economic Perspectives, vol. 33.
\5 Barattieri,Cacciatore and Ghironi (2018). Protectionism and the business cycle. NBER Working Paper 24353.
\6 Furceri, Swarnali, Ostry and Rose (2018). Macroeconomic consequences of tariffs. NBER Working Paper 25402.

Policy prescription under uncertainty

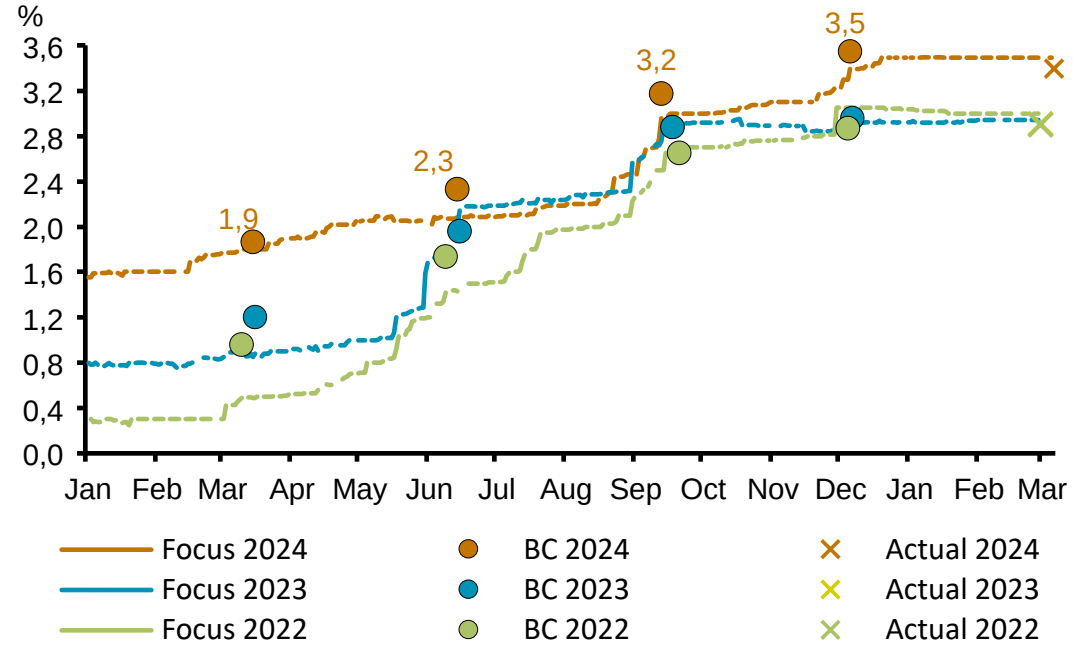
- Gradualism
- Transparency
- Policy reaction rule vs. policy guidance
- Robustness (min. max. approach)

Domestic scenario

1. Initial conditions
    a. Recap
        i. Growth
        ii. Inflation
        iii. Rates
    b. Baseline scenario
        i. Growth moderation
        ii. Sticky Inflation
        iii. Monetary Policy effects (and it works)
    c. Uncertainty
        i. on the assumptions
            - External
            - Domestic
            - Impact on projections
    d. Trade shock

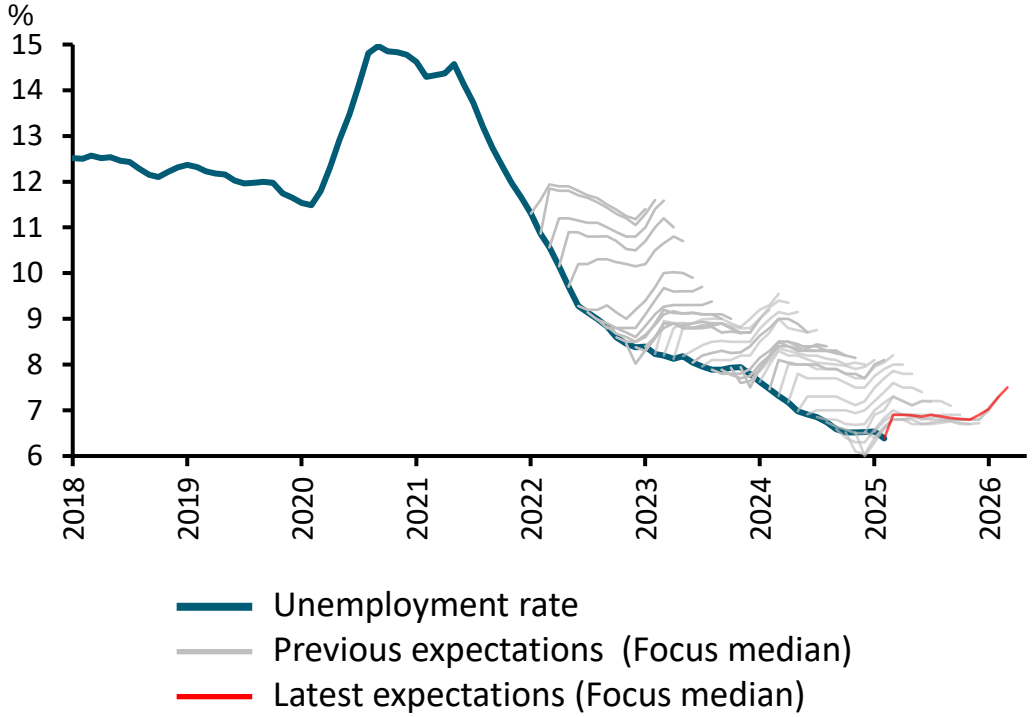
Quick recap: GDP growth and labor market

Expectations for GDP growth



Source: BCB and IBGE

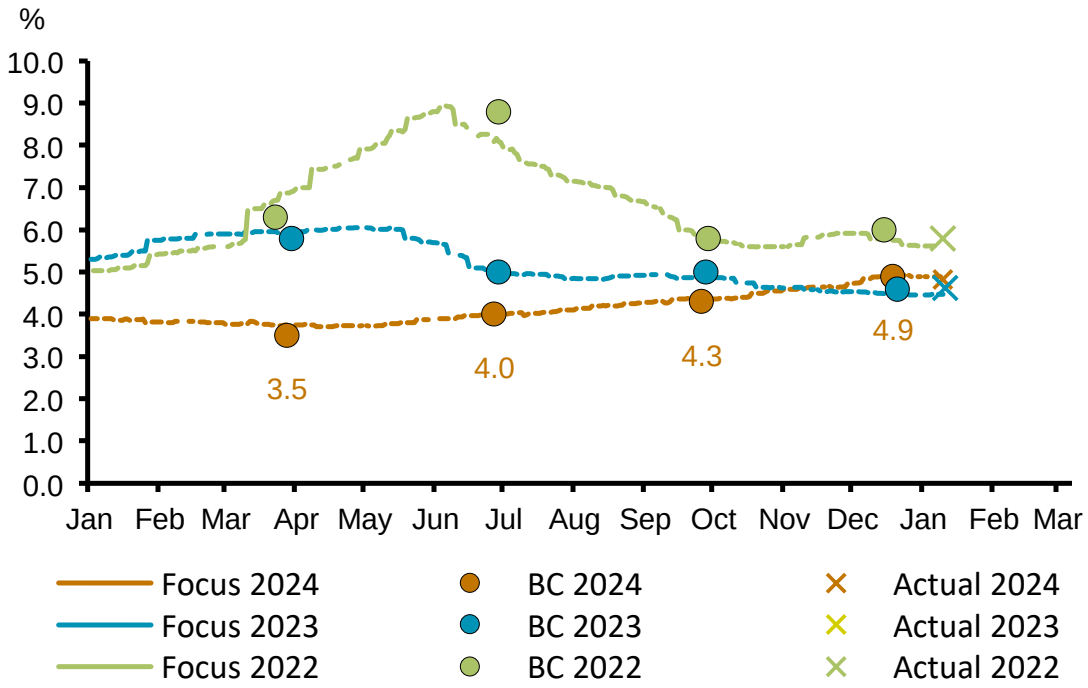
Unemployment rate (UR) and market expectations



