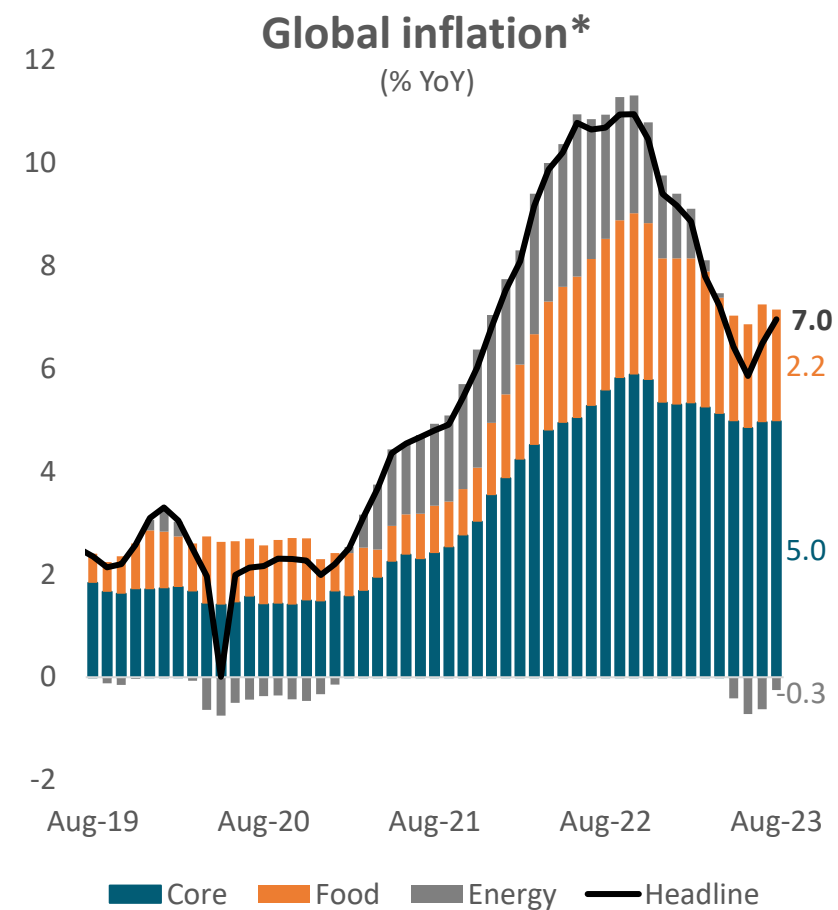
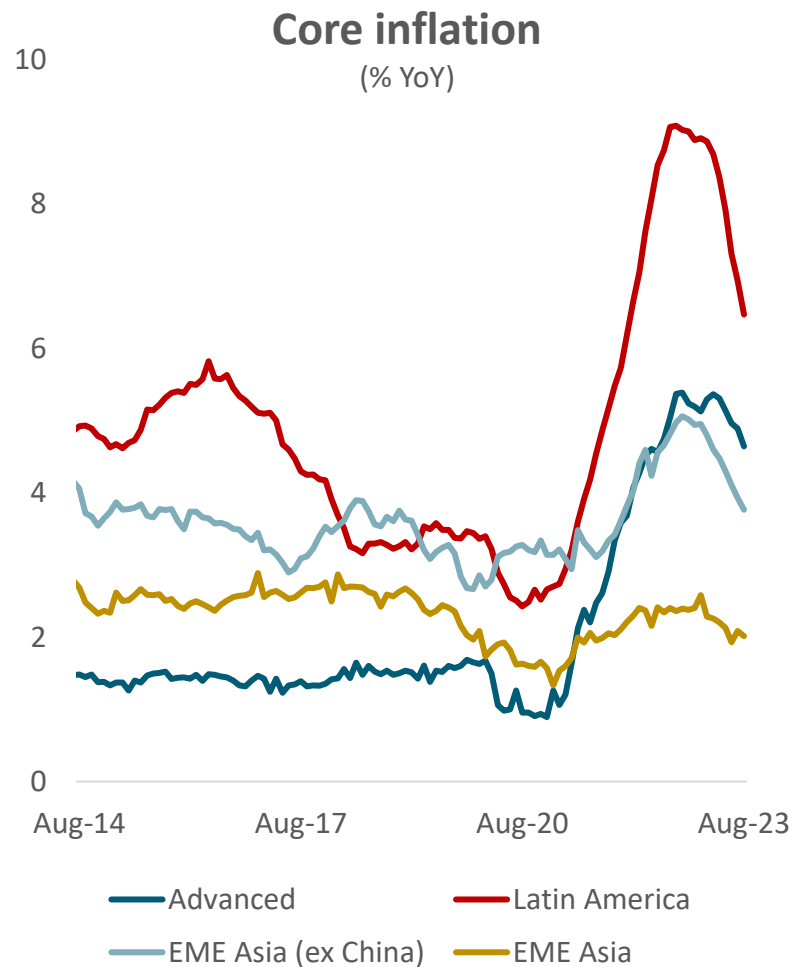
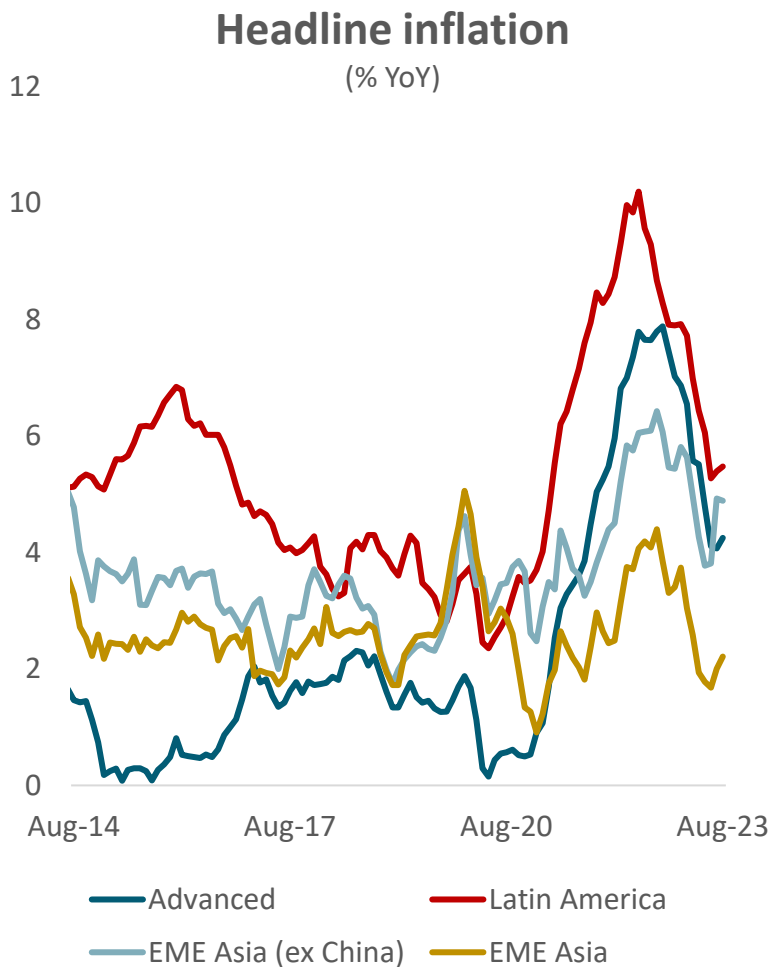


IMF Meetings

Economic Outlook and Agenda BC#

Roberto Campos Neto
Governor of Banco Central do Brasil

Global inflation showing resilience, with headline indexes stopping their reduction at the margin, and core indexes with slower reduction.

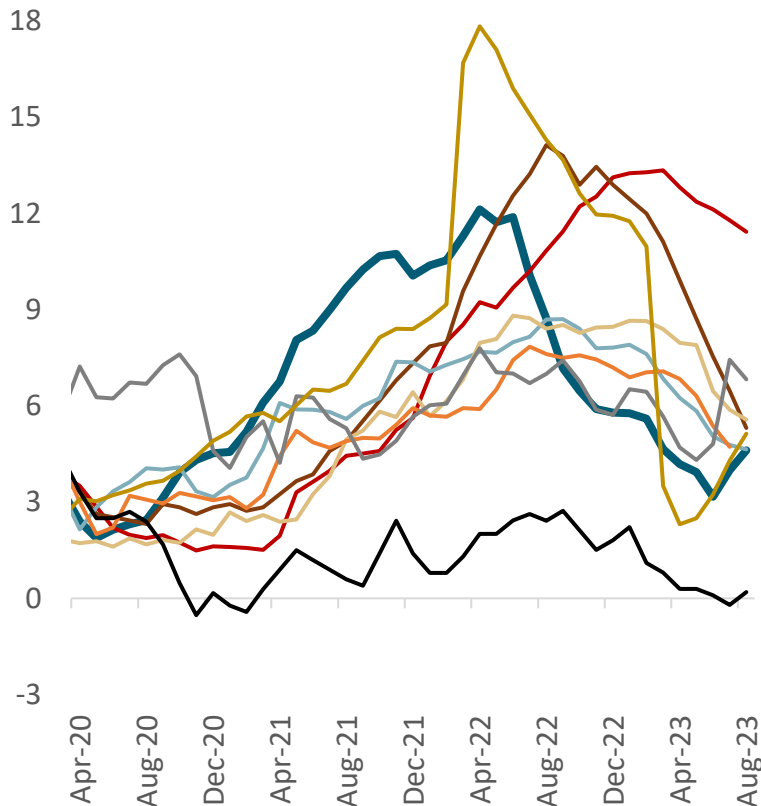


Advanced: DE, FR, GB, IT, BE, NE, IE, SP, CH, NO, SE, DK, FI, CA, US, JP; Latin America: BR, MX, CL, CO, PE; EME Asia: ID, IN, KR, MY, TW, TH; CN.

*Corresponds to 66% of global GDP except China
 Countries: DE, FR, GB, IT, BE, NE, IE, SP, CH, NO, SE, DK, FI, CA, US, JP, BR, MX, CL, CO, IN, NR, ZA, BG, CZ, HU, PL, RO, SK.

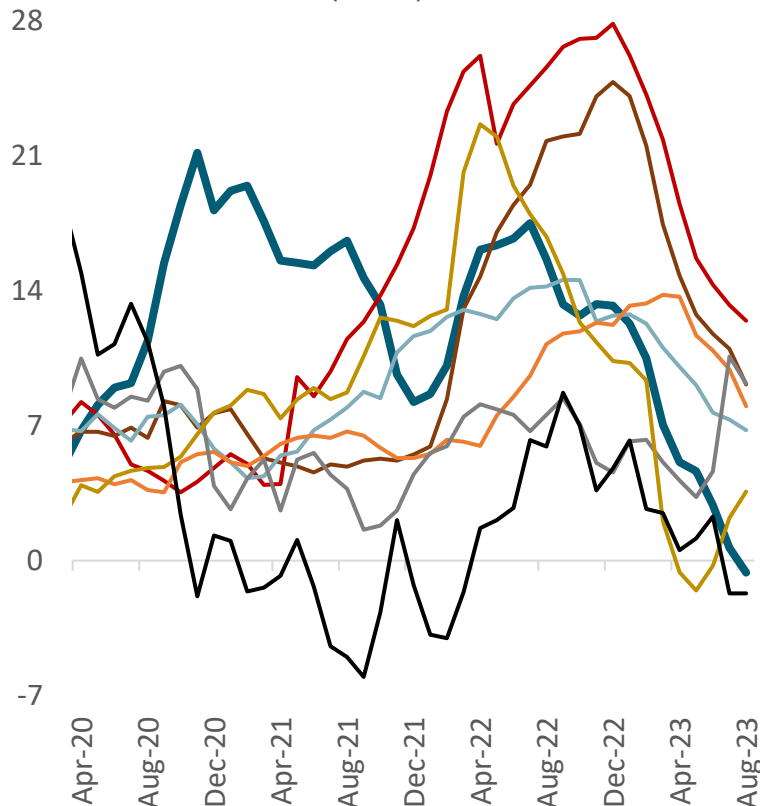
Favorable dynamics of food and beverages inflation has allowed headline inflation to decelerate, while energy pressures regain strength.

Headline CPI (% YoY)

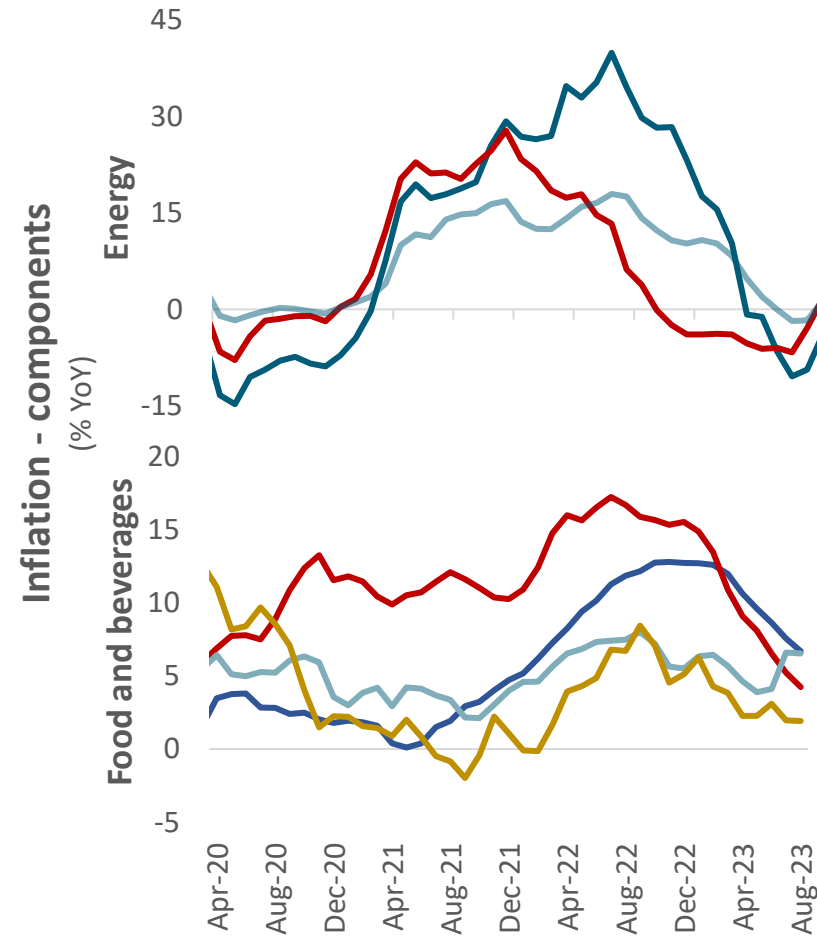


- Brazil
- Colombia
- Chile
- Mexico
- Peru
- South Africa
- India
- Russia
- China

CPI – food and beverages (% YoY)



- Brazil
- Colombia
- Chile
- Mexico
- South Africa
- India
- Russia
- China

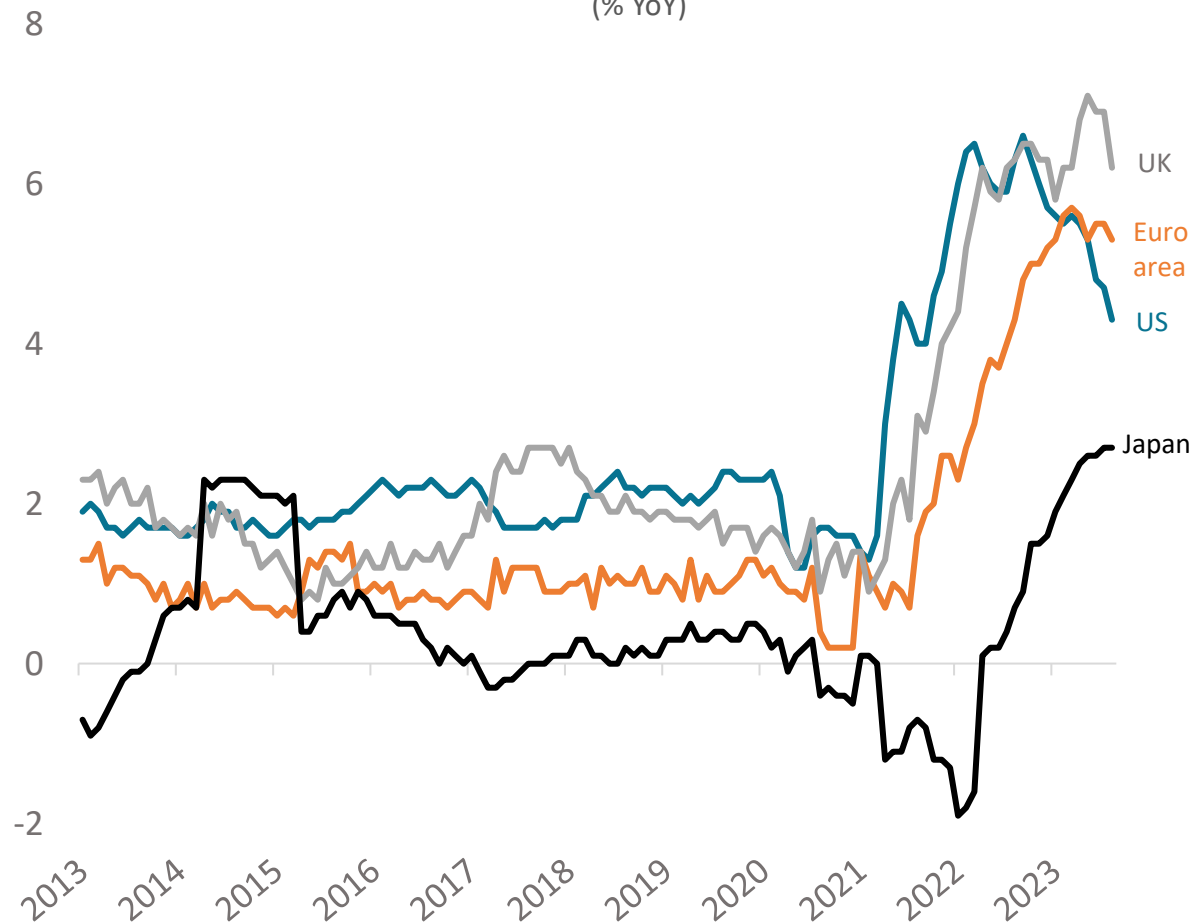


- Advanced
- Latin America
- EME Asia (ex China)
- EME Asia

In several countries, core inflation indexes are above their targets, reinforcing the persistence of the current inflationary process.