Source: BCB and IBGE

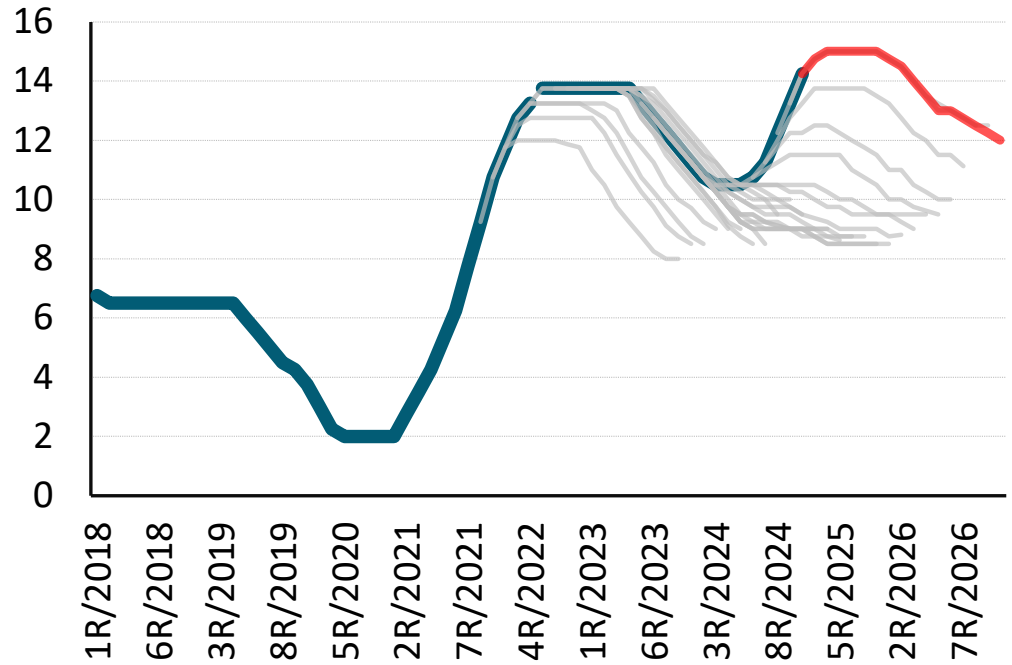
Quick recap: inflation and interest rates

Expectations for CPI (IPCA)



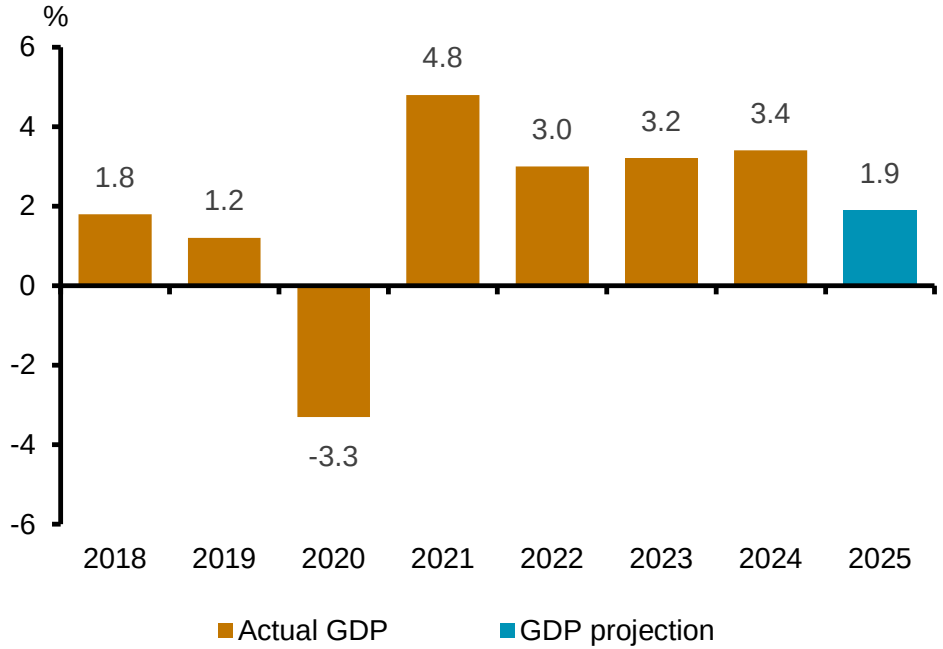
Source: BCB and IBGE

Selic interest rate and market expectations



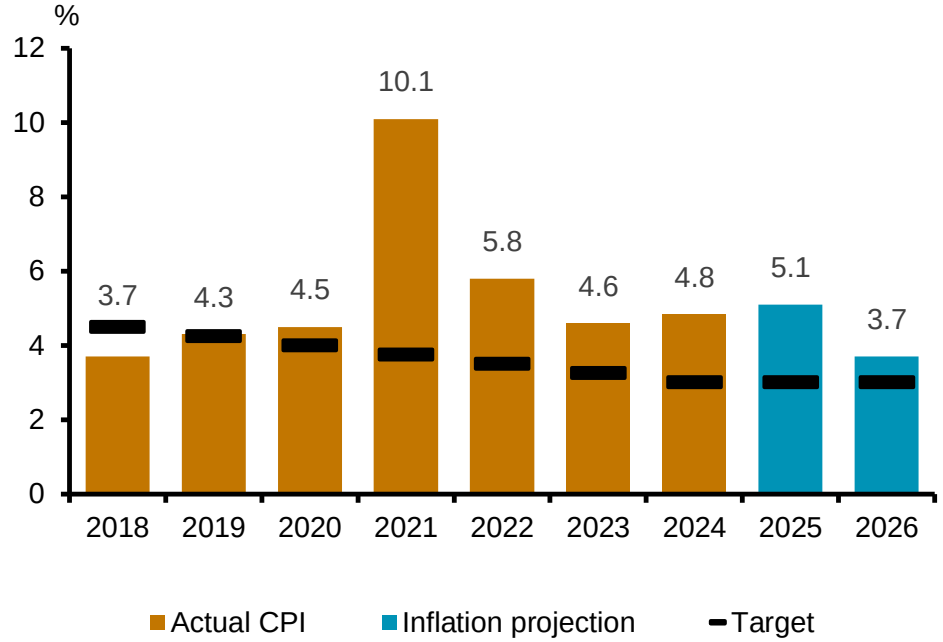
Baseline scenario

Actual GDP and GDP projection



Sources: IBGE and BCB

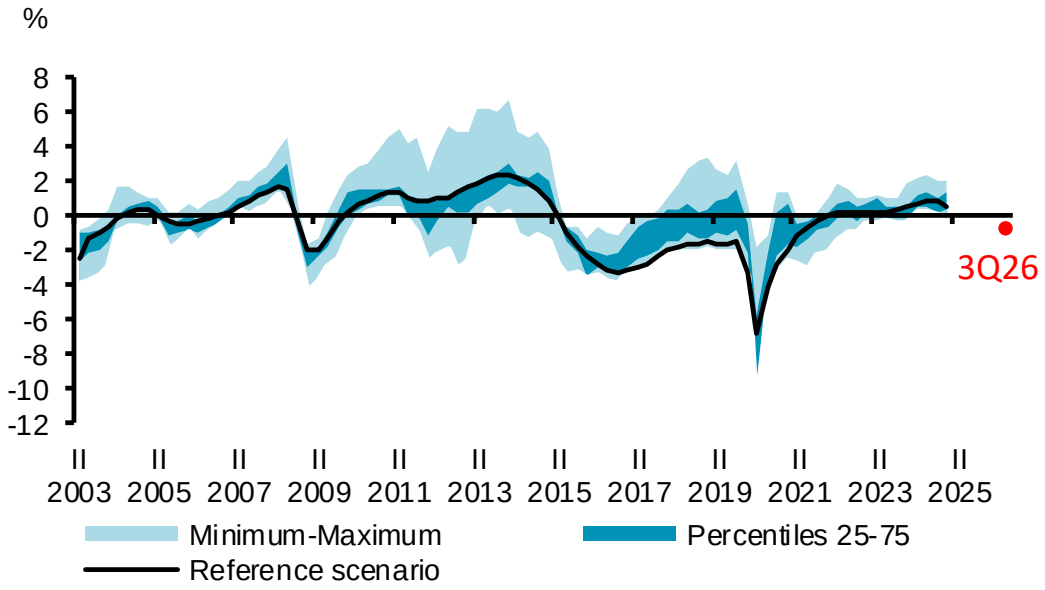
Actual CPI and inflation projection – IPCA