Advanced countries: core inflation

(% YoY)



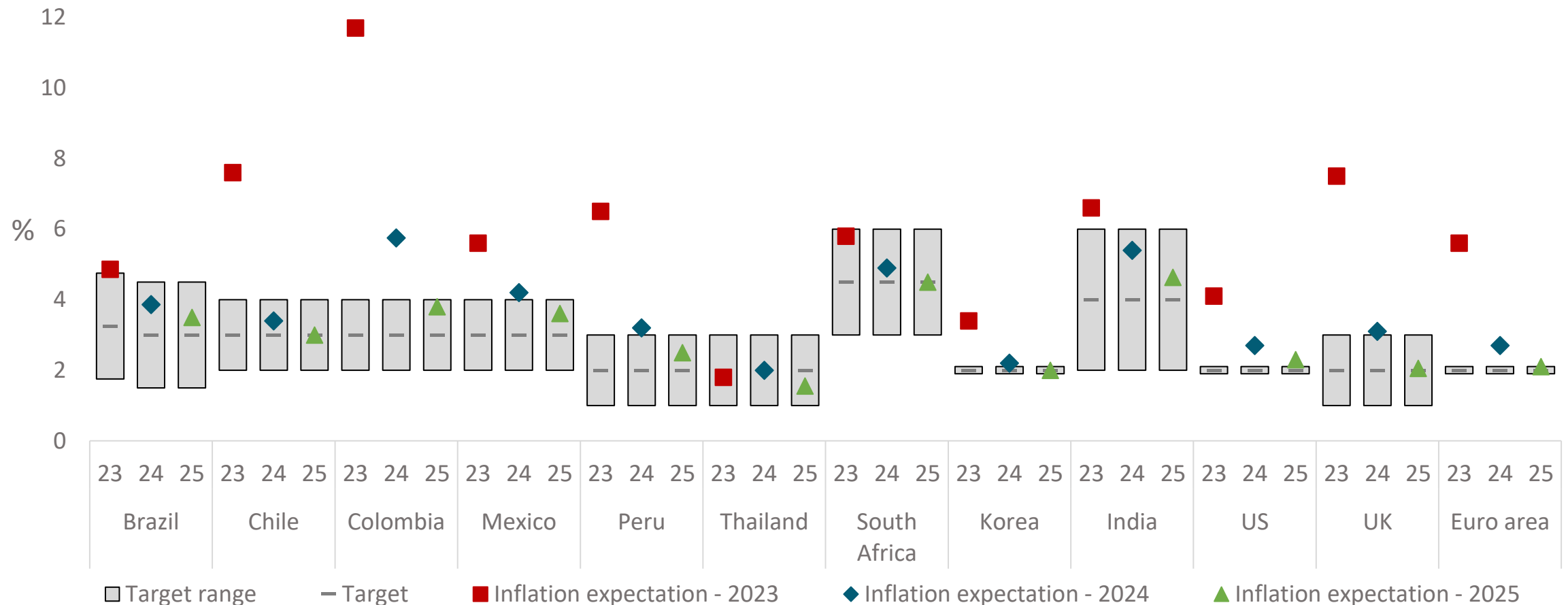
Emerging countries: core inflation

(% YoY)

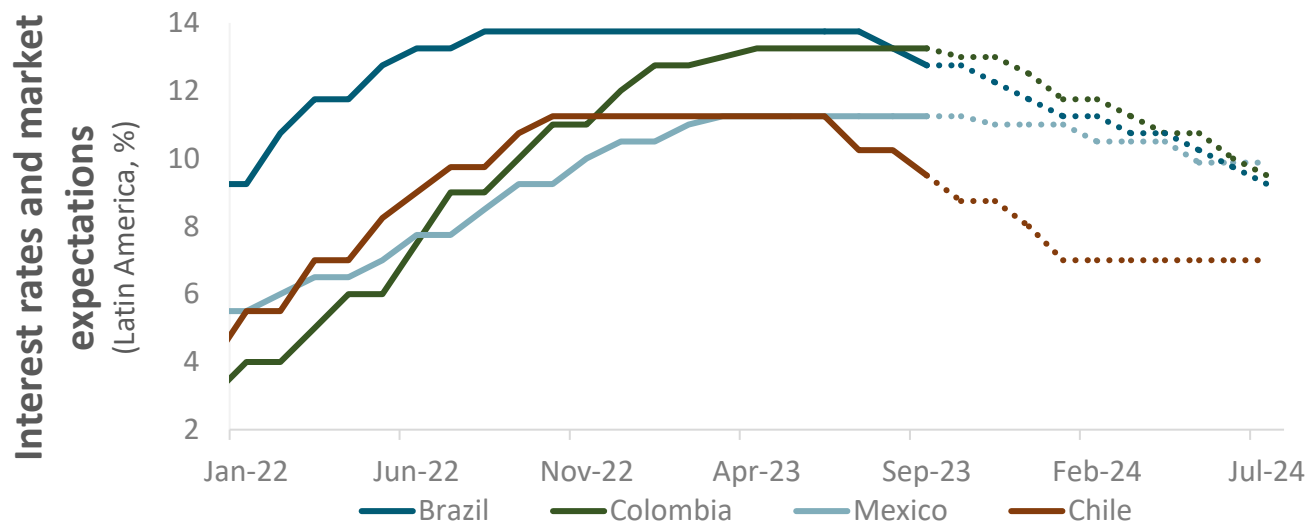
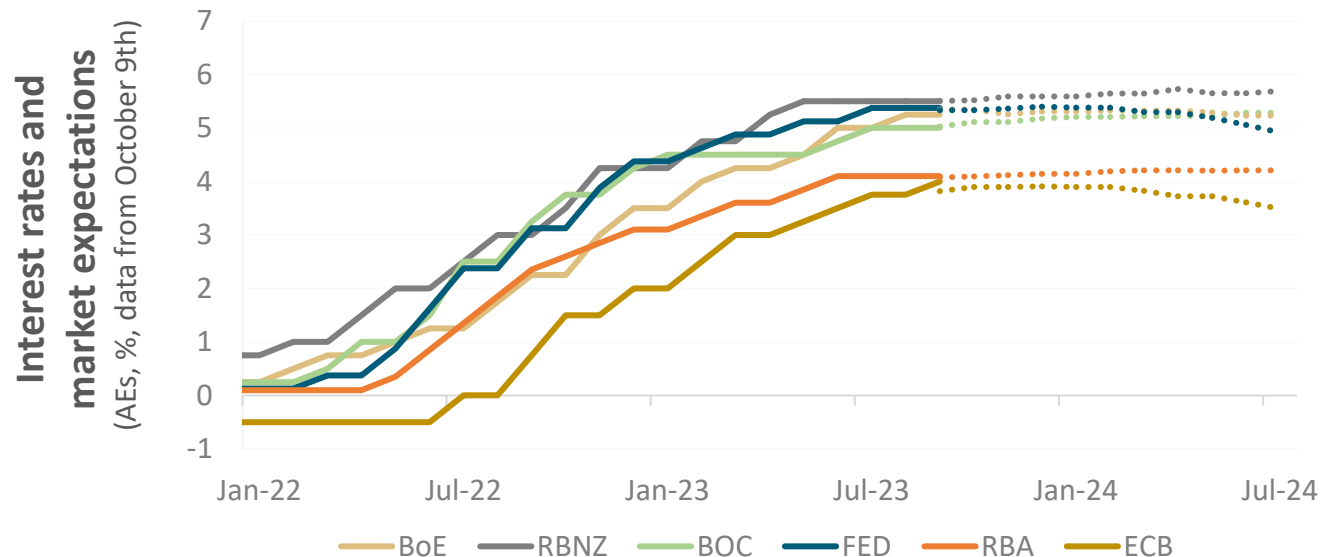


Long term inflation expectations are closer to targets.

Inflation expectations x target (2023, 2024 and 2025)



In AEs, interest rates are expected to remain higher for longer. In Latin American economies, policy rates are expected to be reduced in 2024.

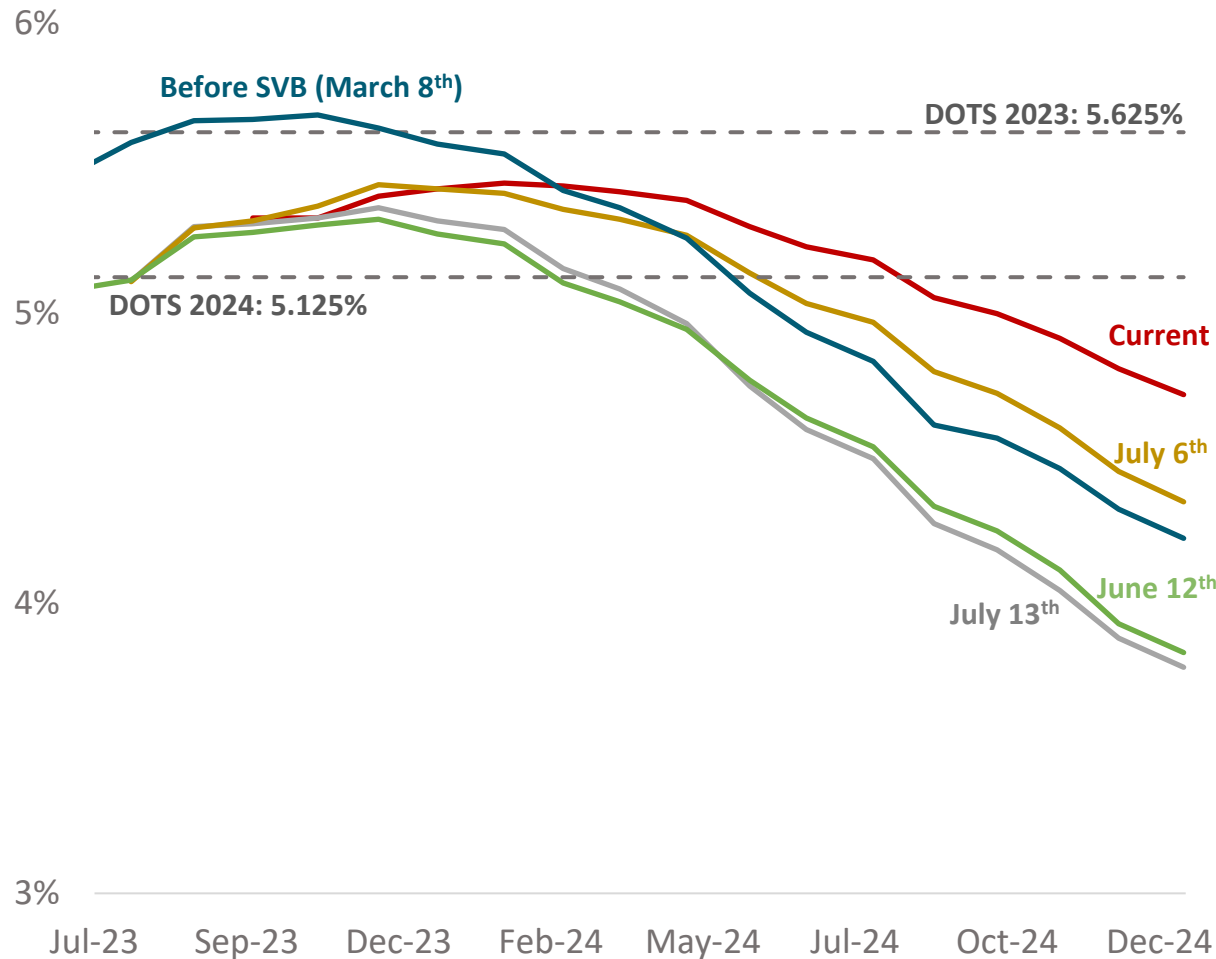


MONETARY POLICY PRICING			
10/06/2023			
Country	Rate (%) <small>Last decision</small>	3 month pricing <small>b.p.</small>	1 year pricing <small>b.p.</small>
AEs			
US	5.38	+12	-41
Canada	5.00	+19	+8
Euro area	4.00	+1	-44
UK	5.25	+12	-8
Australia	4.10	+8	+15
New Zealand	5.50	+11	+9
Japan	-0.10	+2	+24
EMEs			
Mexico	11.25	+2	-87
Chile	9.50	-139	-388
Brazil	12.75	-90	-235
Colombia	13.25	-25	-260
Russia	13.00	+291	+87
South Africa	8.25	+13	+3
China	1.80	-15	-14
India	6.50	-3	-5
Korea	3.50	+14	+15

Sources: Bloomberg, central banks and BCB.

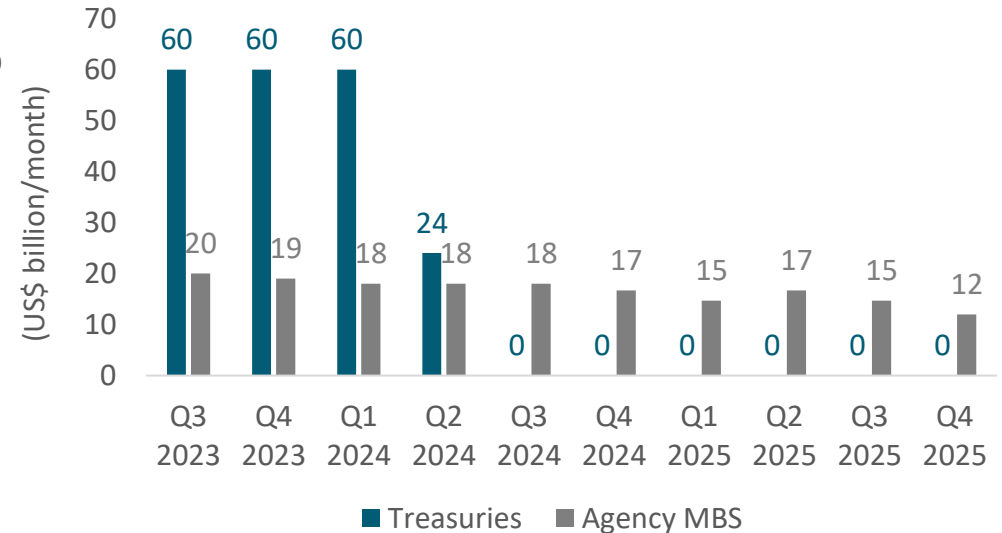
Fed Funds unchanged on FOMC September meeting, but dot plots indicate the possibility of an additional rate hike in 2023.

Fed Funds Terminal rates (future curves)

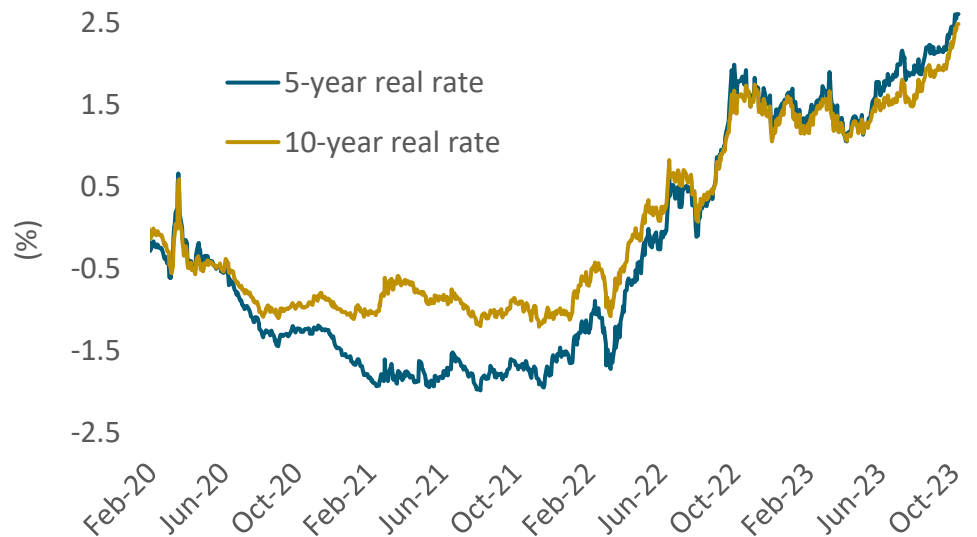


Sources: Bloomberg, NY Fed Survey of Primary Dealers, July 2023.

Expected net reduction* in Fed SOMA holdings*

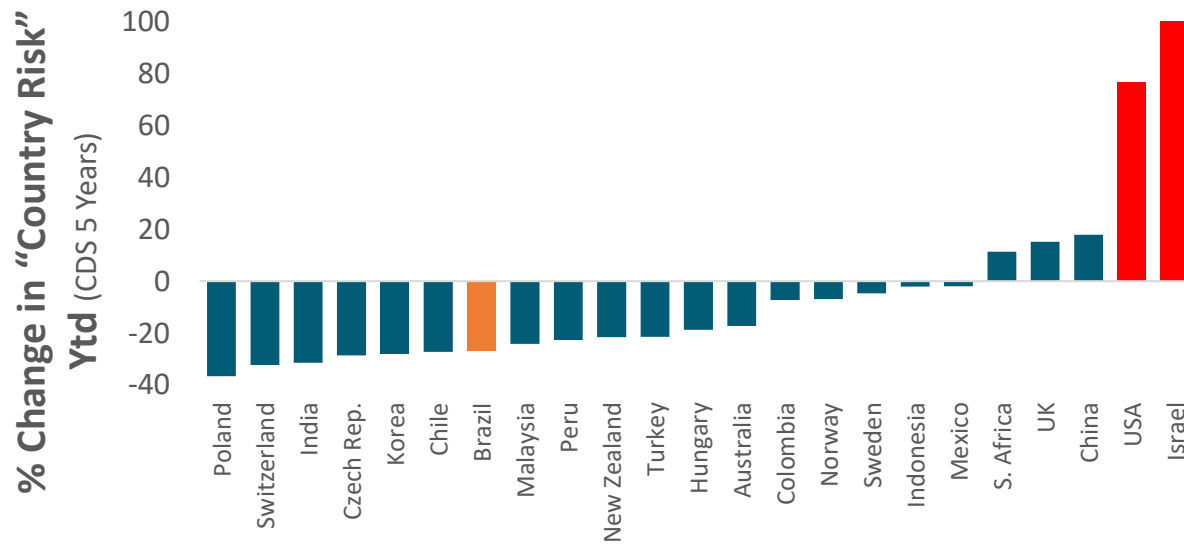
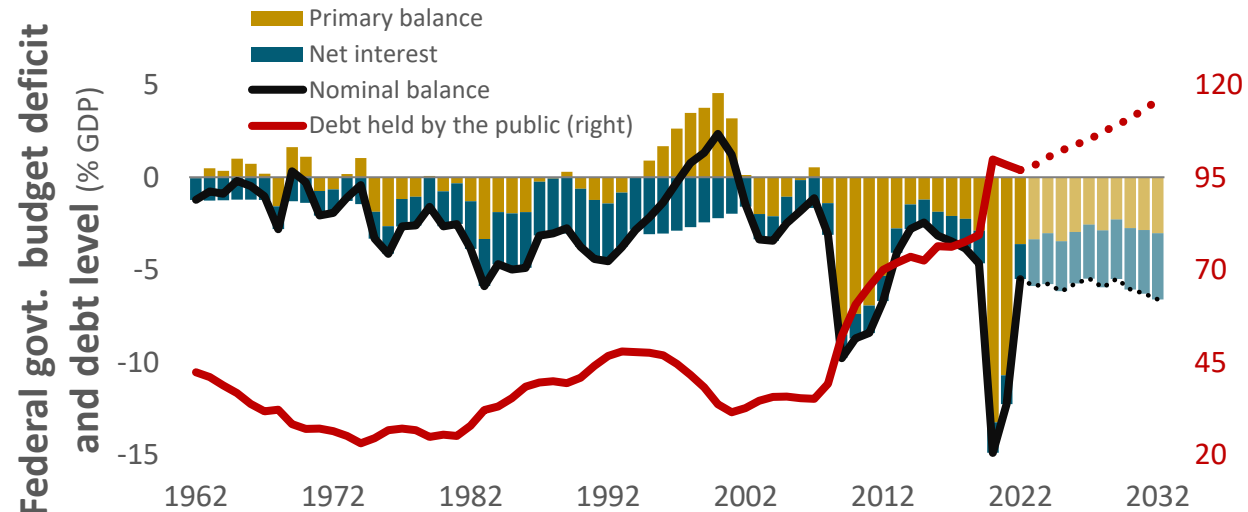
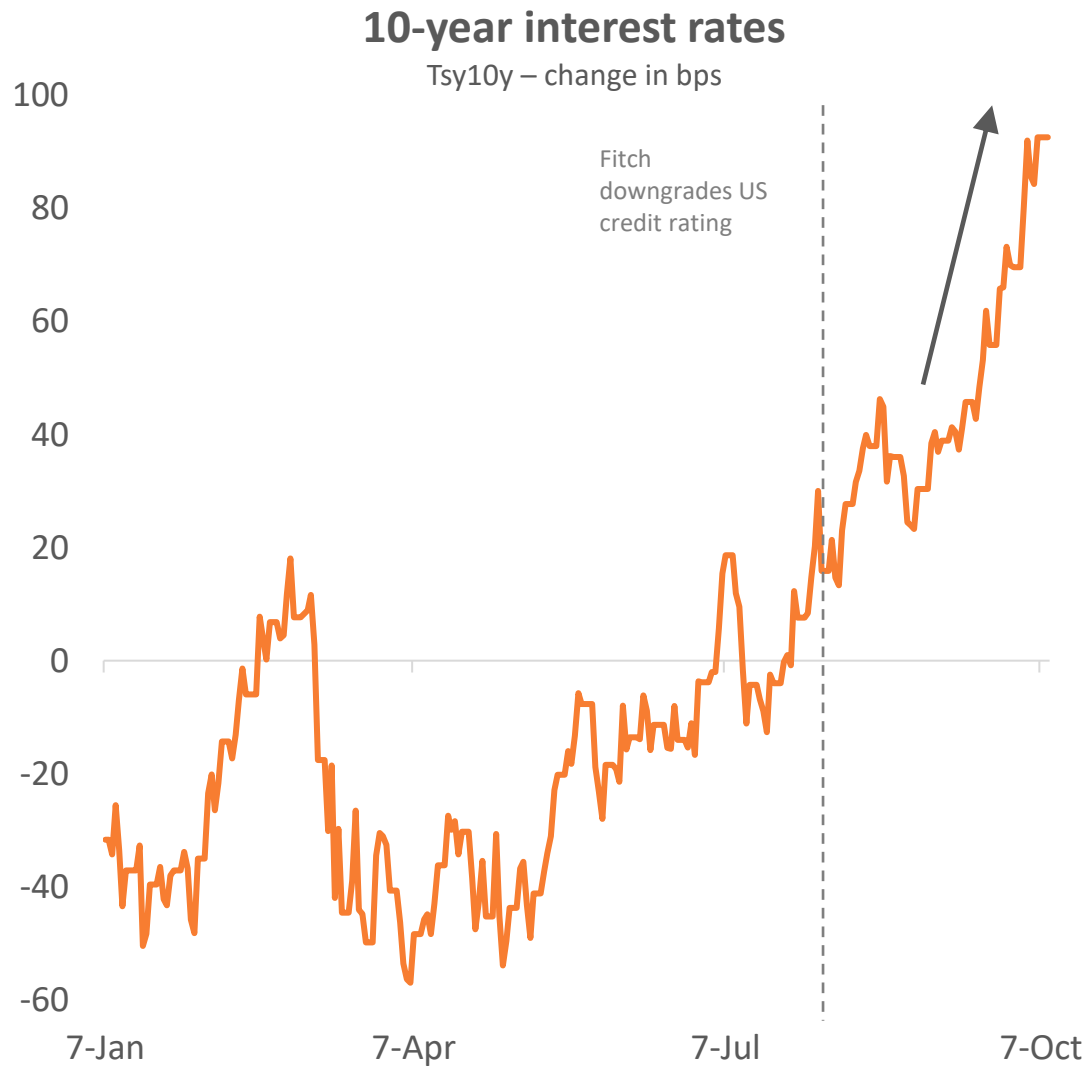


U.S. - real interest rates



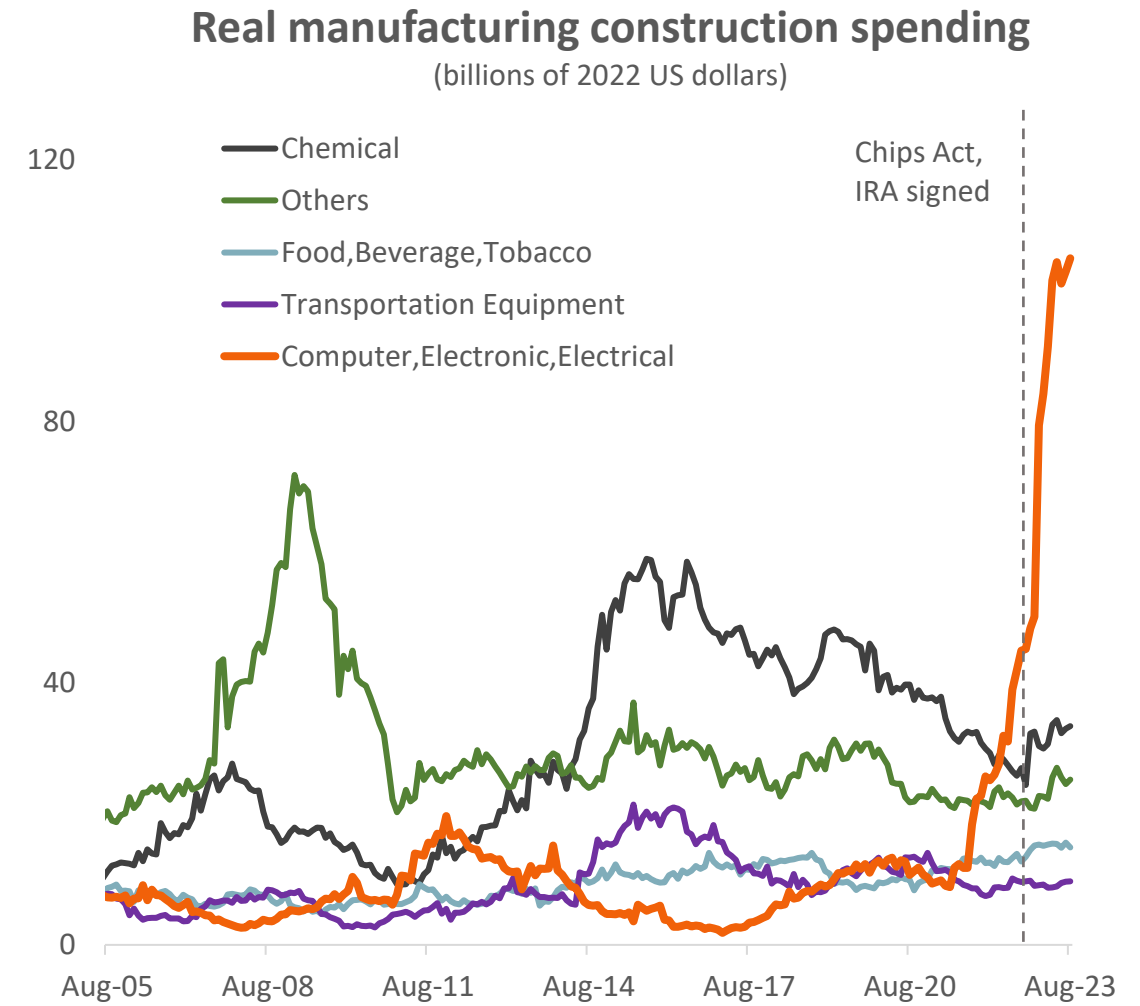
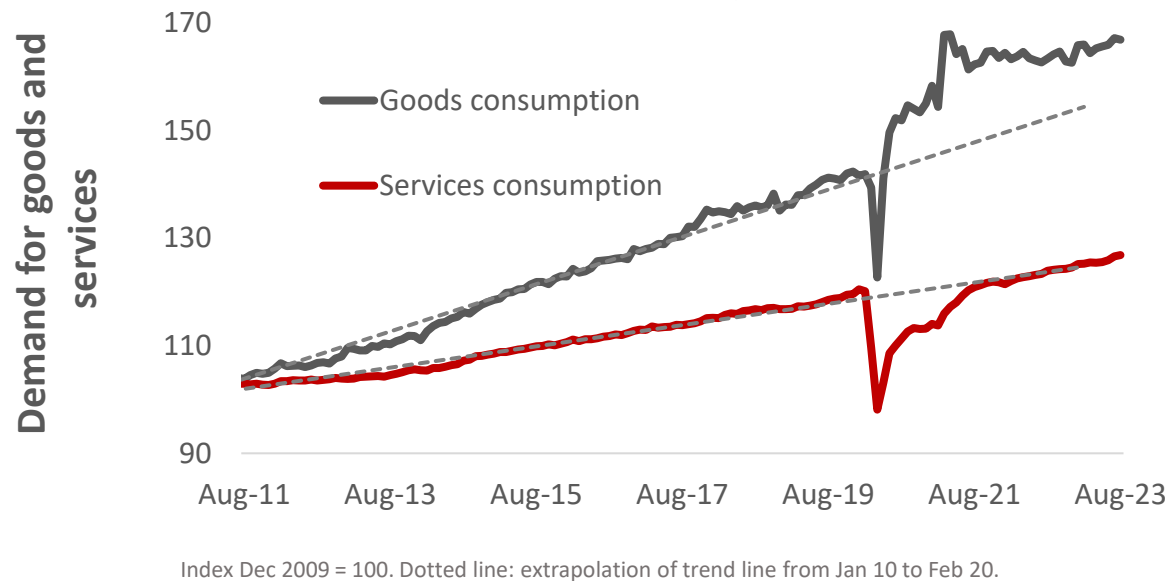
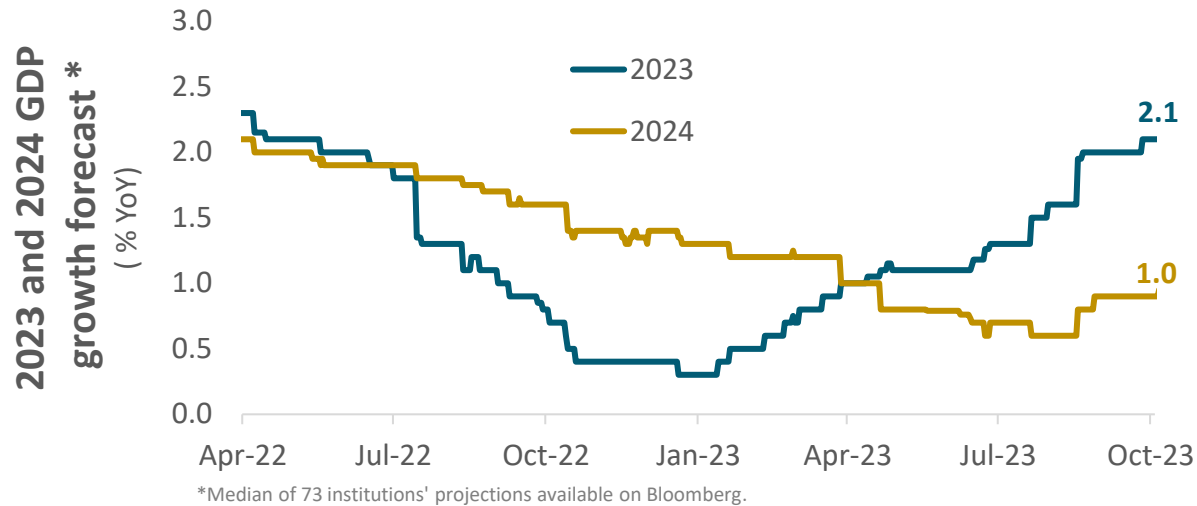
* NY Fed Survey of Primary Dealers, July 2023

Strong increase in long term rates. Public deficit and debt forecasts point to fiscal risks.



Sources: Bloomberg, Refinitiv, CBO.

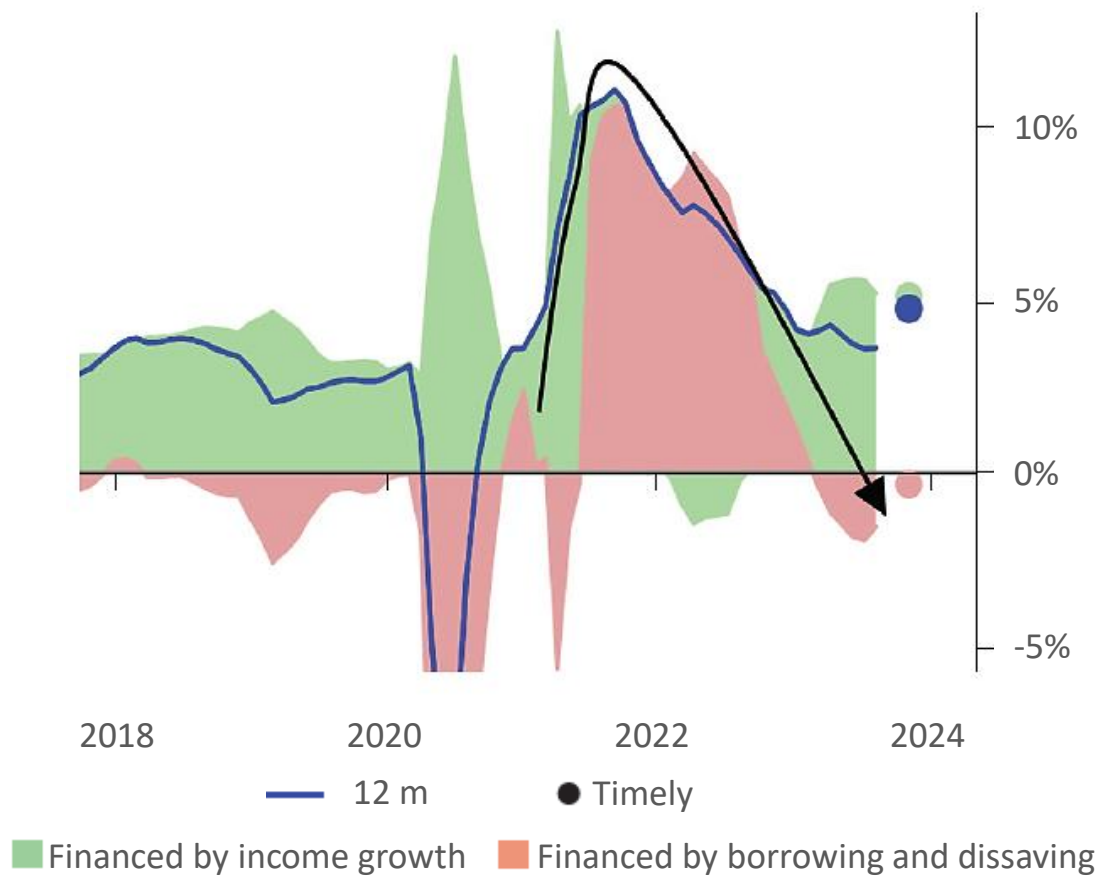
Economic activity has been resilient. Large increase in manufacturing construction in the computer and electronic sector.



* Value of private consumption put in place for manufacturing, US Census Bureau. Nominal spending deflated by the PPI index for intermediate demand materials and components for construction, BLS.

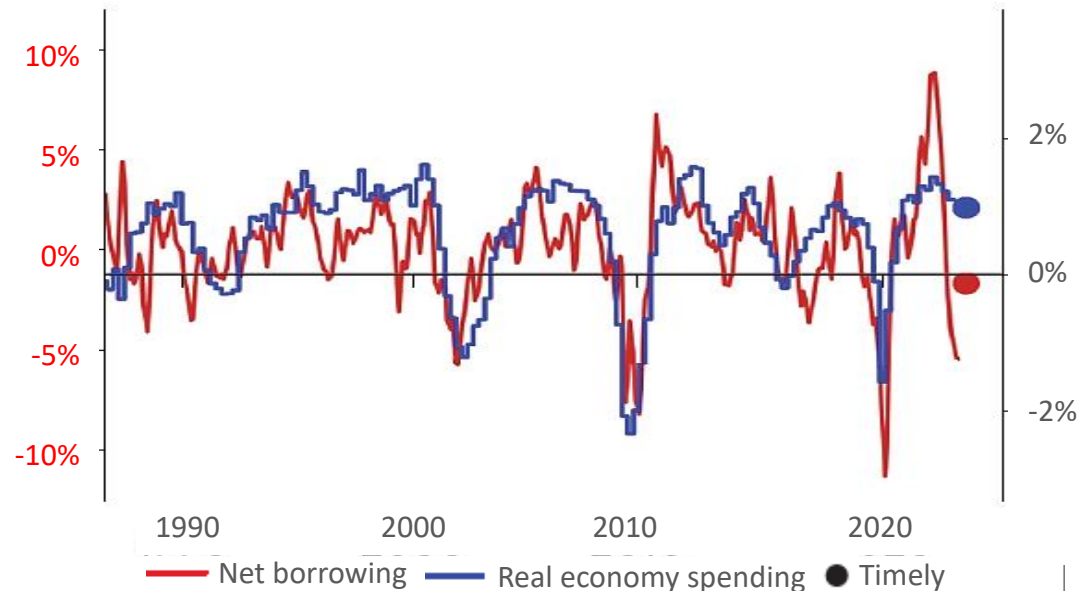
Household nominal spending growth

(% GDP)

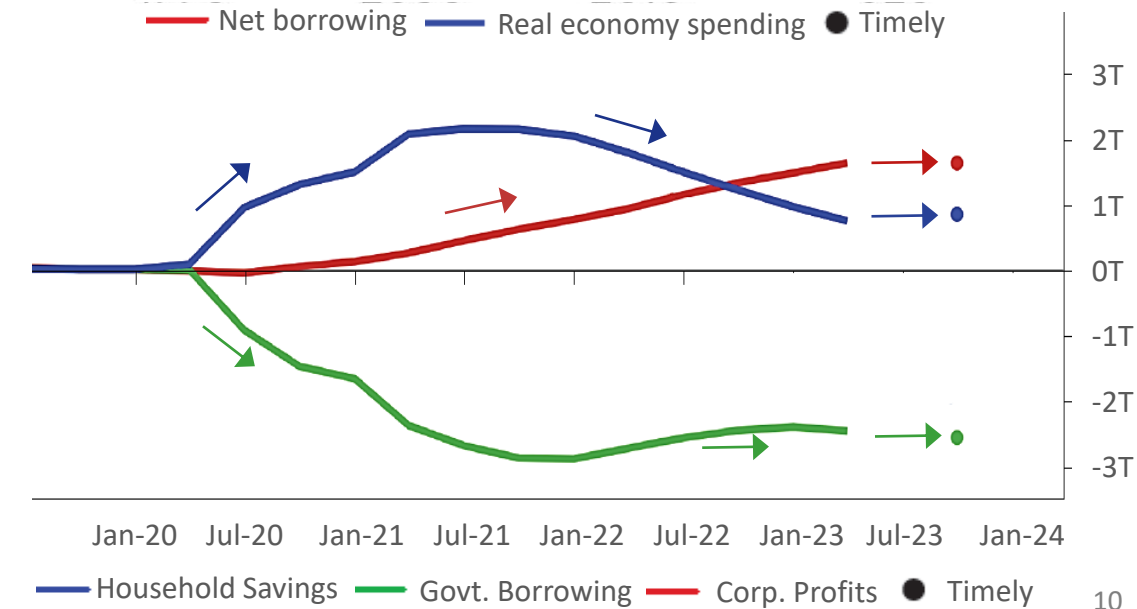


Source: Bridgewater.

Non-Fin corporate sources of funds (12m chg, % GDP)



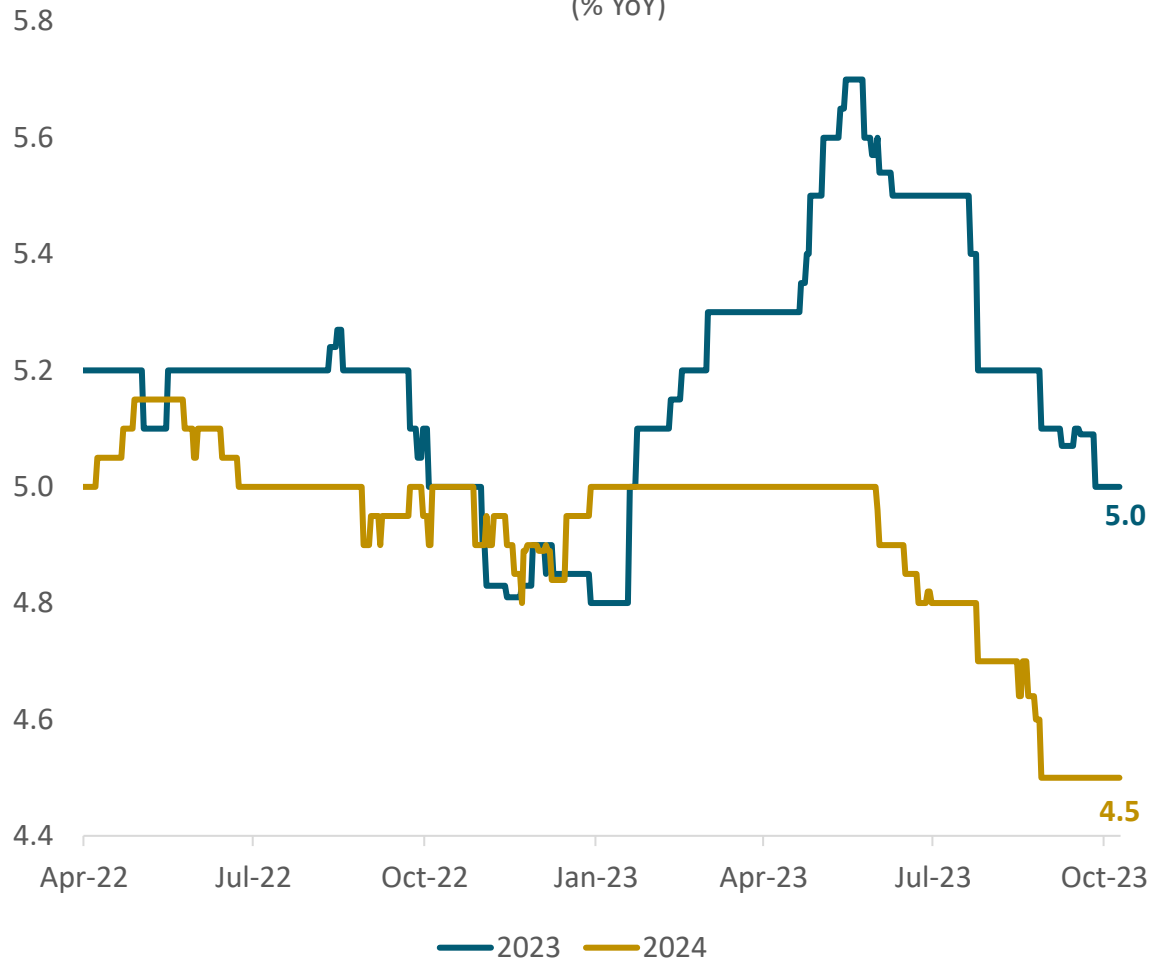
Cumulative flows relative to EoY 2019 baseline (USD)



Growth projections have been revised downward. The adjustment in the real estate sector has affected economic growth.