Sources: IBGE and BCB

Baseline scenario: moderation of growth

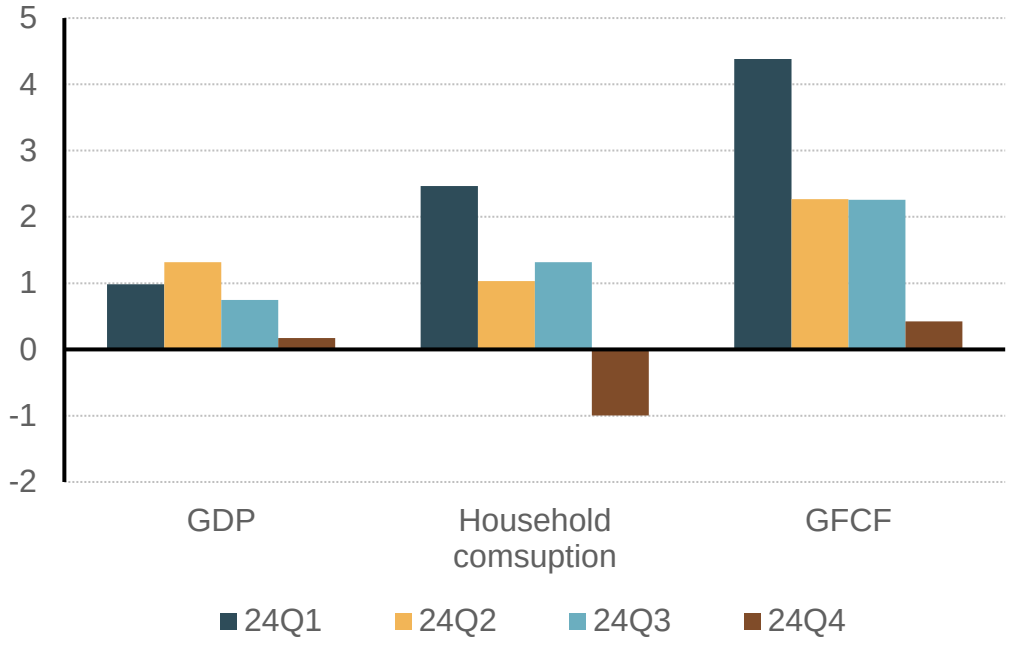
Output gap: estimates and dispersion



Note: Dispersion measures were constructed using a set of output gap measures. See the box " Output gap measures in Brazil" , in the June 2024 IR, for a presentation of various methodologies. Figure data: 2003Q2–2025Q1.

GDP and components

%, s.a.

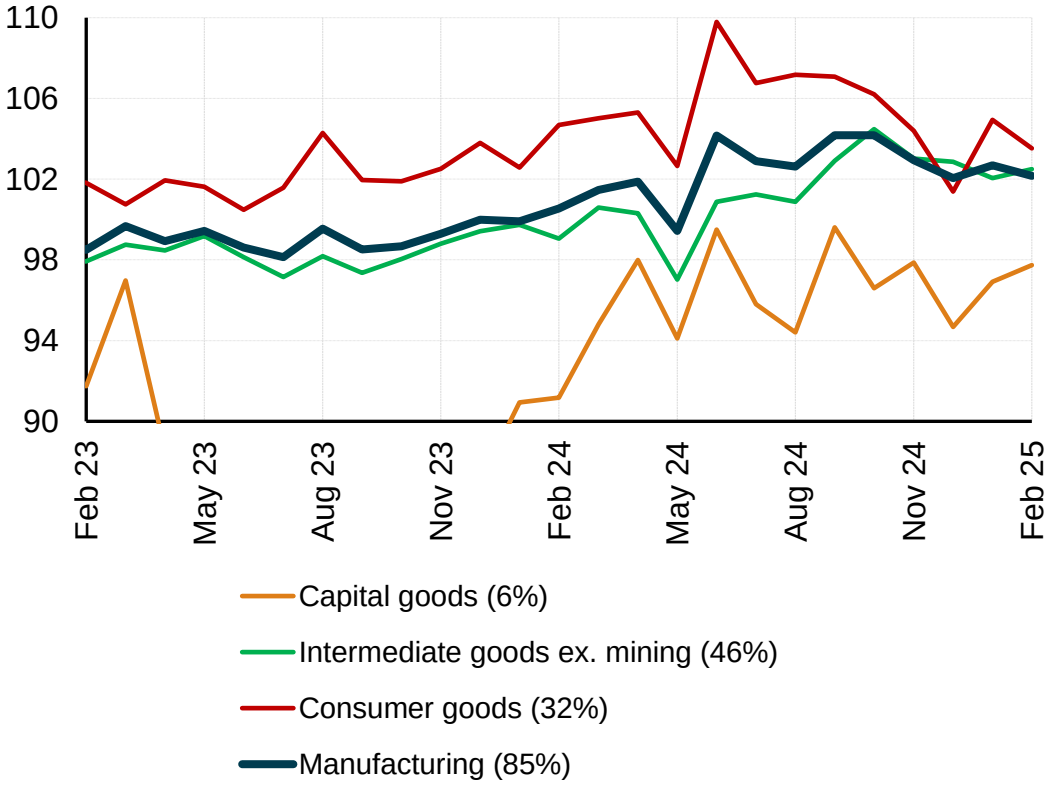


Source: IBGE

Baseline scenario: moderation of growth

Industrial output

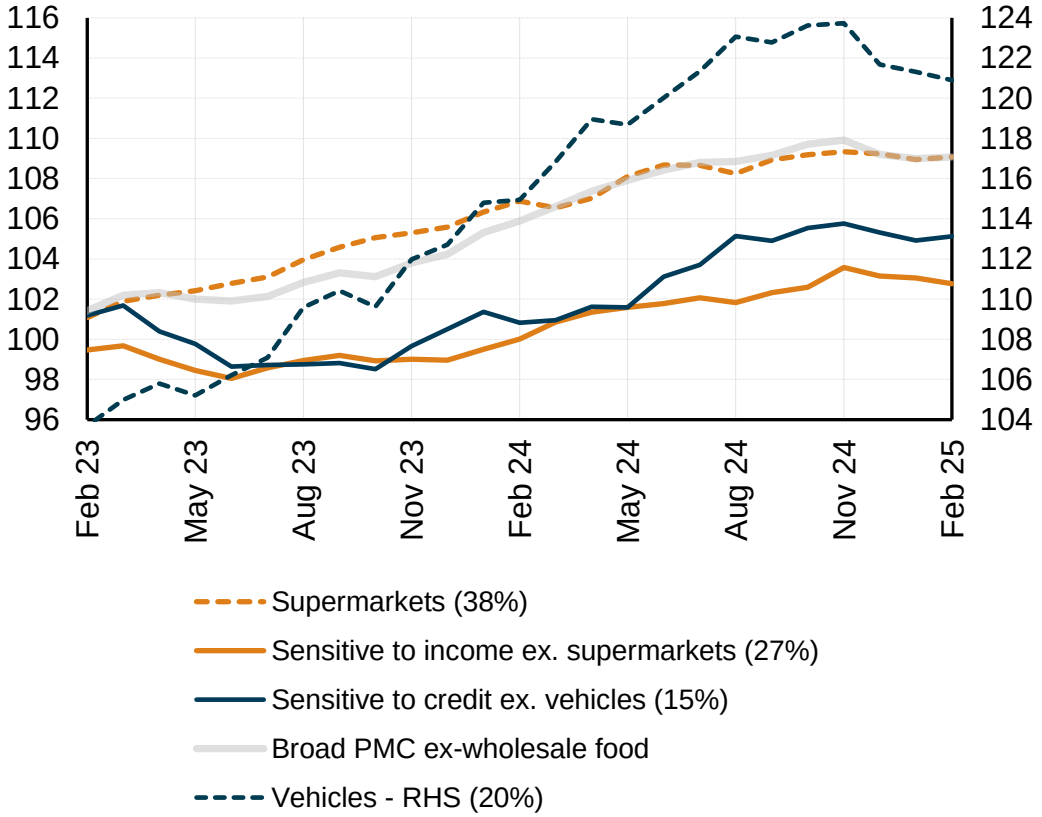
2022 = 100; s.a.



Source: IBGE

Retail sales

2022 = 100; 3MMA; s.a.



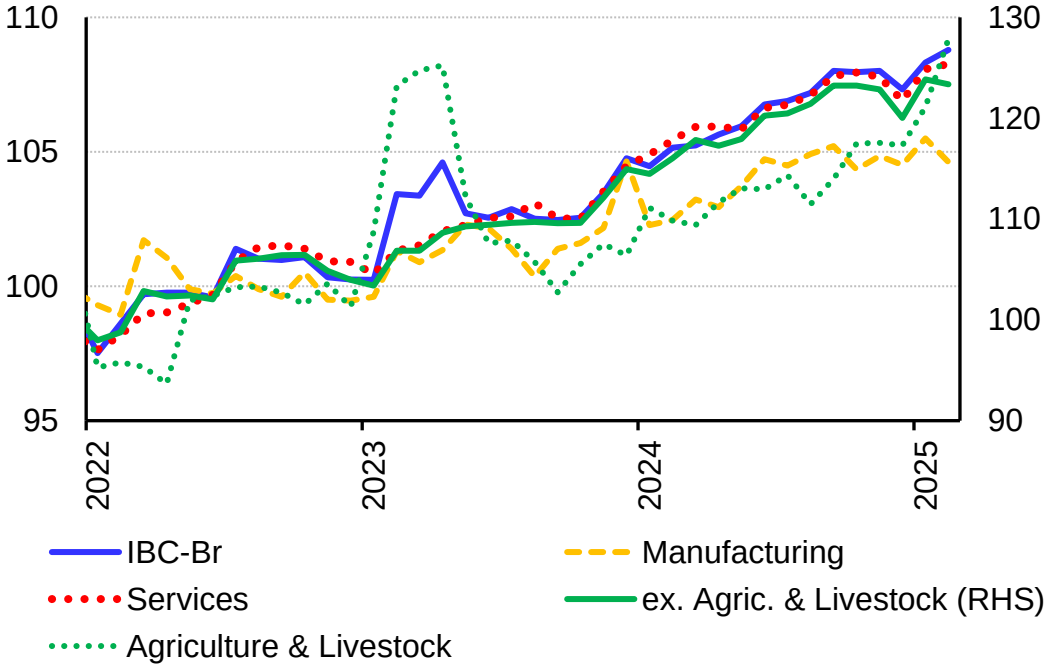
Income: Fuel, clothing, pharmacies, books and others.
Credit: Building materials, furniture and appliances and office supplies.