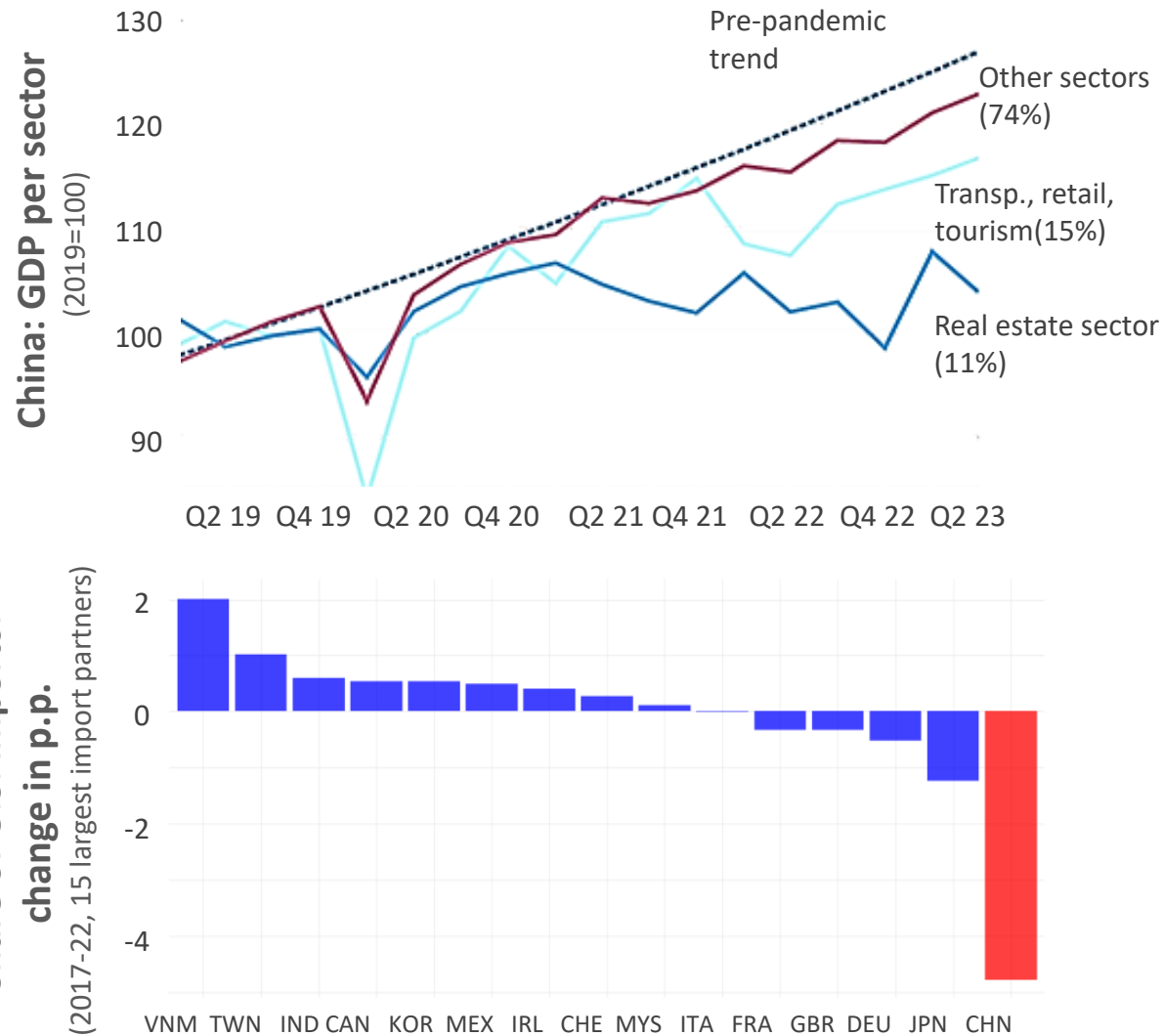
GDP Growth projections 2023-2024

(% YoY)

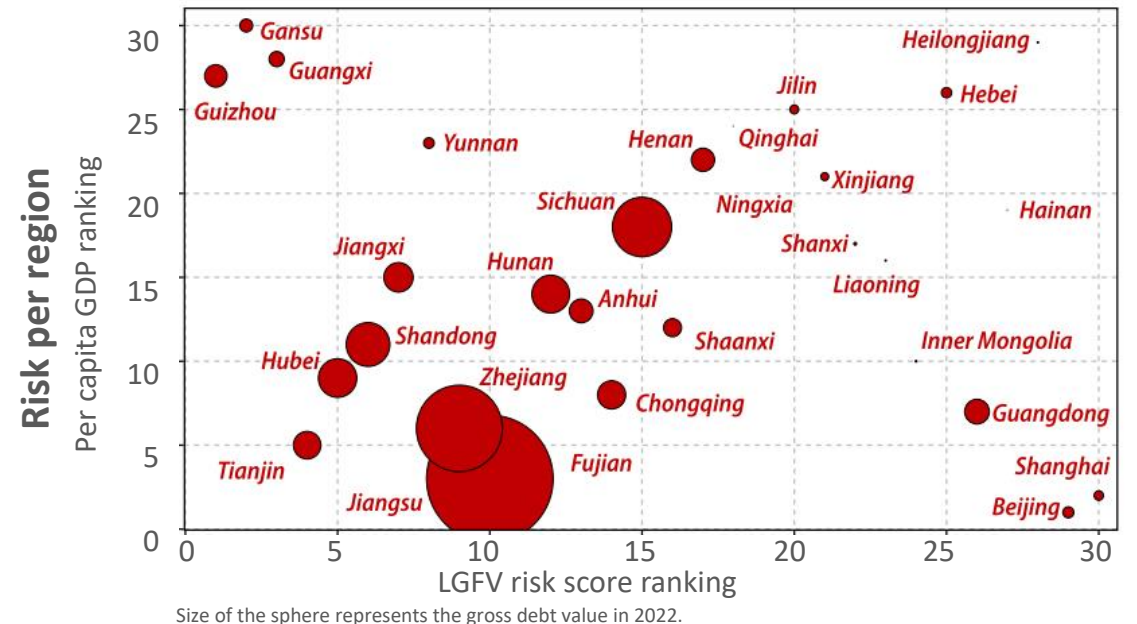
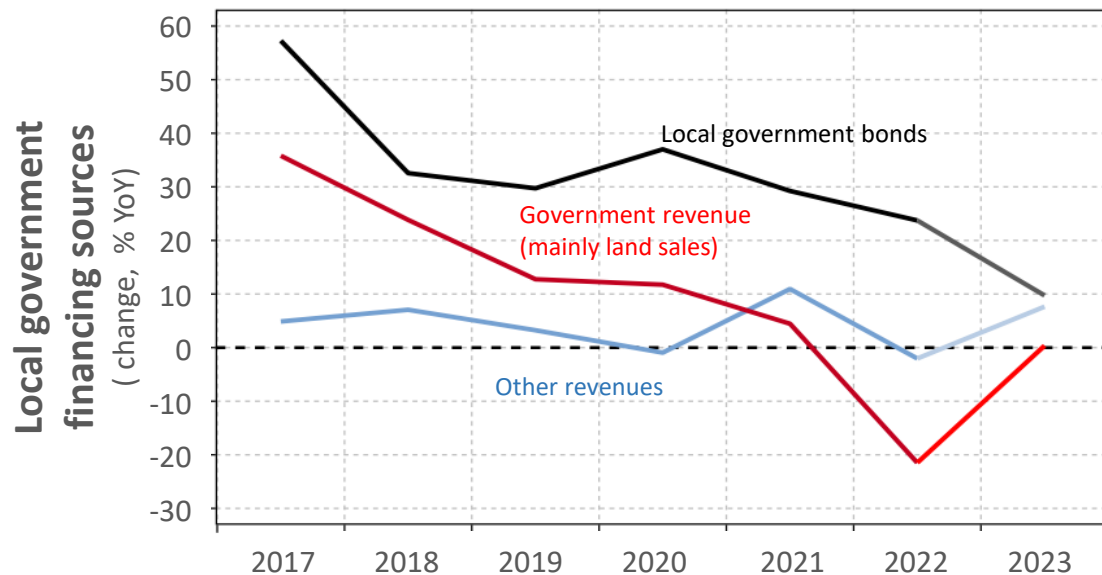
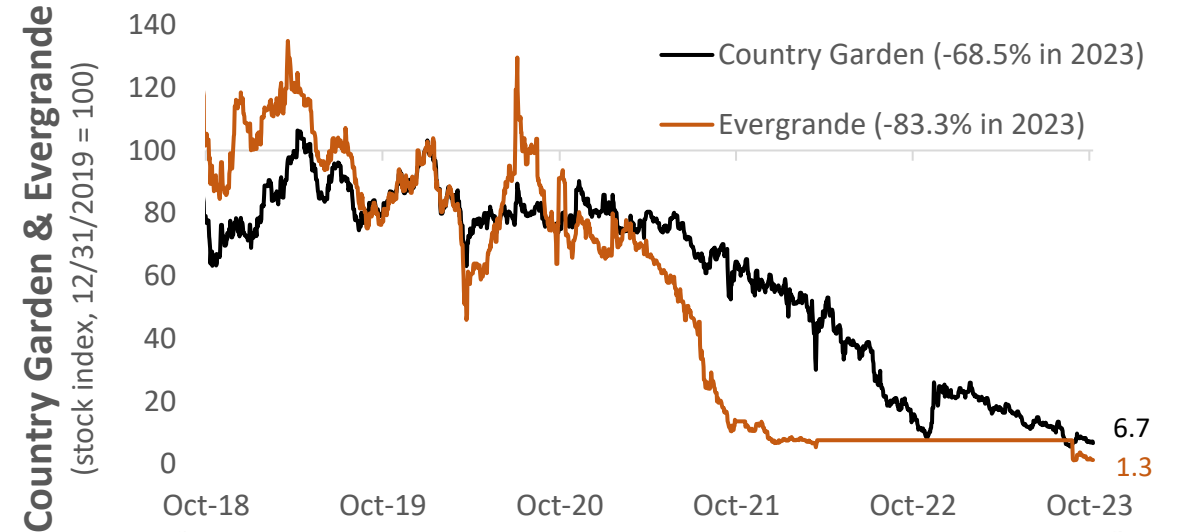
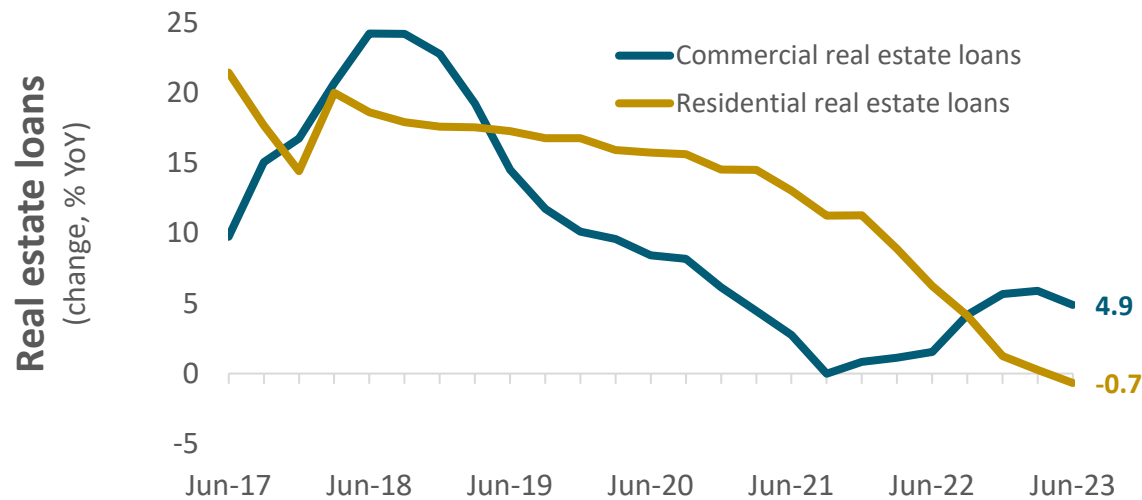


*Median of the projections by 73 institutions available on Bloomberg.

Sources: Bloomberg, Financial Times, and Laura Alfaro & Davin Chor.

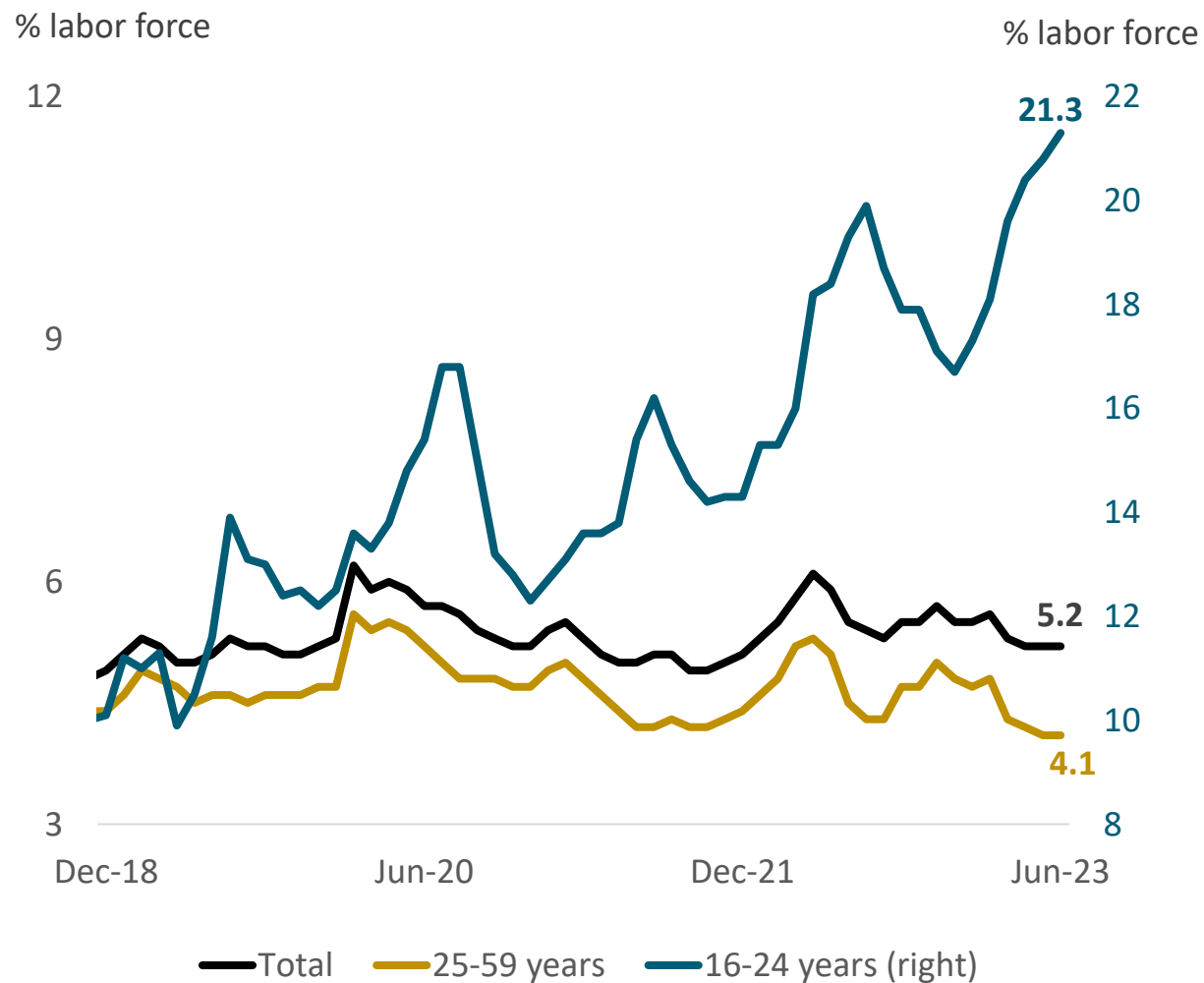


Even with government stimulus, demand for real estate loans has not responded. Problem more pronounced in smaller and poorer cities.

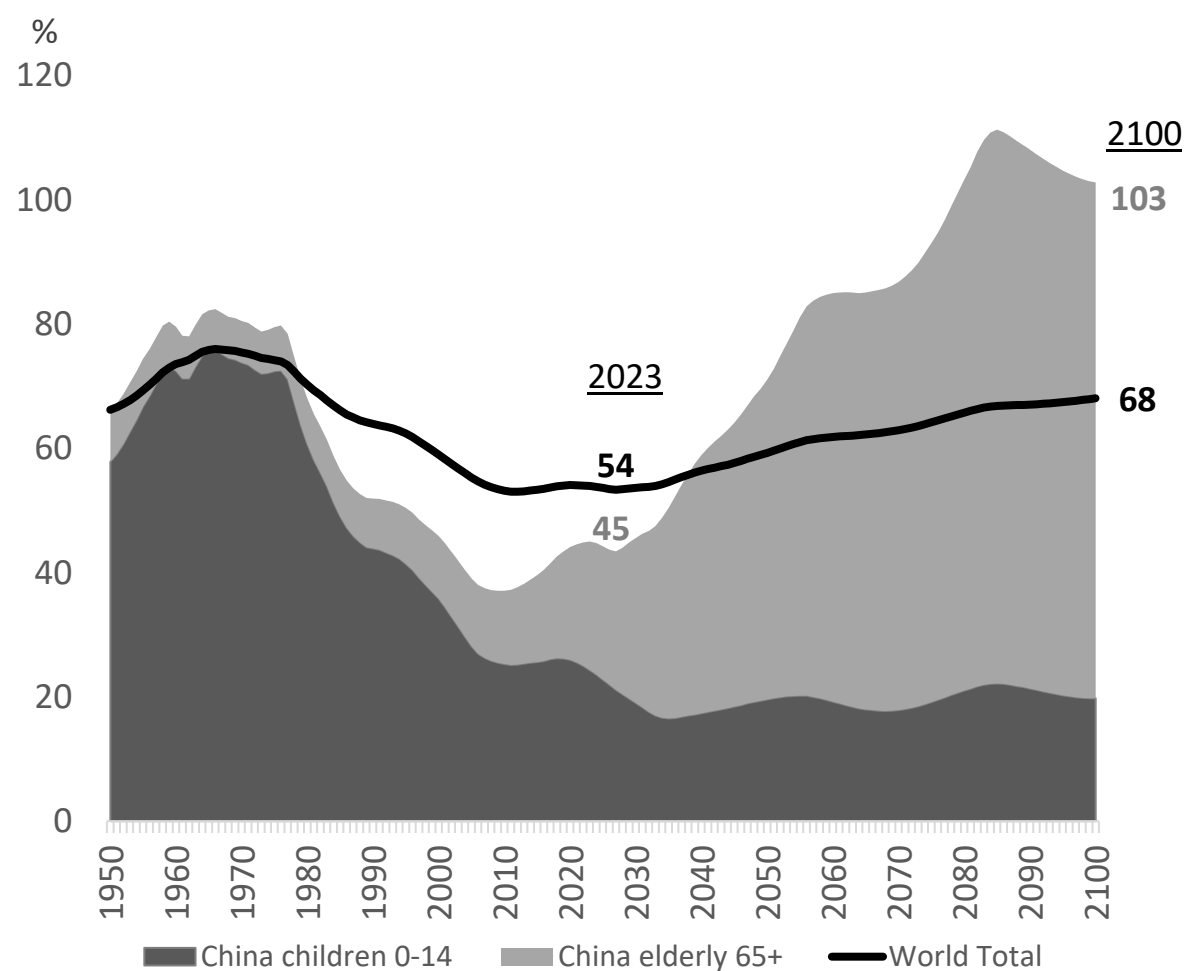


Rising youth unemployment and demographic ageing.

Total unemployment rate, adults (25-59) and young (16-24)



Population: China dependency ratio



Children: 0-14/15-64 years; Elderly: 65+/15-64 years; Total (0-14)+(65+)/ 15-64 years 13

Renewed geopolitical tensions with possible effects on inflation (especially on energy), economic activity and tightening of financial conditions.

Dollar index

Index: Dec, 31 2019 = 100

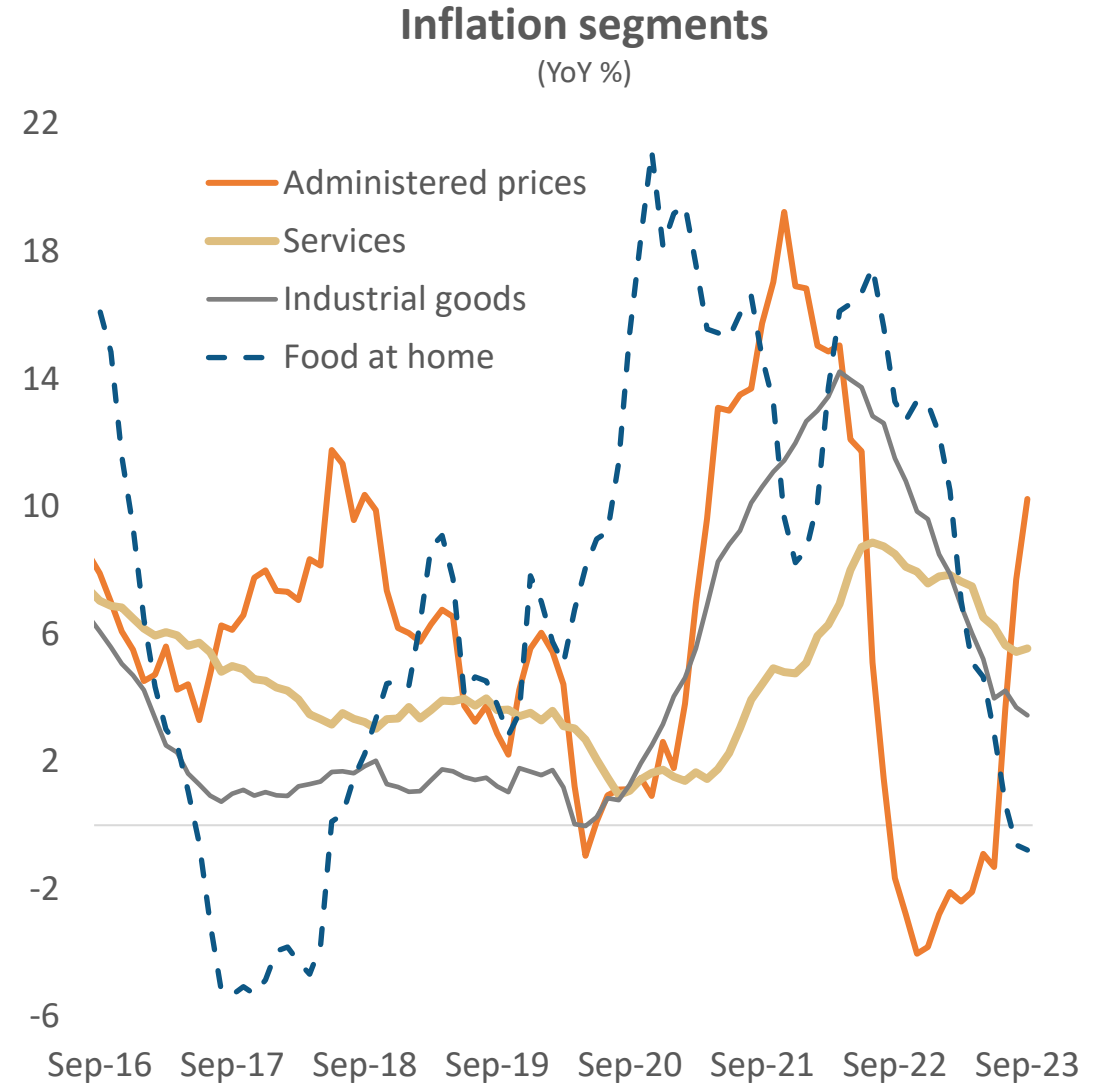
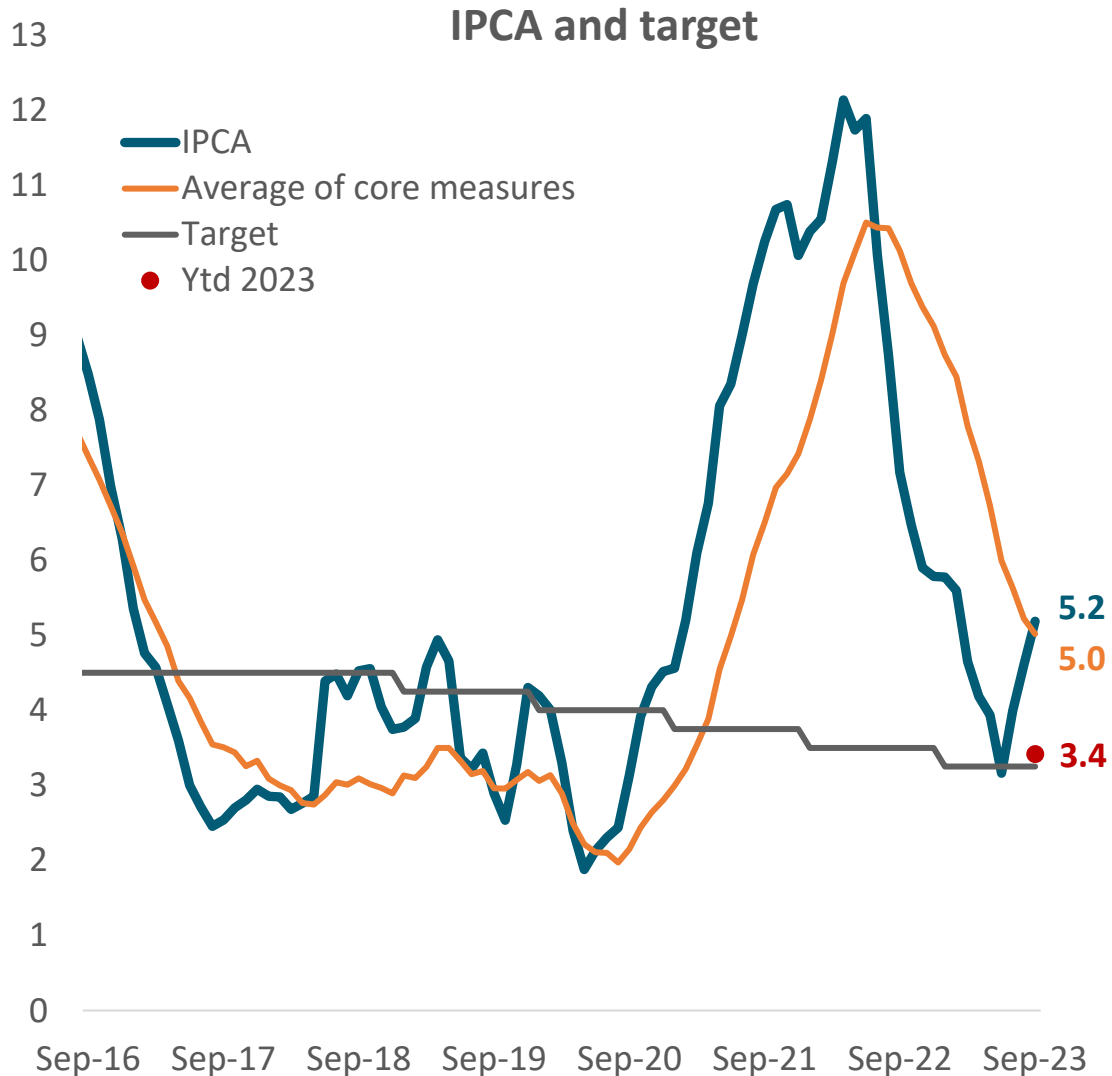


Oil price (Brent)

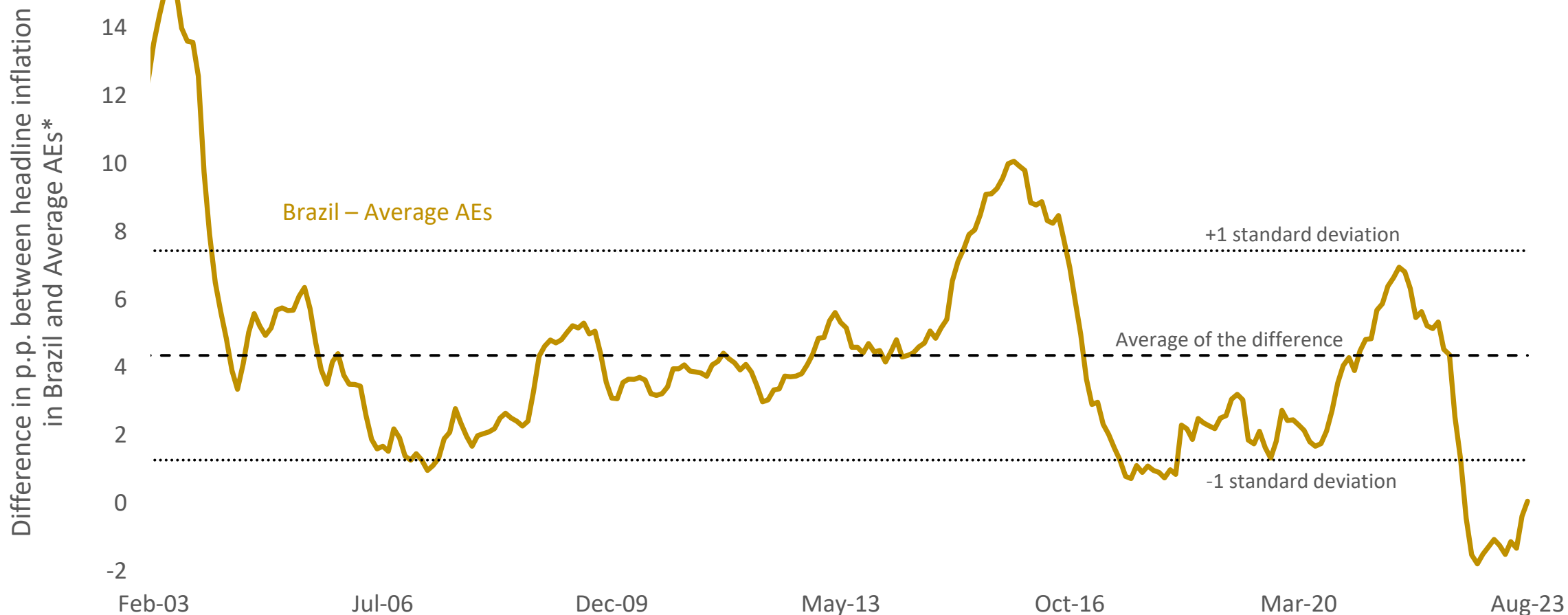
Index: Dec, 31 2019 = 100

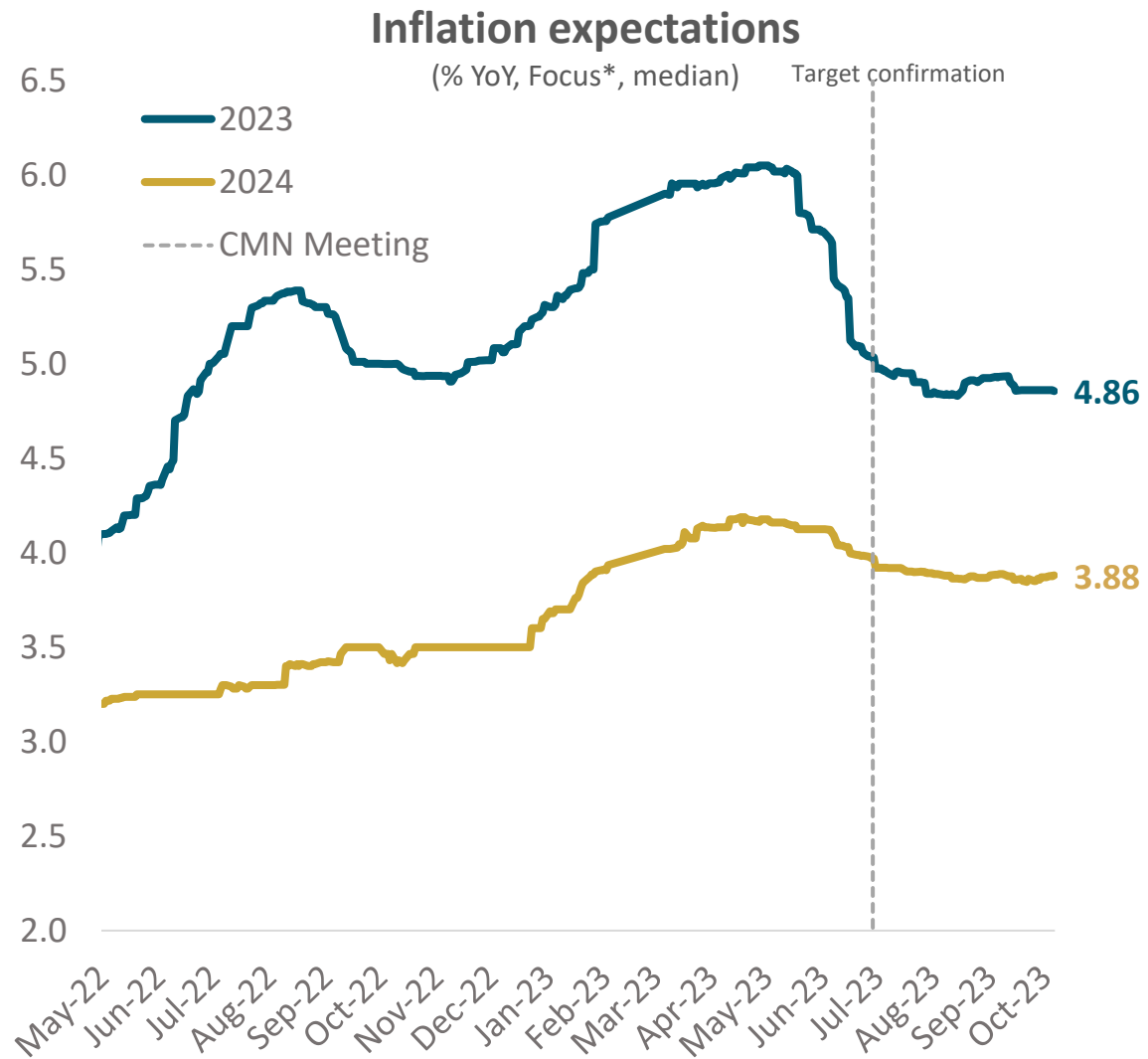


Services prices still resilient. Disinflation process tends to be slow and non-linear.

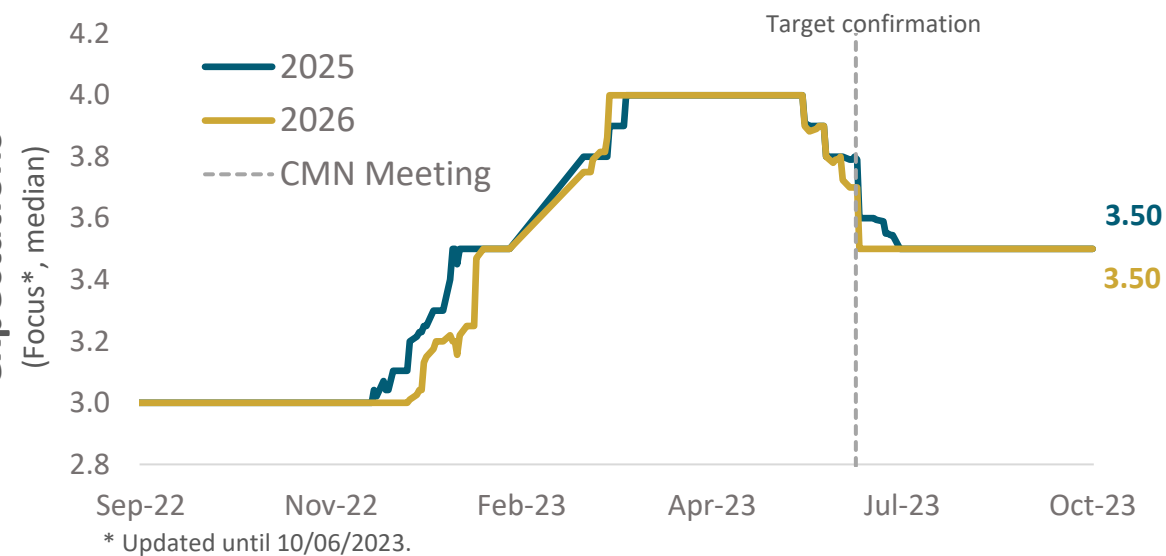


Headline inflation: Brazil vs AEs* (YoY)