Source: BCB and IBGE

Baseline scenario: moderation of growth

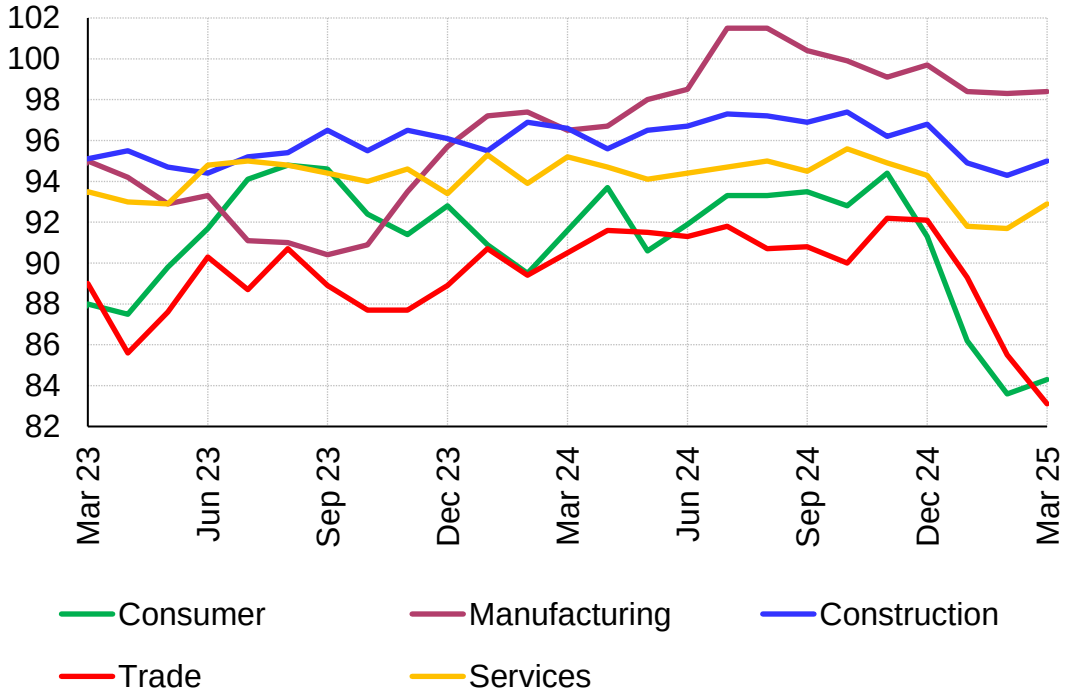
IBC-Br Economic Activity Index

2022 = 100



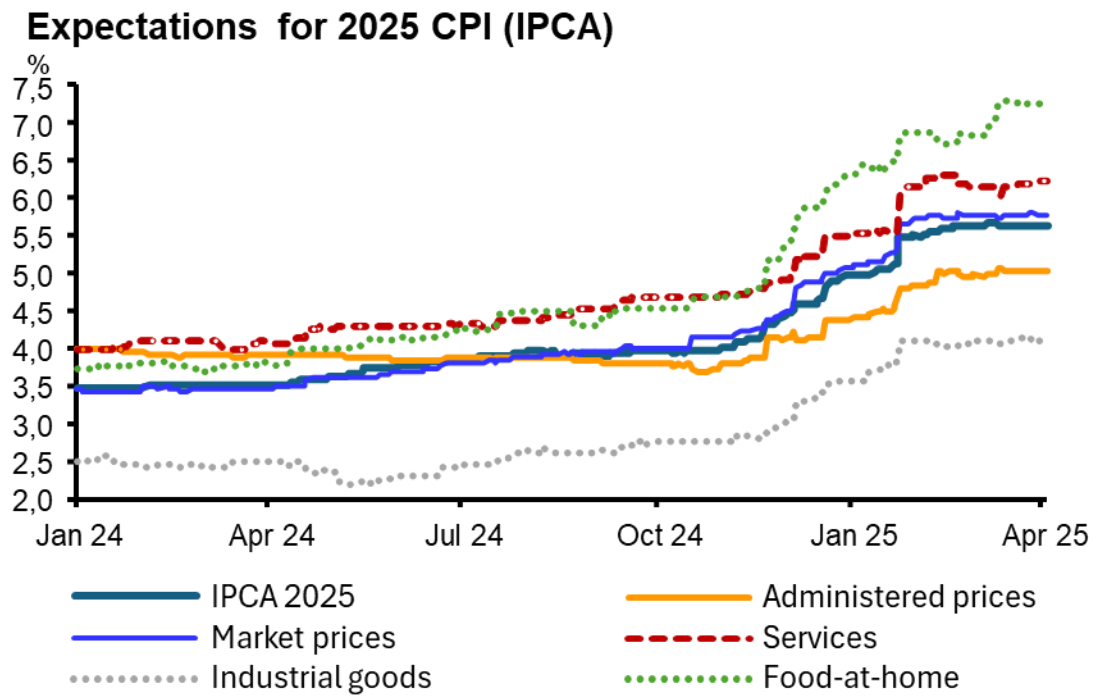
Confidence indexes

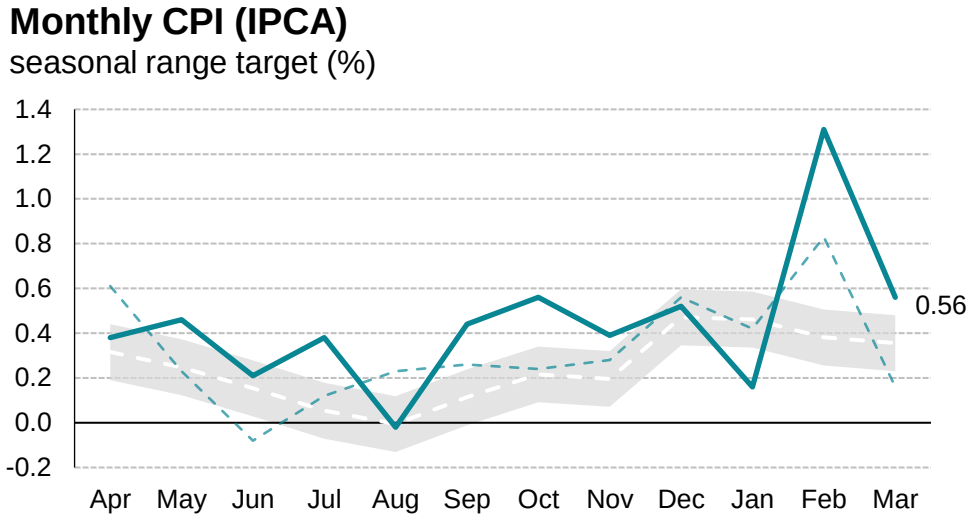
100 = neutral; s.a.

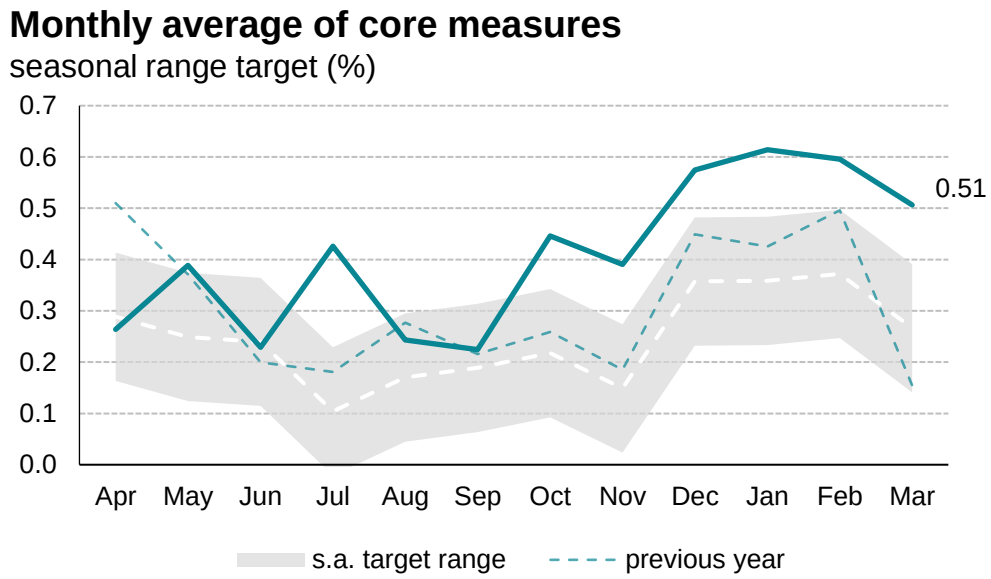


Source: FGV

Baseline scenario: sticky inflation





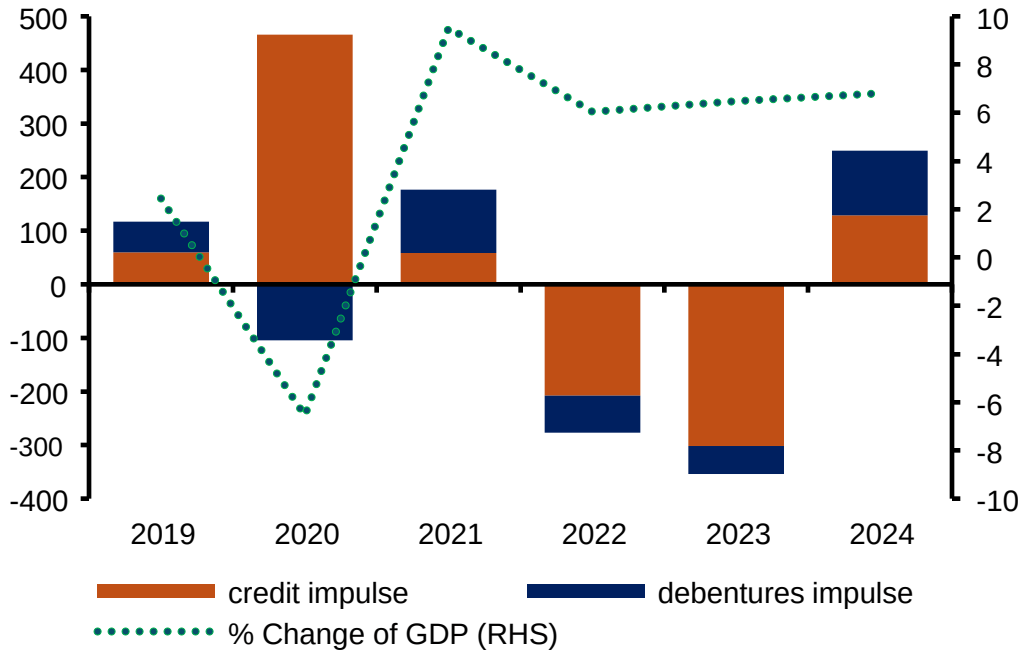


Source: IBGE and BCB

Baseline scenario: monetary policy works

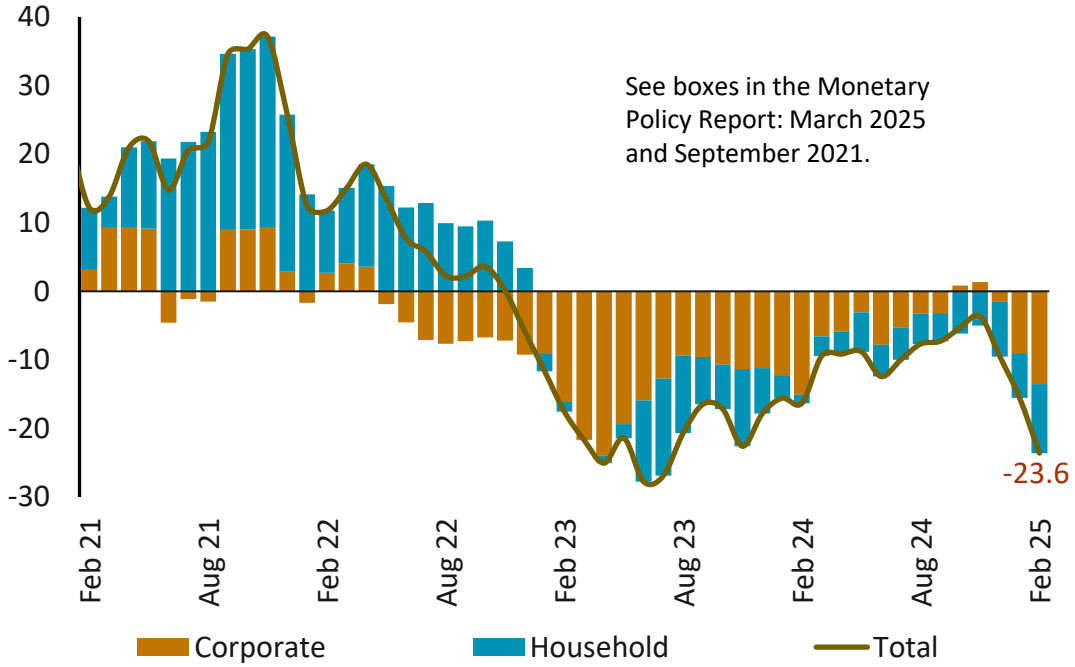
Credit and debenture impulse and GDP growth