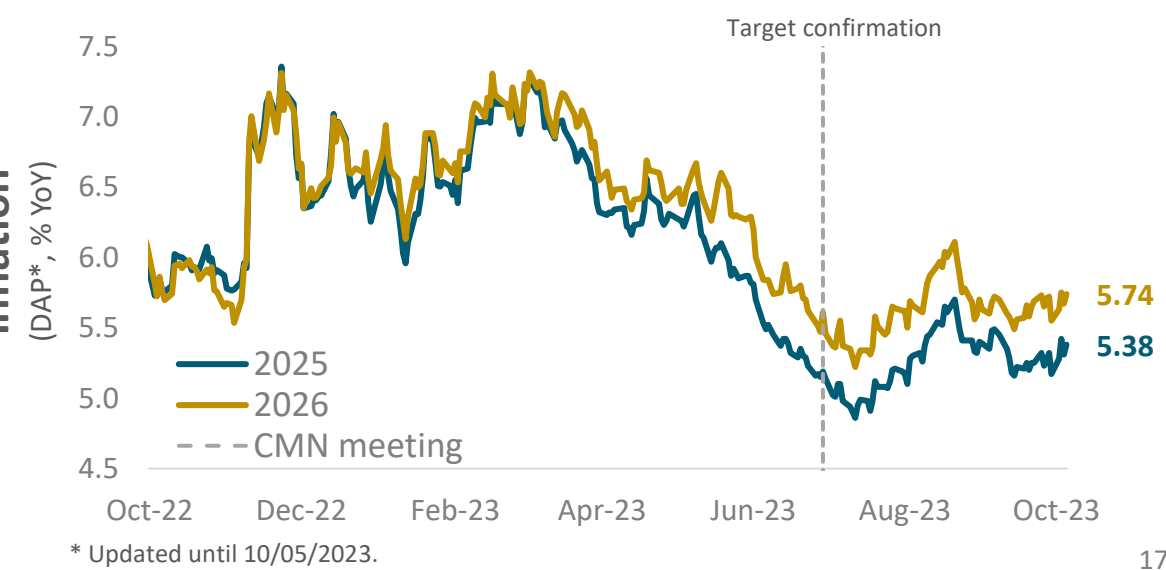




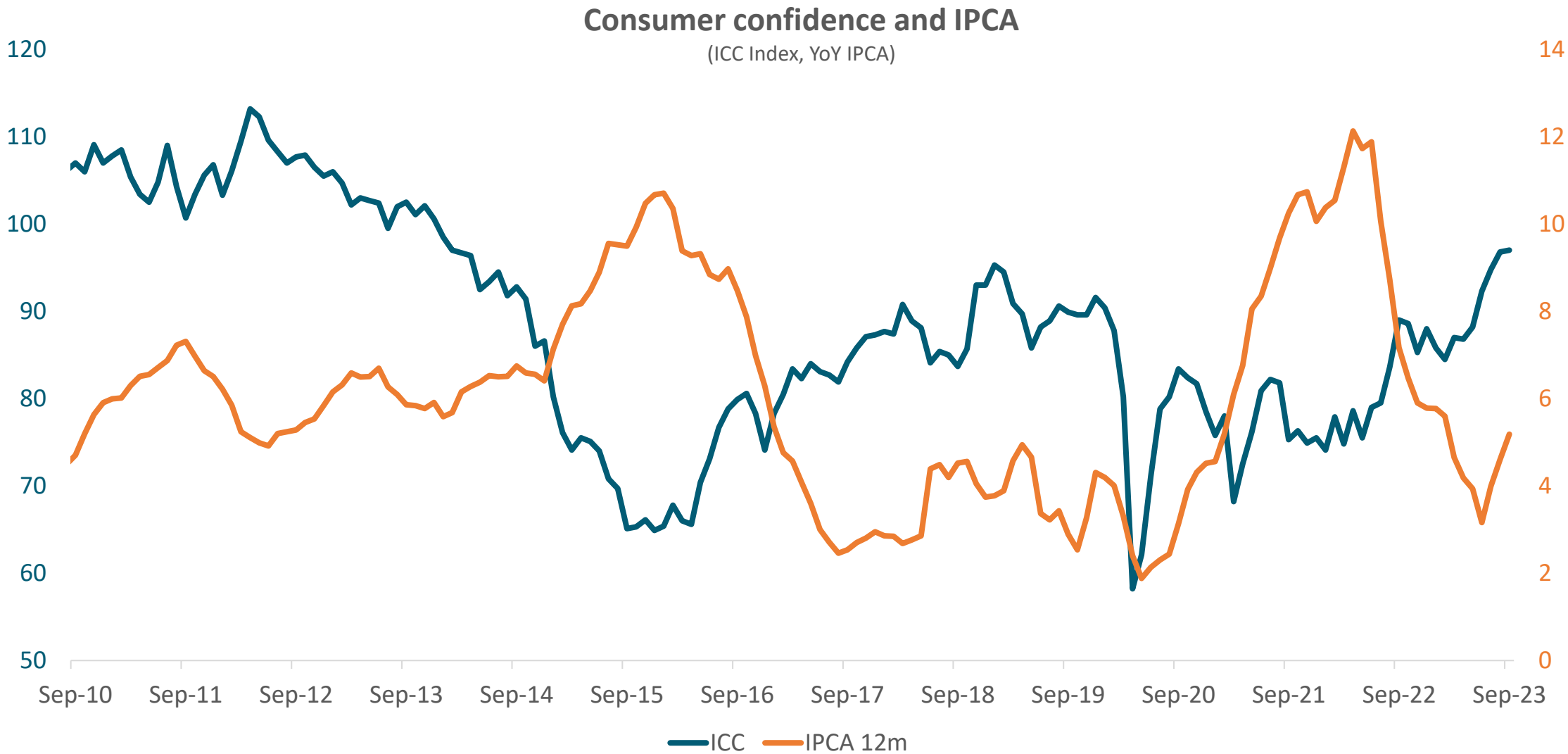
Long term inflation expectations



Long term break-even inflation

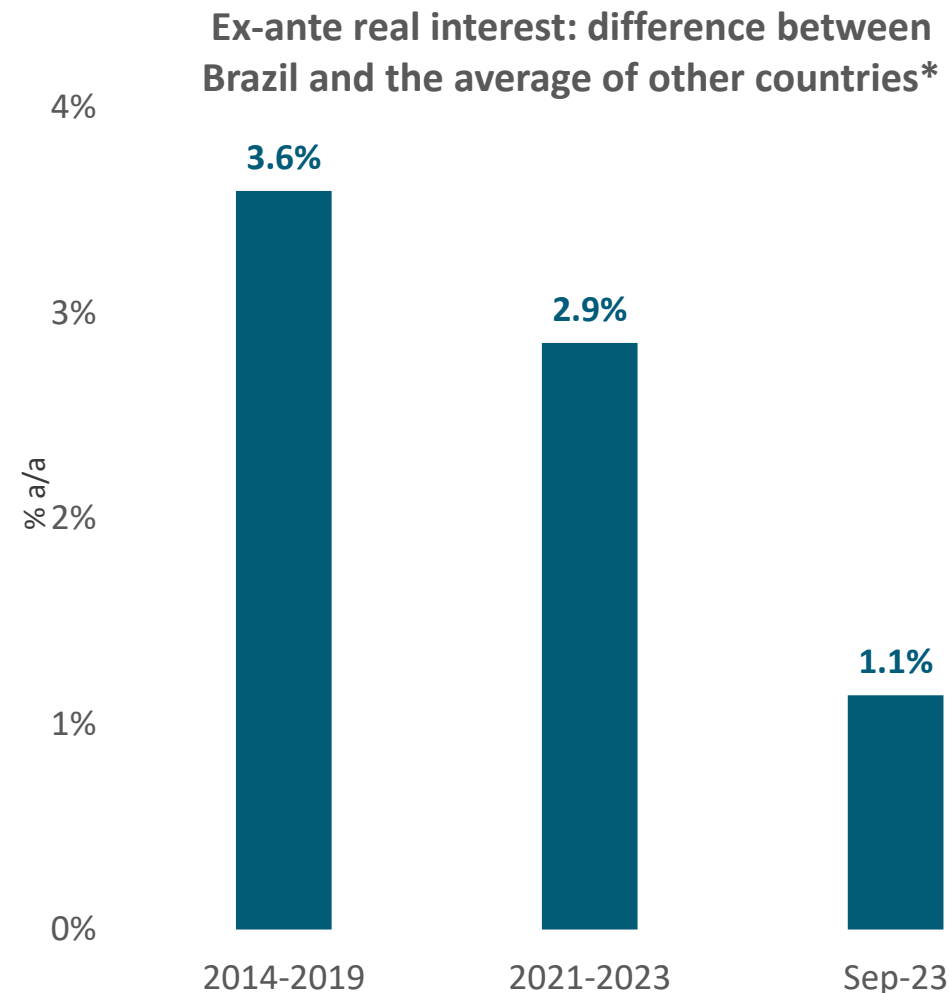
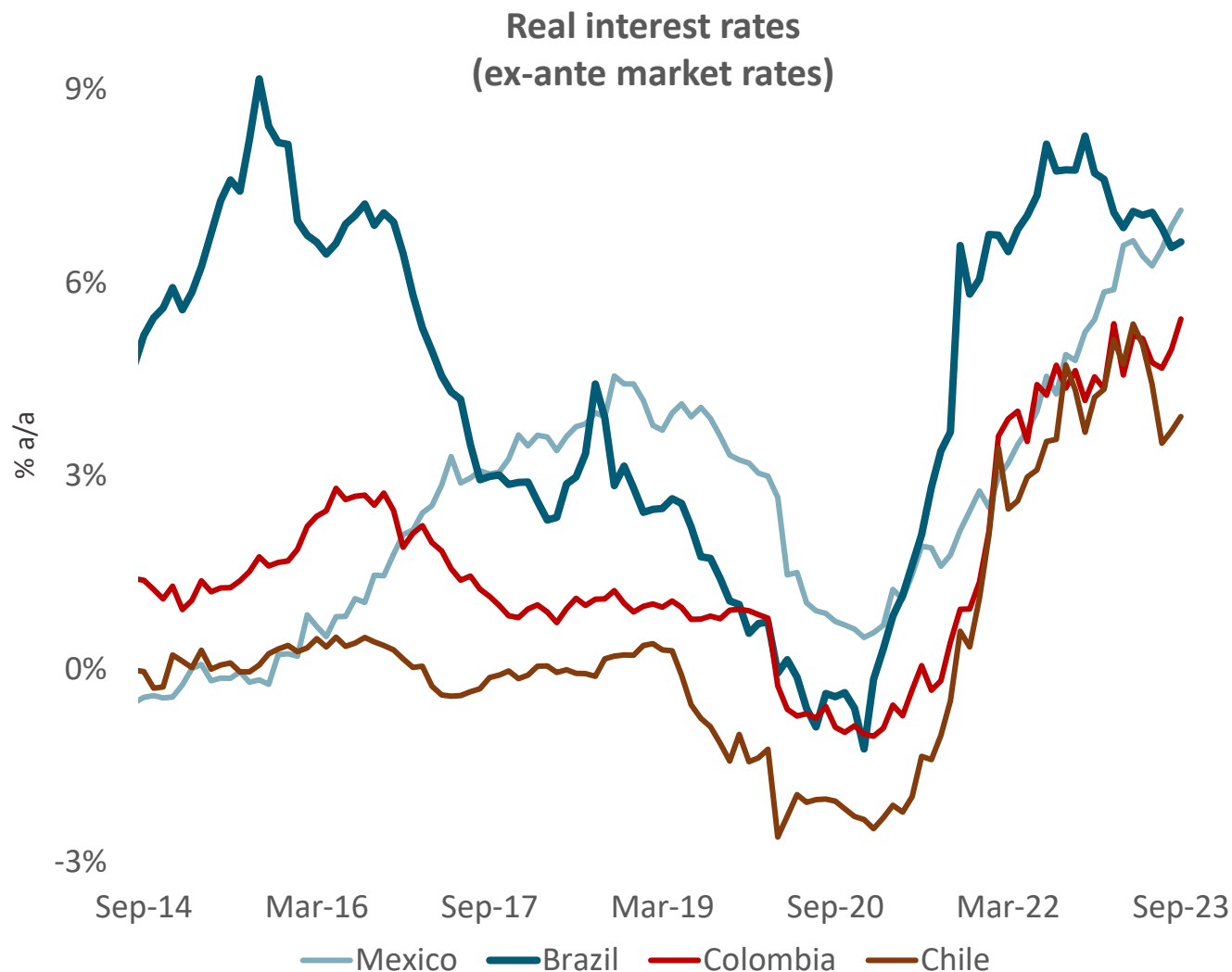


* Updated until 10/06/2023.
Source: BCB.



Obs: ICC Index: 100 = July 2010 to June 2015 average.

Over the last few decades, real interest rates in Brazil have shown a downward trend. Difference of ex-ante rates in relation to peers has also decreased.

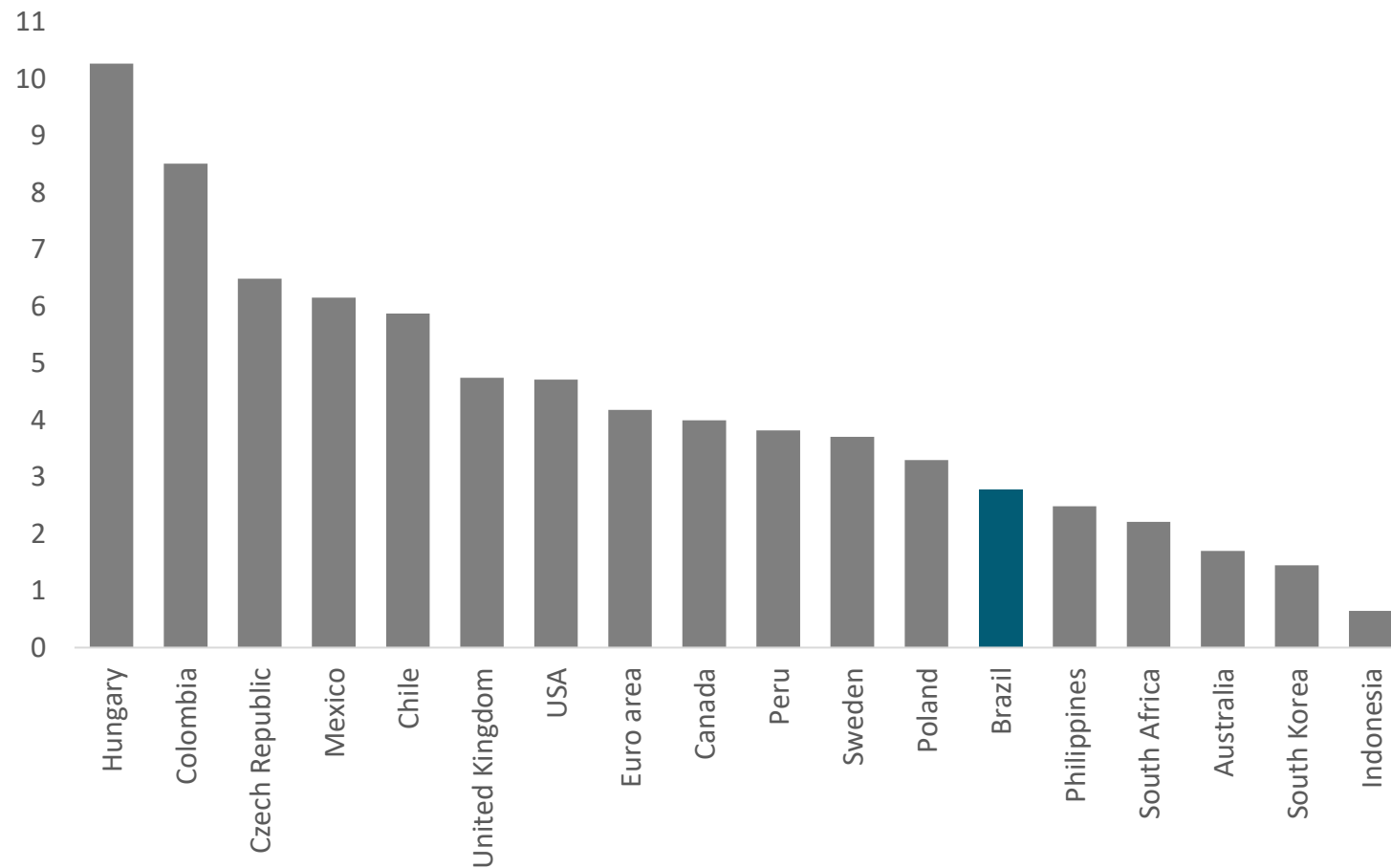


Sources: Bloomberg, countries' central banks.

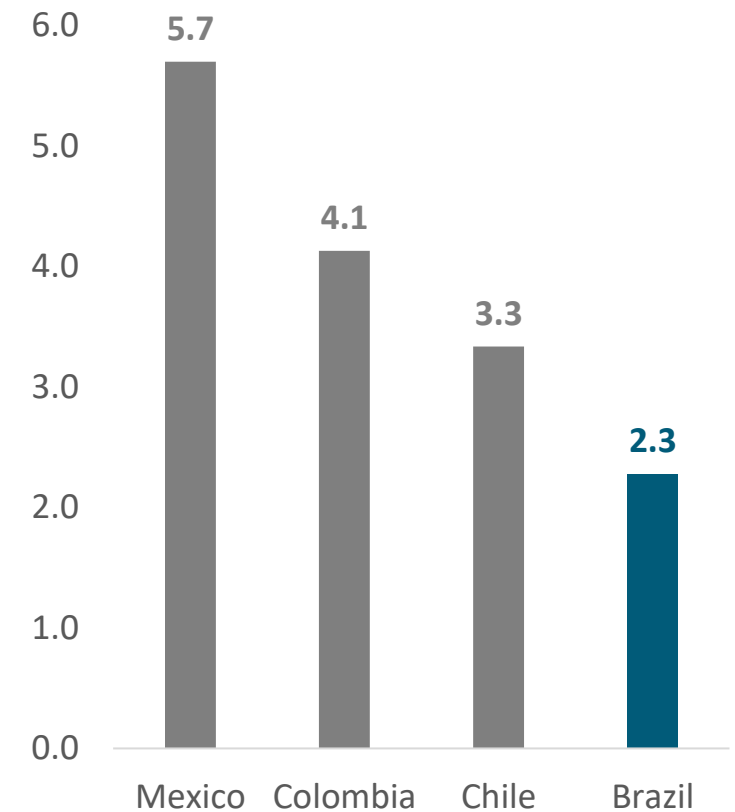
*Chile, Colombia, Mexico.

In Brazil, the increase in policy rates compared to the pre-pandemic period is lower than in other countries.

Difference between the current nominal policy rate and the 2011-2019 average
(p.p. YoY)



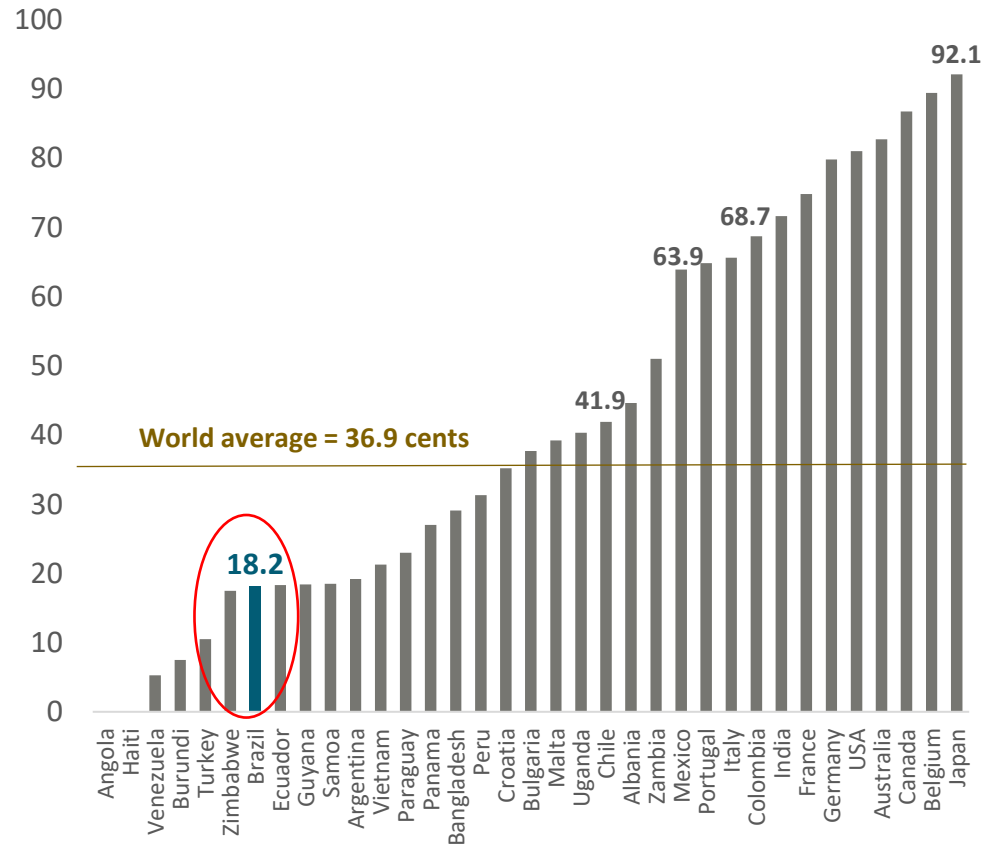
Difference between the current real interest rate* and the 2011-2019 average
(*ex-ante* interest rate, p.p. YoY)



* Last ex-ante real interest rate available, as of September 2023.

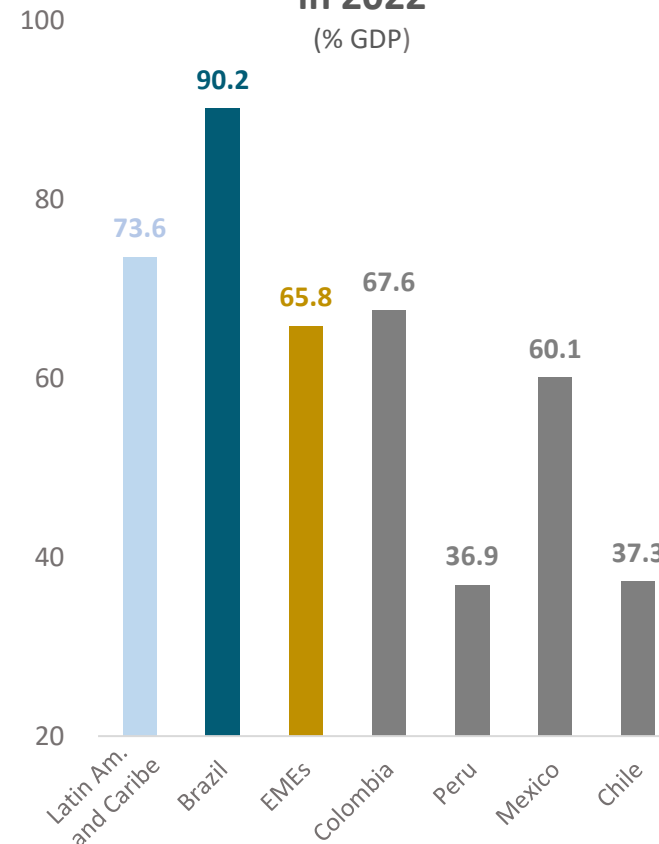
High interest rates are explained by structural features.

Credit recovery rate*
Cents by US\$ 1 (2020)

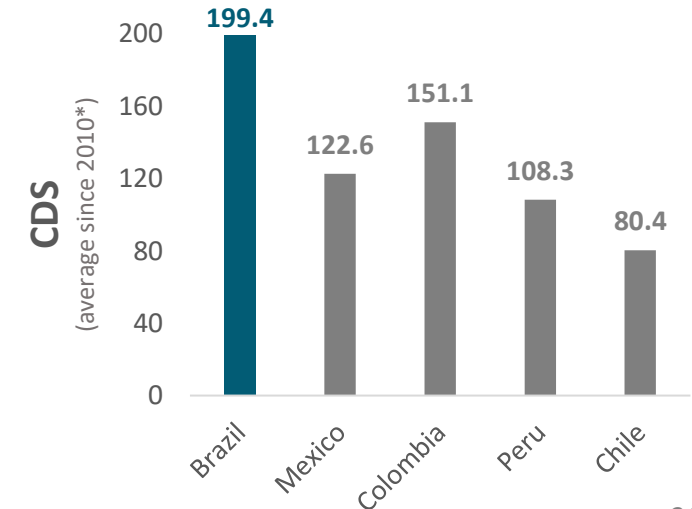
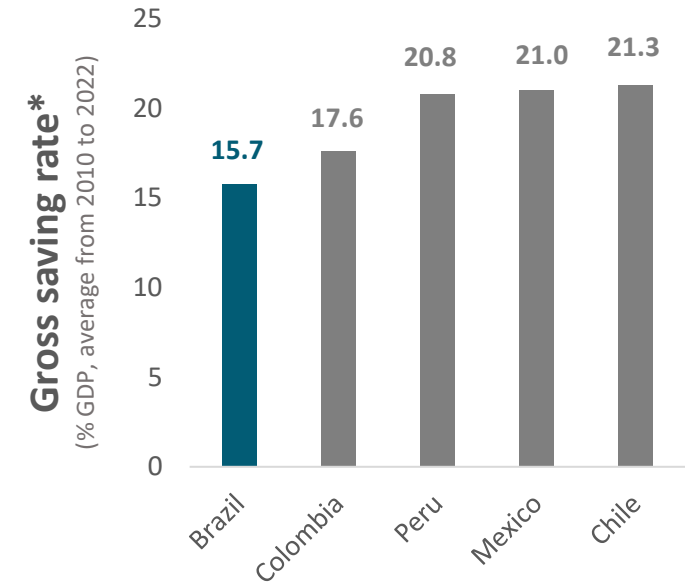


* Amount recovered by creditors when debts are enforced.

General Government Gross Debt*
in 2022
(% GDP)



*IMF debt concept

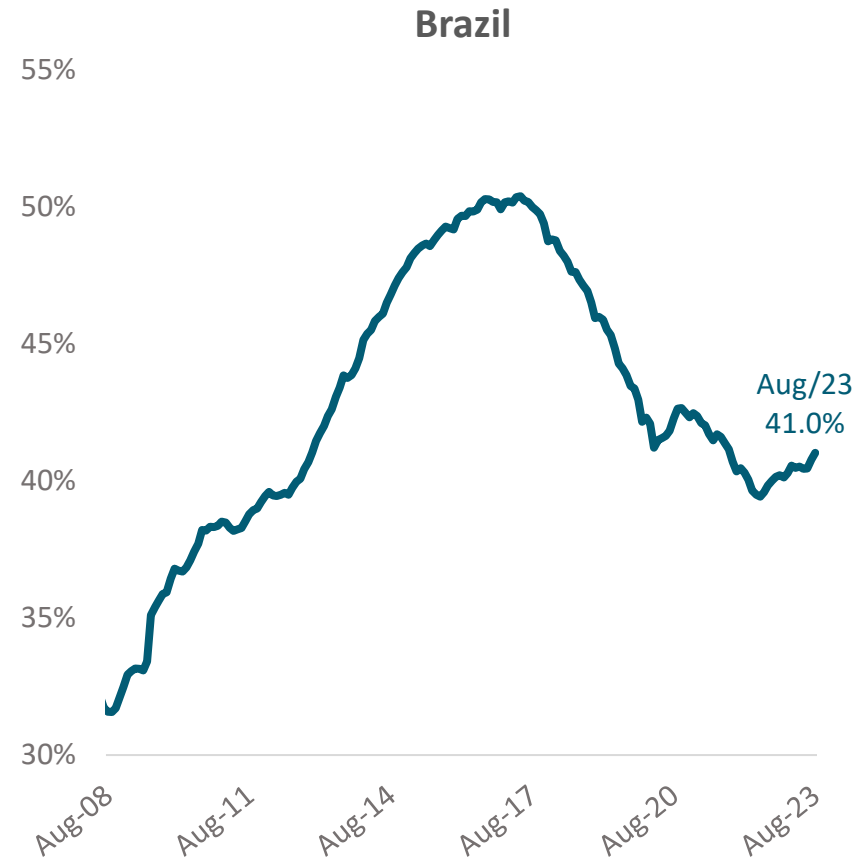


*Until 10/06/2023

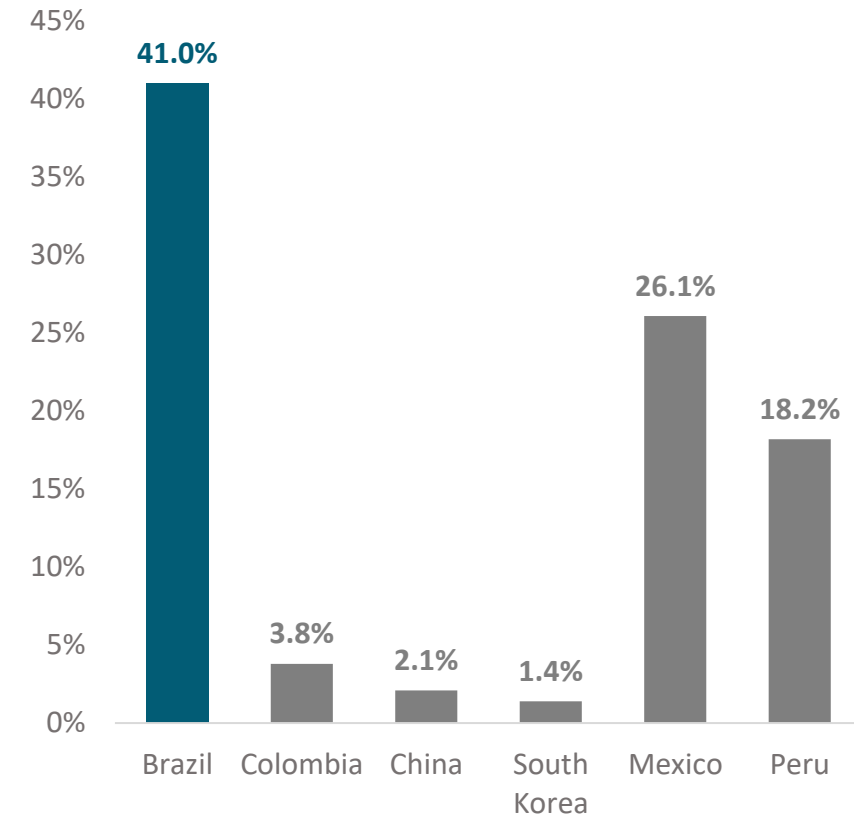
The earmarked credit generates higher interest rates on other credit lines in Brazil.

- The proportion of earmarked credit in Brazil is much higher than those observed in other countries which has this modality of credit.
- In Mexico, although the proportion of earmarked credit is high, there is no negative *spread* as there is in Brazil.

Earmarked credit proportion
(in total credit amount)

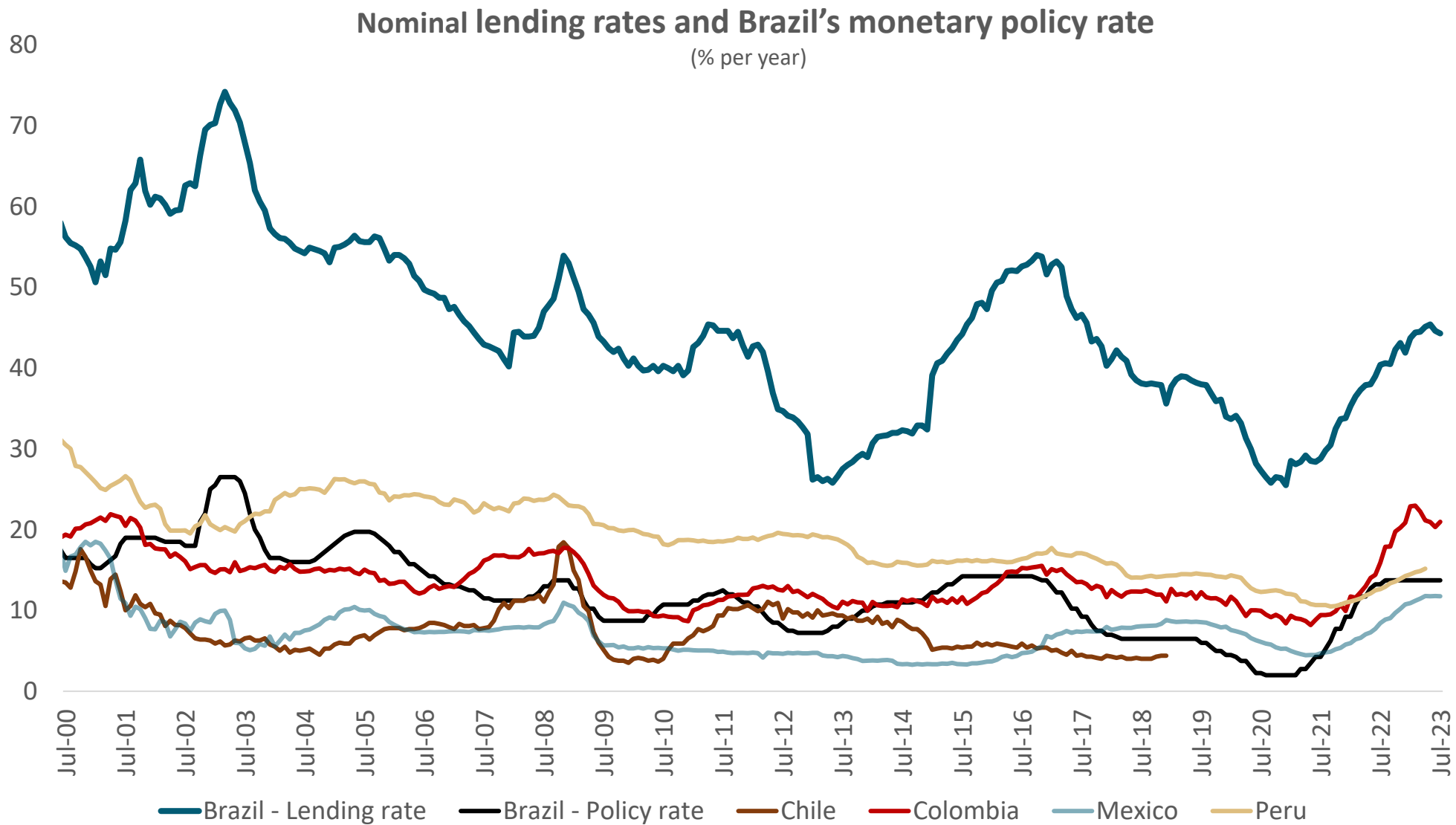


Comparison with other countries*



• In Brazil, earmarked credit is “one in which resources or rates regulated (by BCB or by other Government Authority)”. As it is not a prevalent form of credit, other countries usually do not have specific data about this market. The figures above are the best estimate considering available international data. Brazilian figures are from August/2023, while other countries figures are from December/2022.

Why are interest rates so high in Brazil?

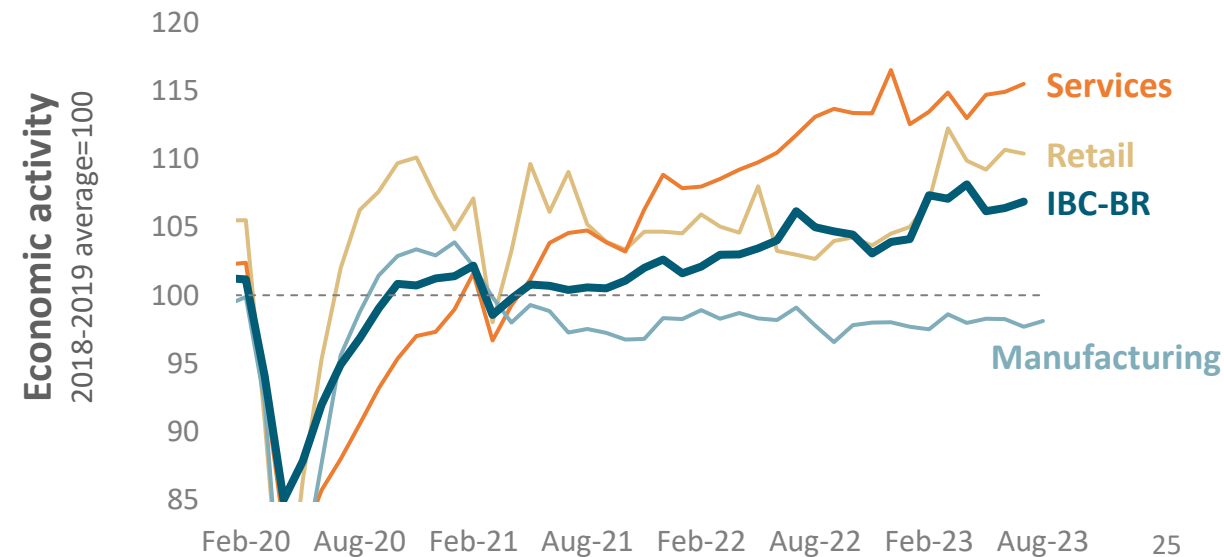
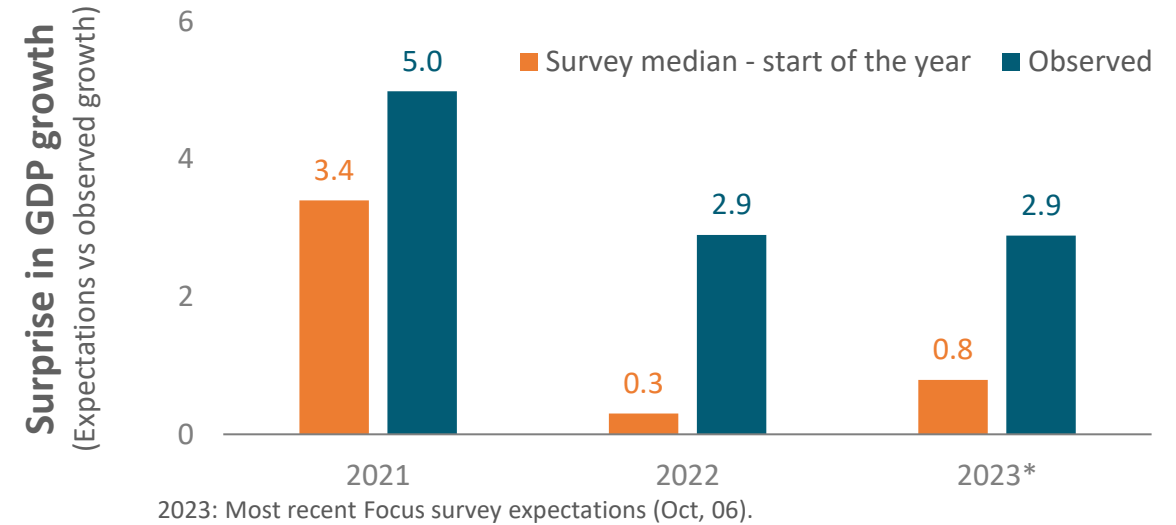
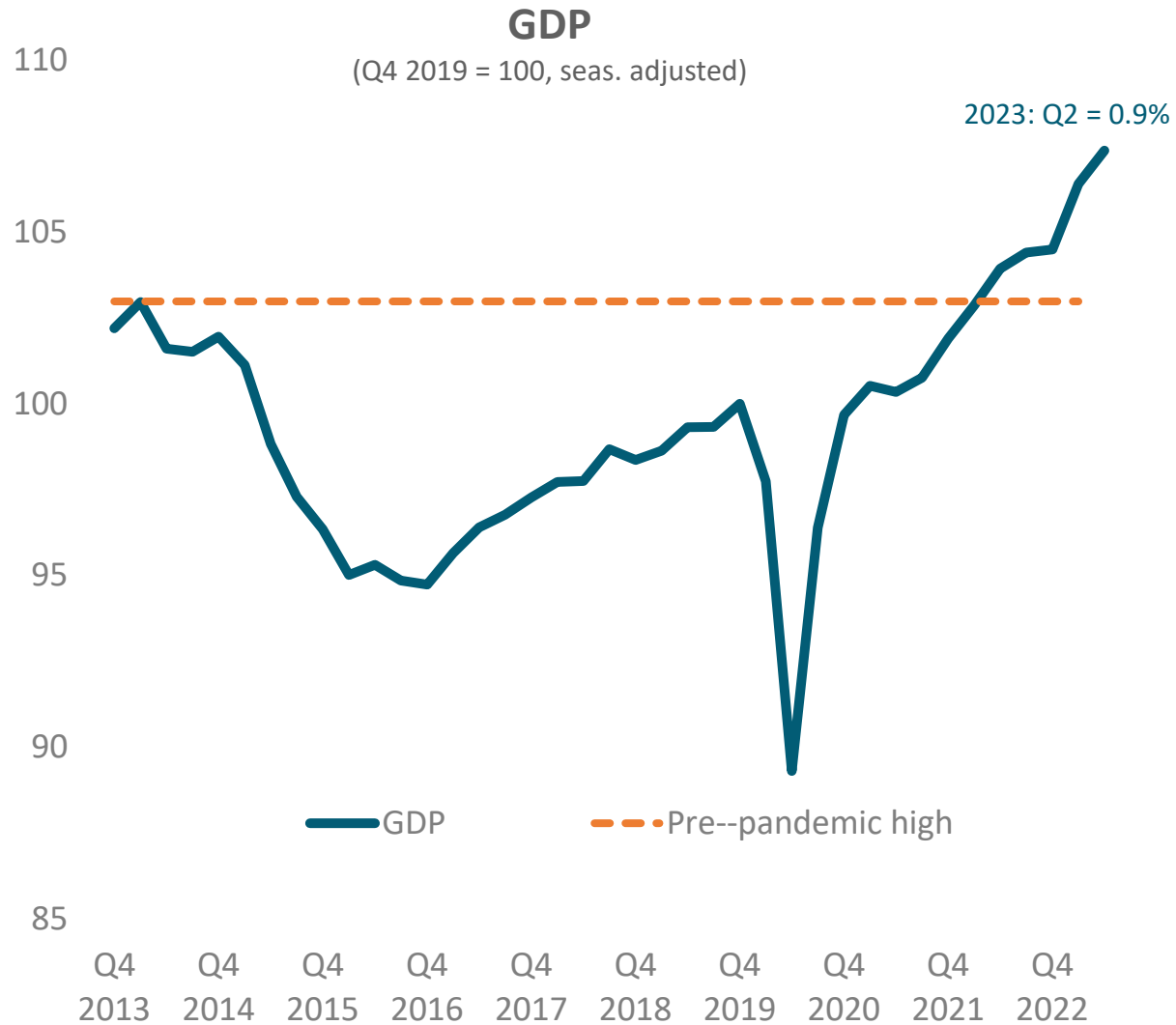


Sources: IMF, BCB.