Accumulated in the year (BRL billion of Jan 2025)



Financial flow

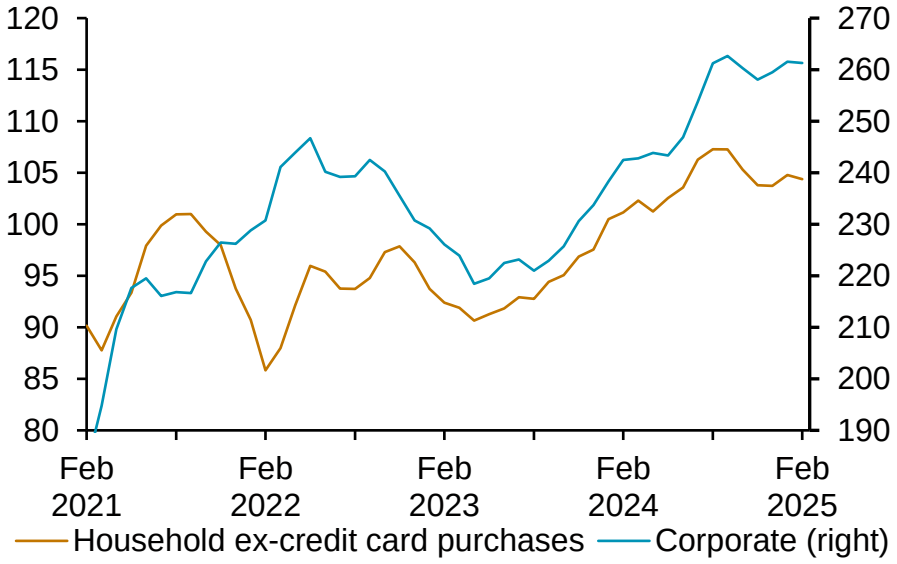
BRL billion of Feb 2025, s.a., 3mma



Baseline scenario: monetary policy works

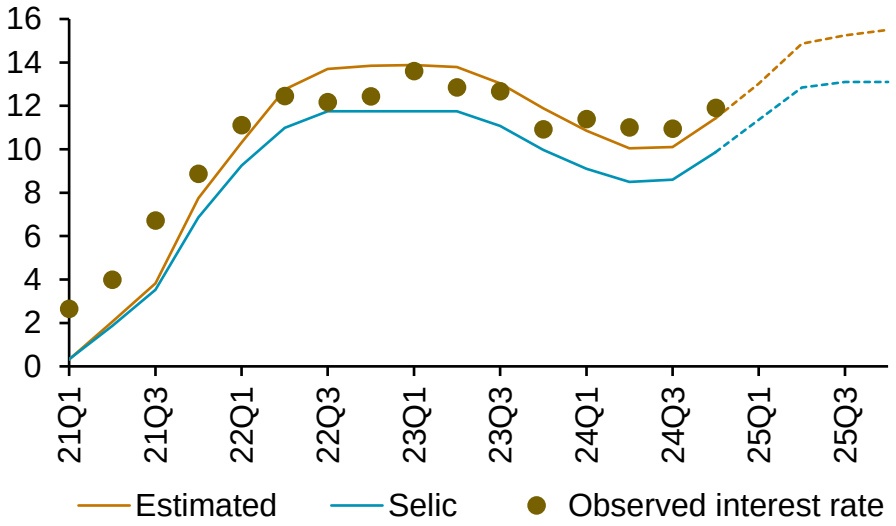
Non-earmarked credit granting

BRL billion of Feb 2025, s.a., 3mma



Selic rate pass-through: non-earmarked corporate credit

p.p. accum. change

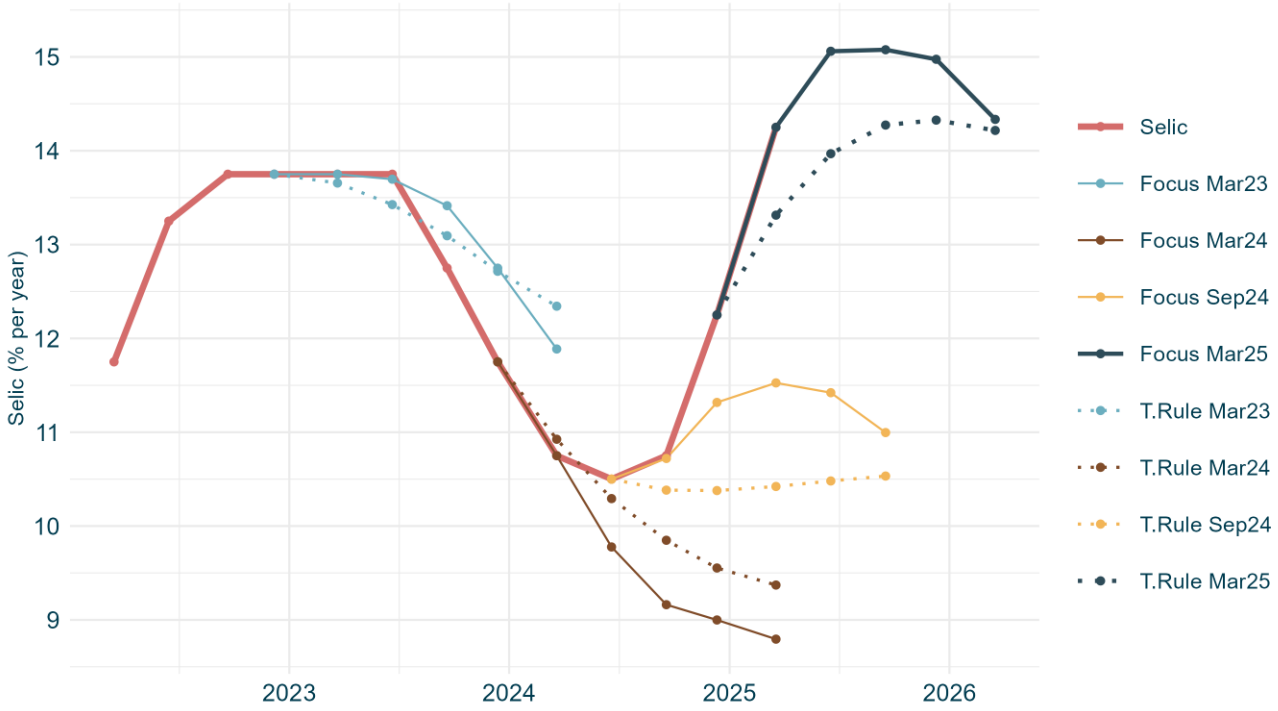


Selic rate expectation data source: Focus of March 14, 2025.

Baseline scenario: some Taylor exercises

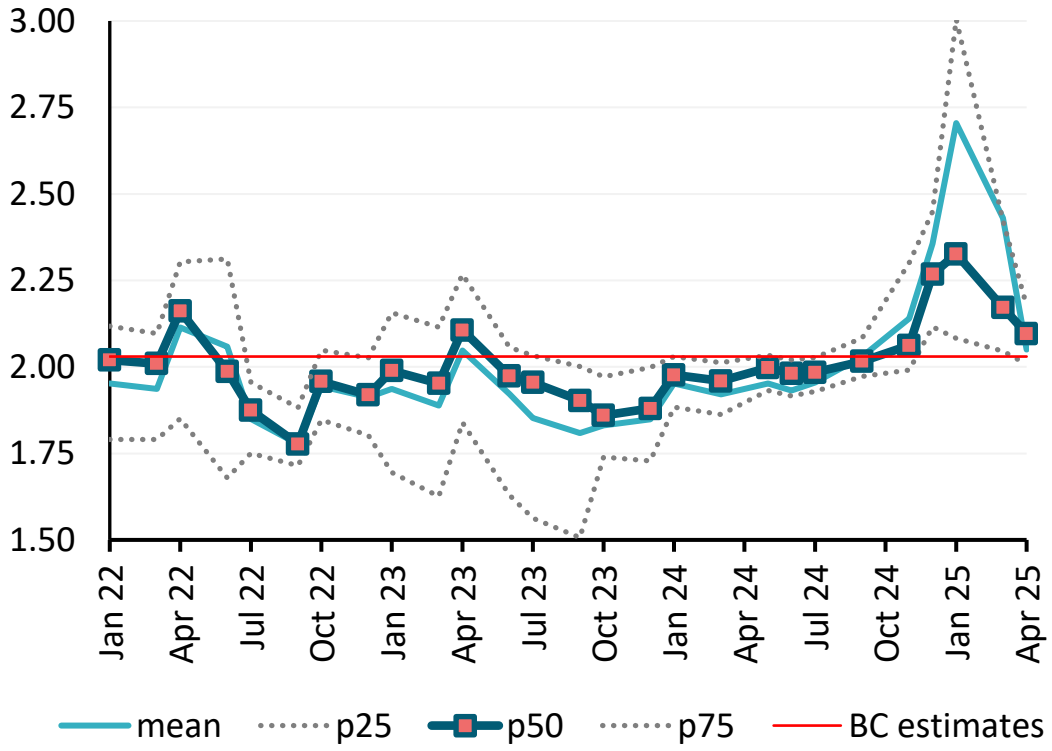
Focus vs. Taylor Rule – 5 steps ahead

Only Copom meetings at the end of each quarter



Inflation-sensitivity of survey-based monetary policy reactions

Inflation expectations coefficient



Note: *The Focus data in both charts reflect the average forecasts on the reference dates of the Copom meetings.*

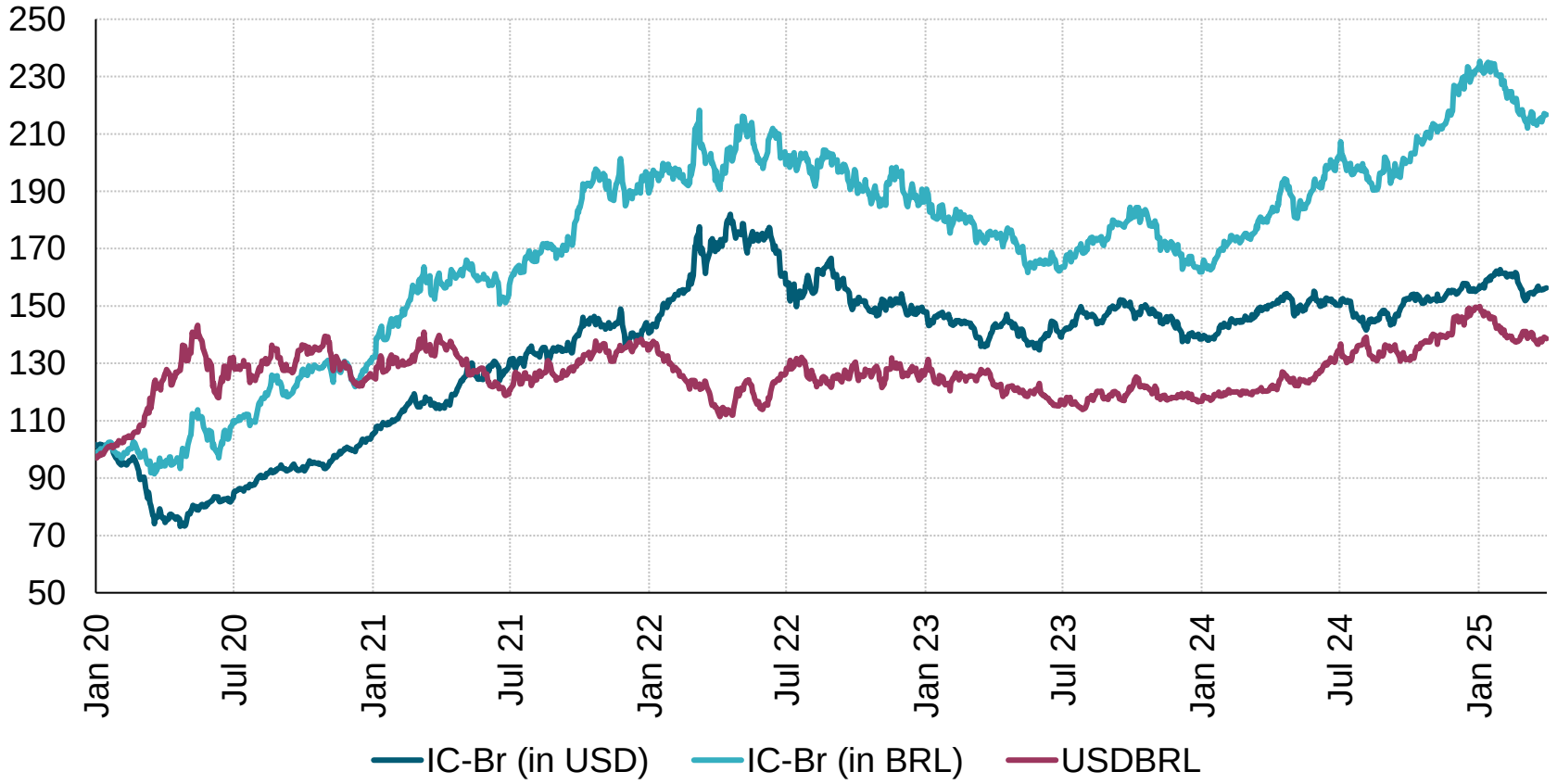
Risks to the scenario

Trade Shock

- Exercises show the elasticities of Brazilian GDP to world GDP between 0.3 and 1.0, with a greater influence from China.
- BCB (see model update on the inflation report)
  - 0.2 to global output gap
- IMF
  - GVAR: Elasticity of Brazil to China of 0.3 and zero to the USA
  - FSGM (semi-structural, multi-regional general equilibrium):
    - Elasticity of Brazil of zero to China and the US; however, combined with a 100 bp rise in the risk premium, the elasticities to the US and China rise to 0.3.
- WB - Global Economic Prospects 2025
  - VAR: GDP elasticity of emerging economies (ex-China, Brazil and India) of almost 3.0 for a shock to the USA and almost 2.0 for a shock to China.
- Abdel-Latif & Popescu - IMF WP 2025 –
  - Bayesian GVAR: Elasticities of demand and supply shocks in China on the other G20 emerging economies at 0.4 and 0.3 respectively (0.35 and 0.3 on America).

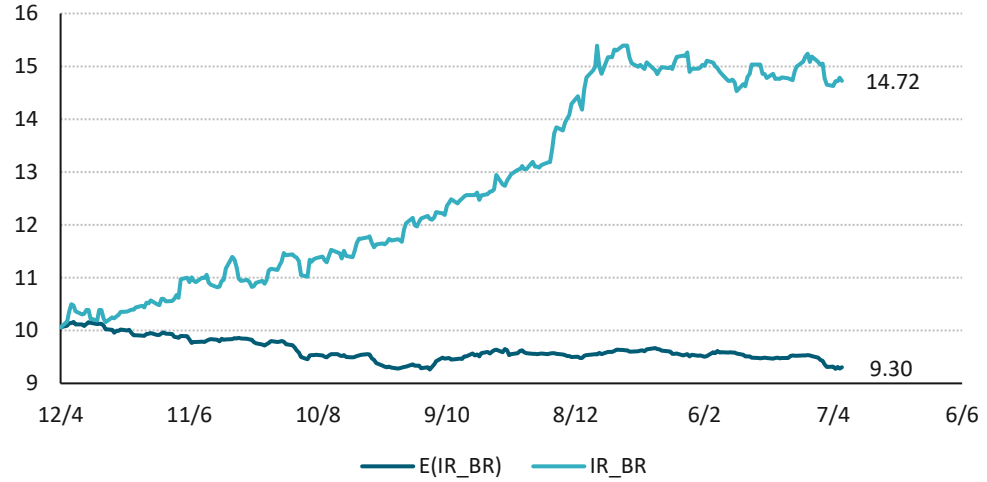
Uncertainty on the scenario

Commodity prices and exchange rate (USDBRL)
Jan 2020 = 100



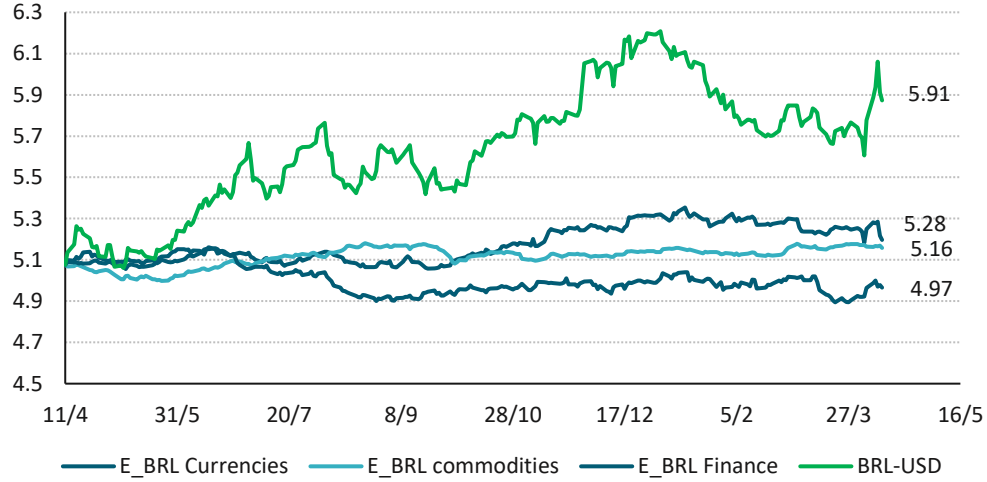
Domestic Uncertainty: even if you take out the external outlook...

Nominal Interest Rate (1y) - IRBR versus E(IRBR)



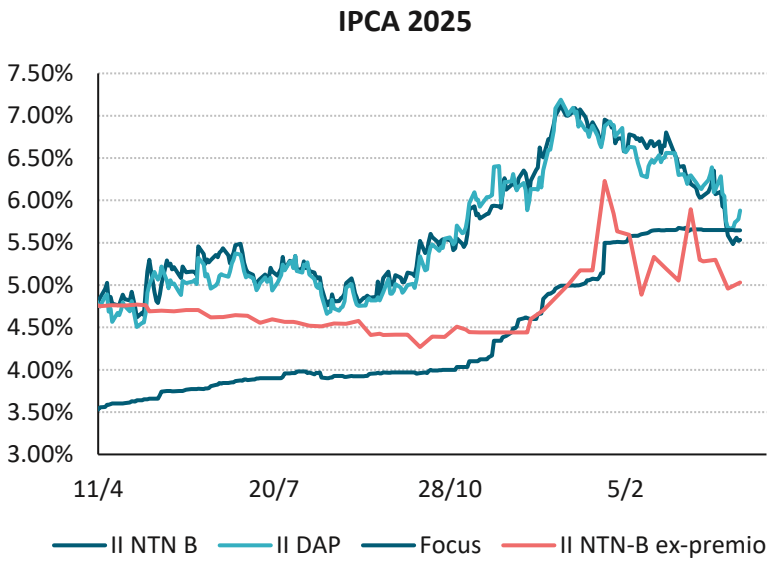
Note: The model for the expected value of the nominal rate is estimated by principal components of the weekly rates, in a 6-month window, from the countries MEX, COL, CHI, AFS, HUN, AUS, UK, USA, EUR, and CAN.

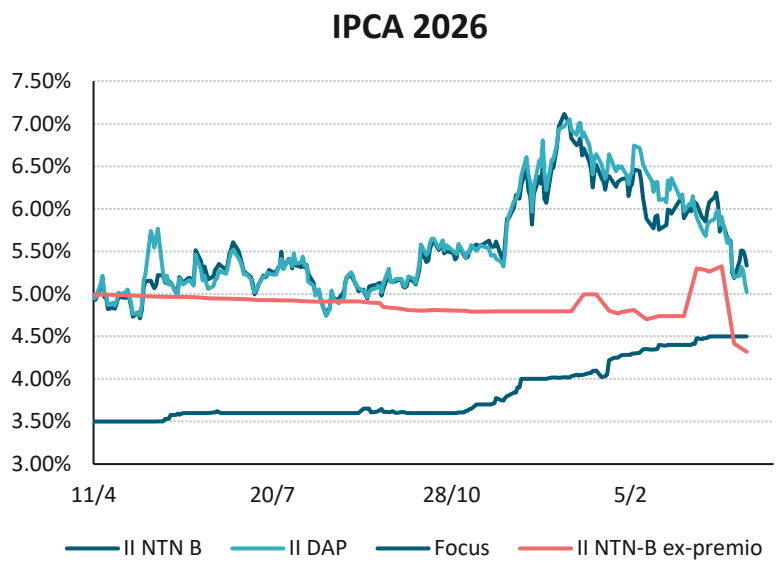
BRL–USD versus E(BRL–USD)

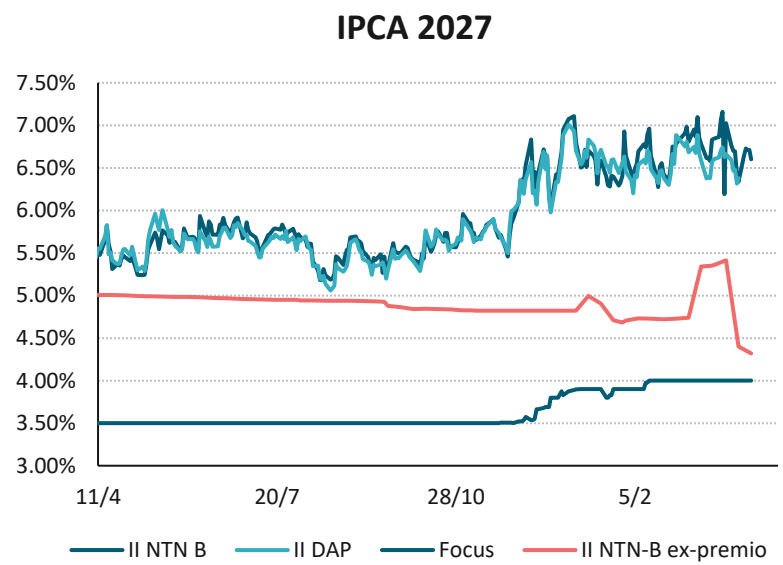


Note: The models for the expected value of the exchange rate by currencies and commodities are estimated by principal components (PCs) in a 6-month window. The PCs of the currency model are made with EUR, GBP, AUD, ZAR, CLP, COP, MXN, CAD, and HUF. The PCs of the commodity model use Sugar, Soybeans, Wheat, Corn, Coffee, Beef, Steel, Aluminum, and Copper. The model for the expected value of the exchange rate by financial variables is estimated, in a 6-month window, with the variables CDS, Ibovespa, 1-year interest rate differential between BR and USA, and CRB.

Domestic Uncertainty: risk premium, deanchored inflation expectations







Note: The inflation risk premium is obtained by an arbitrage-free affine model that considers the nominal and real yield curves jointly. The model has four factors and captures possible incompleteness between the nominal and real bond markets. The model is estimated with a Kalman Filter using data from the Brazilian market since 2007.

As a reference, Vicente e Kubudi (2016) paper can be found in https://www.bcb.gov.br/content/publicacoes/WorkingPaperSeries/wps452.pdf

Key takeaways

- Initial conditions: growth resilience, high inflation and deanchored inflation expectations
- Baseline scenario
  - growth moderation
  - sticky inflation
- Rates are contractionary
  - It works
  - Policy reaction stability
- Discussion
  - Trade shock
  - Uncertainty shock
  - Growth supporting policies
- High uncertainty
  - Caution: when visibility is low, proceed with caution
  - Flexibility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