257th Copom meeting – September 2023

- Considering the evolution of the disinflationary process, the assessed scenarios, the balance of risks, and the broad array of available information, Copom decided to reduce the Selic rate by 0.50 percentage point, to 12.75% p.a., and judges that this decision is consistent with the strategy for inflation convergence to a level around its target throughout the relevant horizon for monetary policy, which includes the year of 2024 and, to a lesser extent, 2025.
- The current context, characterized by a stage in which the disinflationary process tends to be slower and with partial reanchoring of inflation expectations, requires serenity and moderation in the conduct of monetary policy.
- The Committee reinforces the need to persist on a contractionary monetary policy until the disinflationary process consolidates, and inflation expectations anchor around its targets.
- If the scenario evolves as expected, the Committee members unanimously anticipate further reductions of the same magnitude in the next meetings and judge that this pace is appropriate to keep the necessary contractionary monetary policy for the disinflationary process.
- The Committee emphasizes that the total magnitude of the easing cycle throughout time will depend on the inflation dynamics, especially the components that are more sensitive to monetary policy and economic activity, on inflation expectations, in particular the longer-term ones, on its inflation projections, on the output gap, and on the balance of risks.

Growth has shown resilience, with positive surprises in GDP.

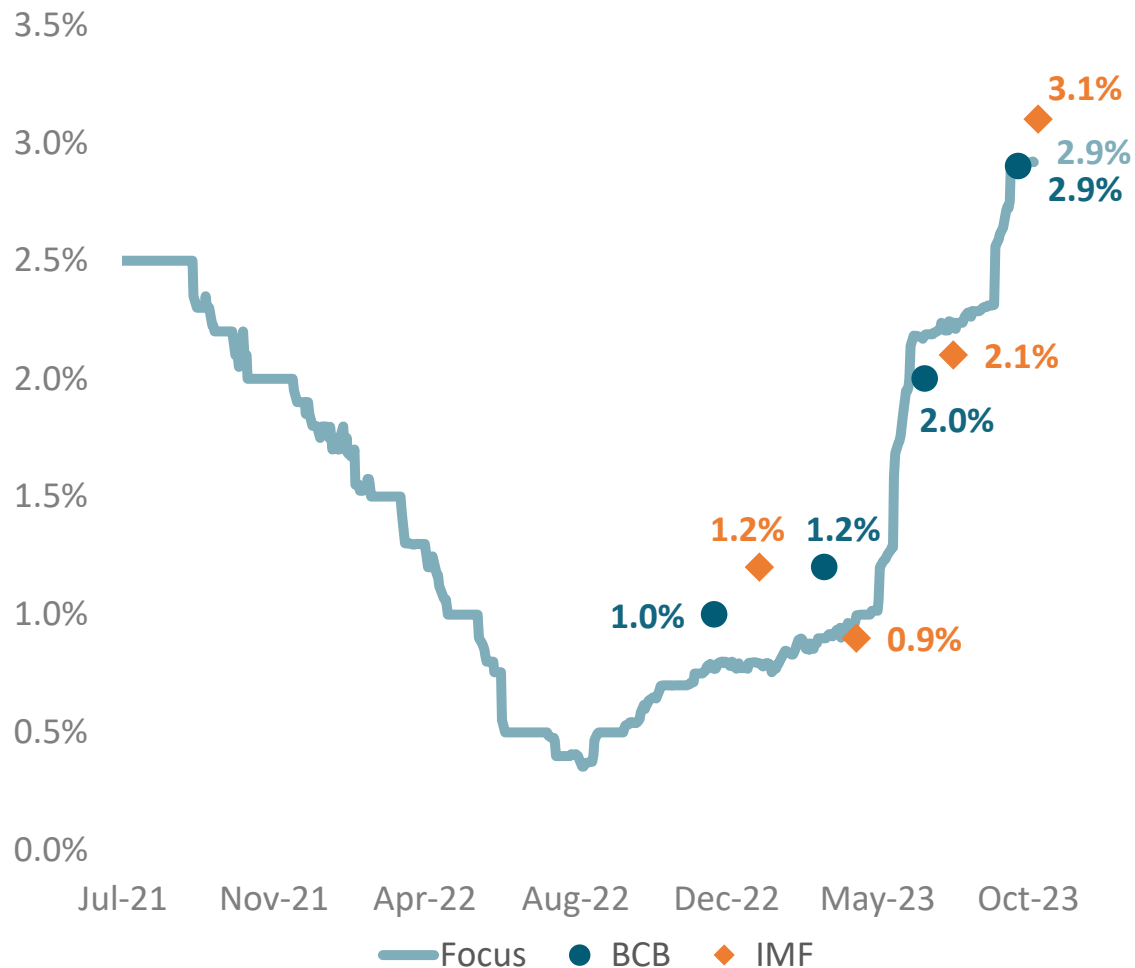


Source: IBGE, with BCB's seasonal adjustment, BCB Focus.

Upward revision in Brazil's GDP growth expectations for 2023.

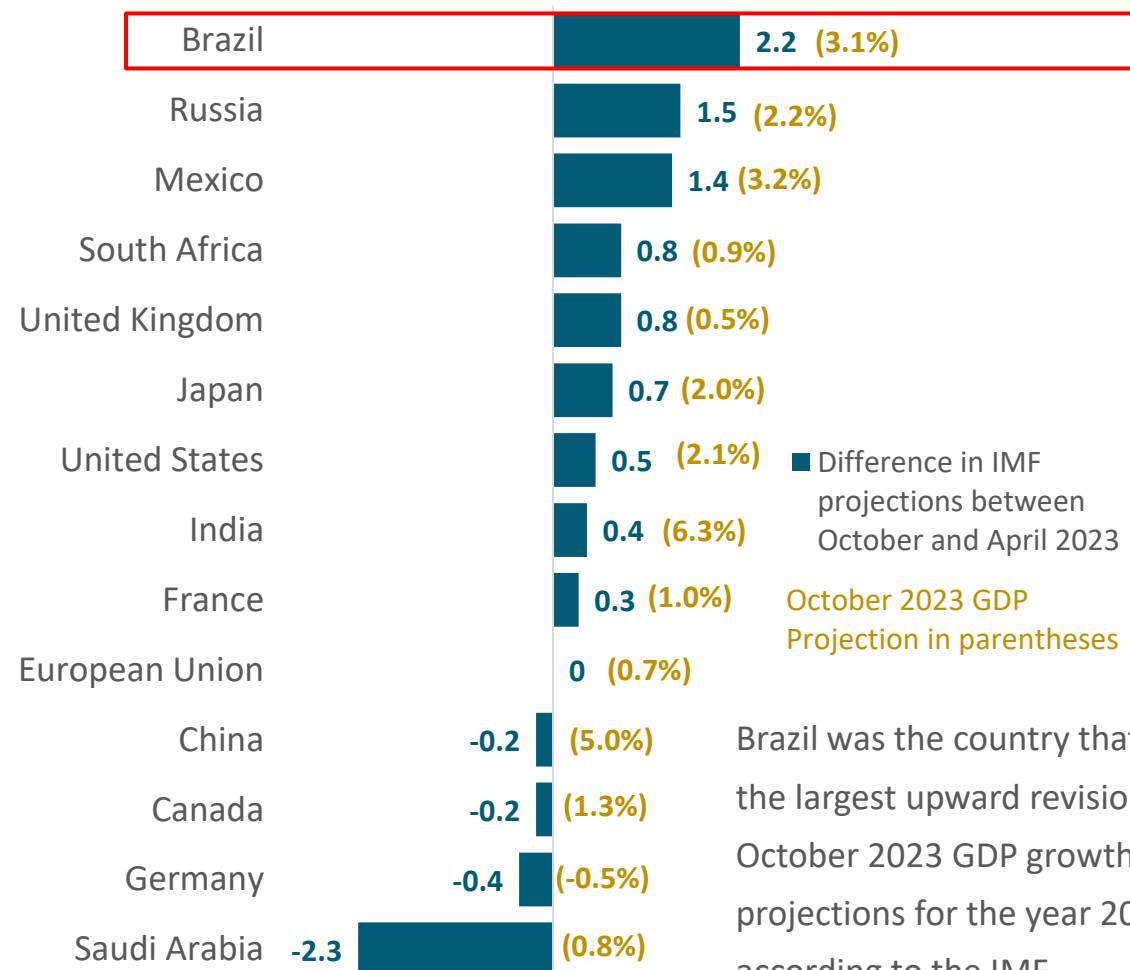
2023 GDP forecast

Median



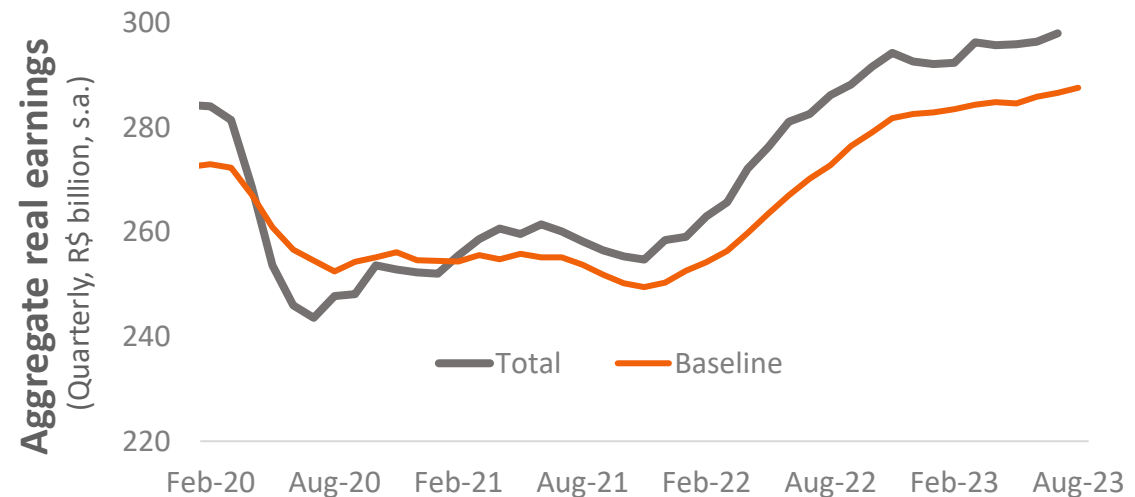
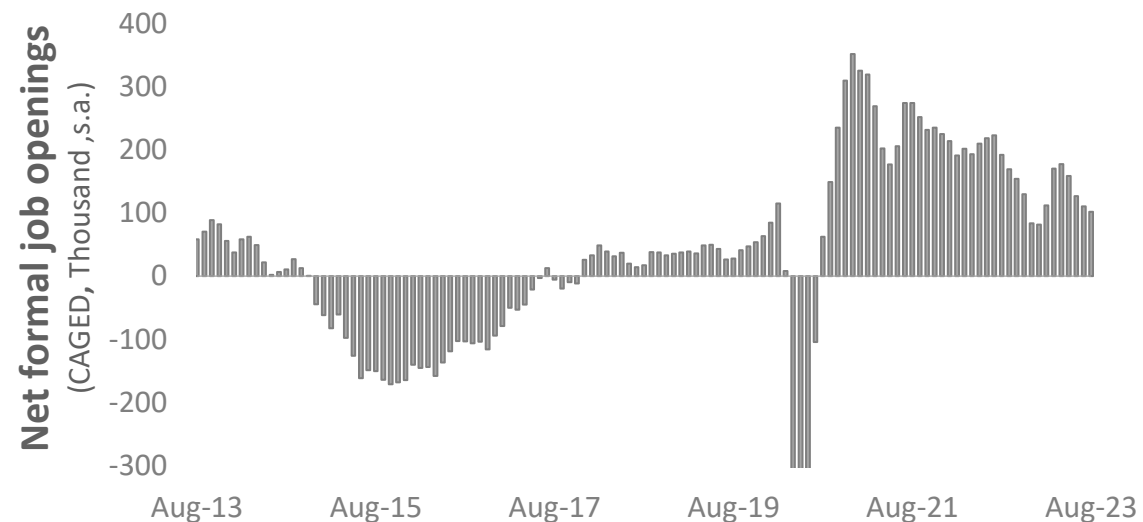
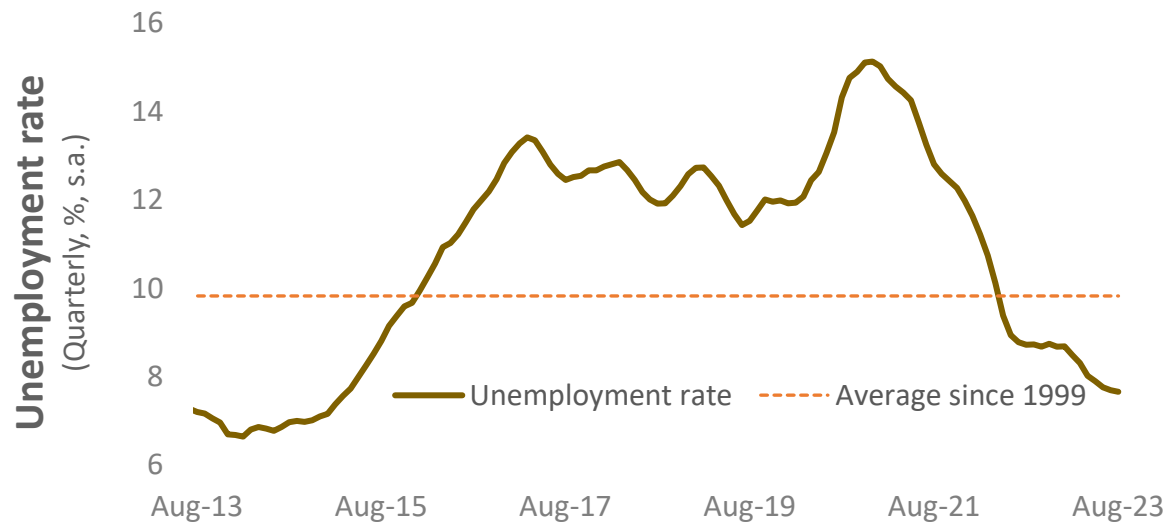
IMF Projections – 2023 GDP: Difference between October and April

(in p.p. and %)



Brazil was the country that had the largest upward revision in the October 2023 GDP growth projections for the year 2023, according to the IMF.

Labor market shows resilience: unemployment rate still going down.

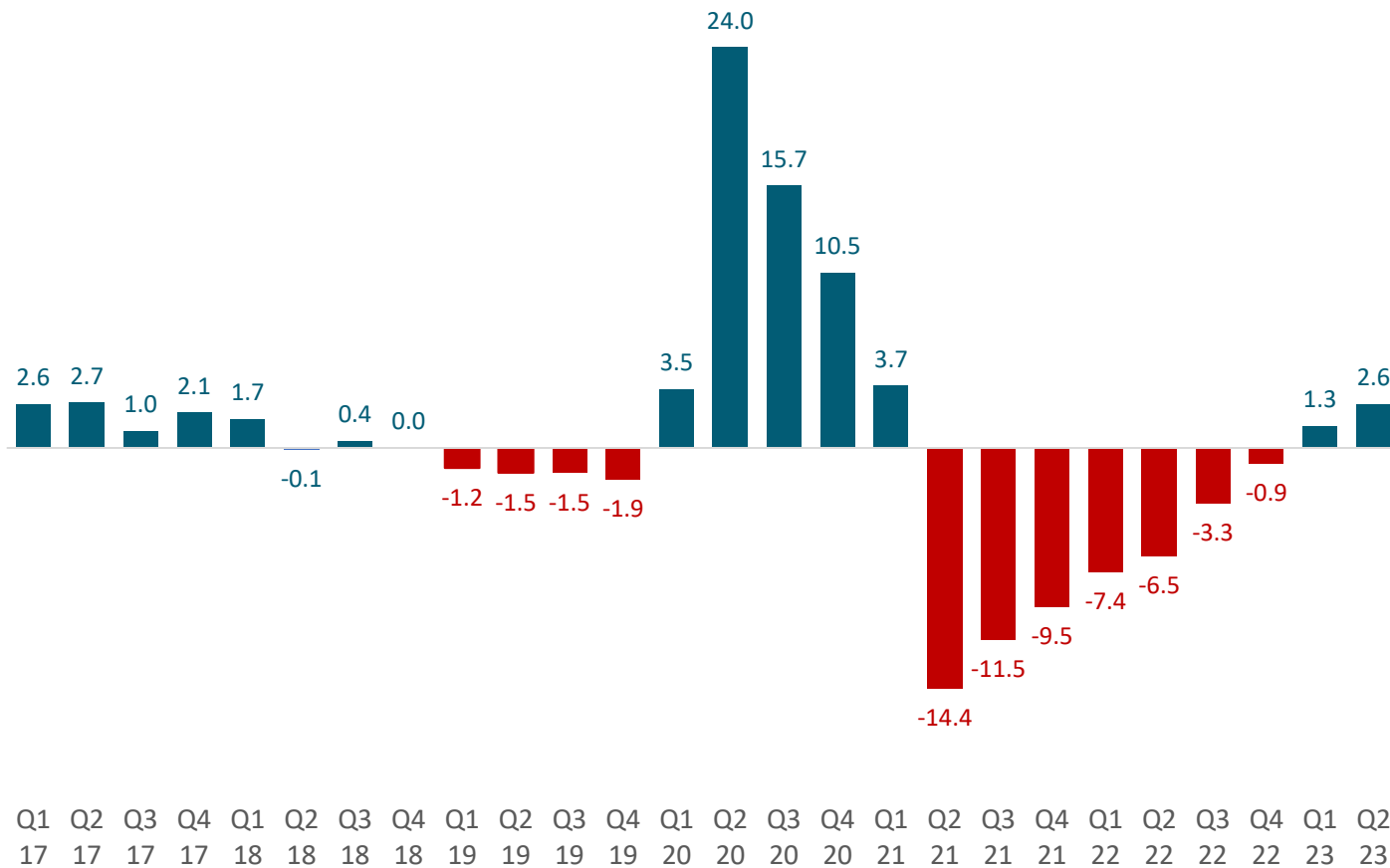


Source: IBGE, seasonally adjusted by the BCB.

Labor productivity in Brazil grew in the first two quarters of 2023, after seven consecutive quarters of decline.

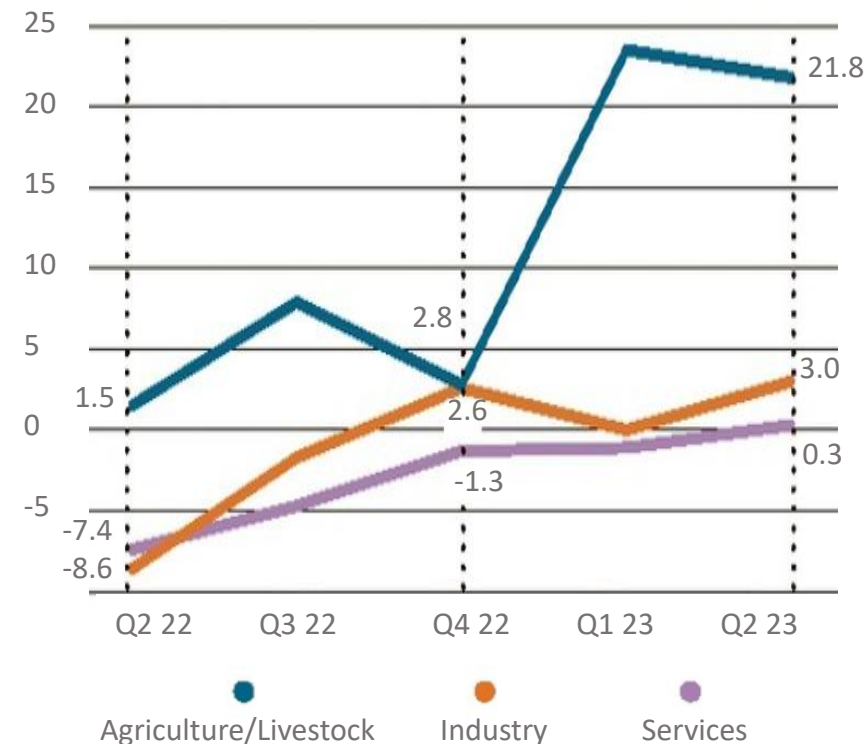
Productivity per hour worked

(% change compared to the same period of the previous year)



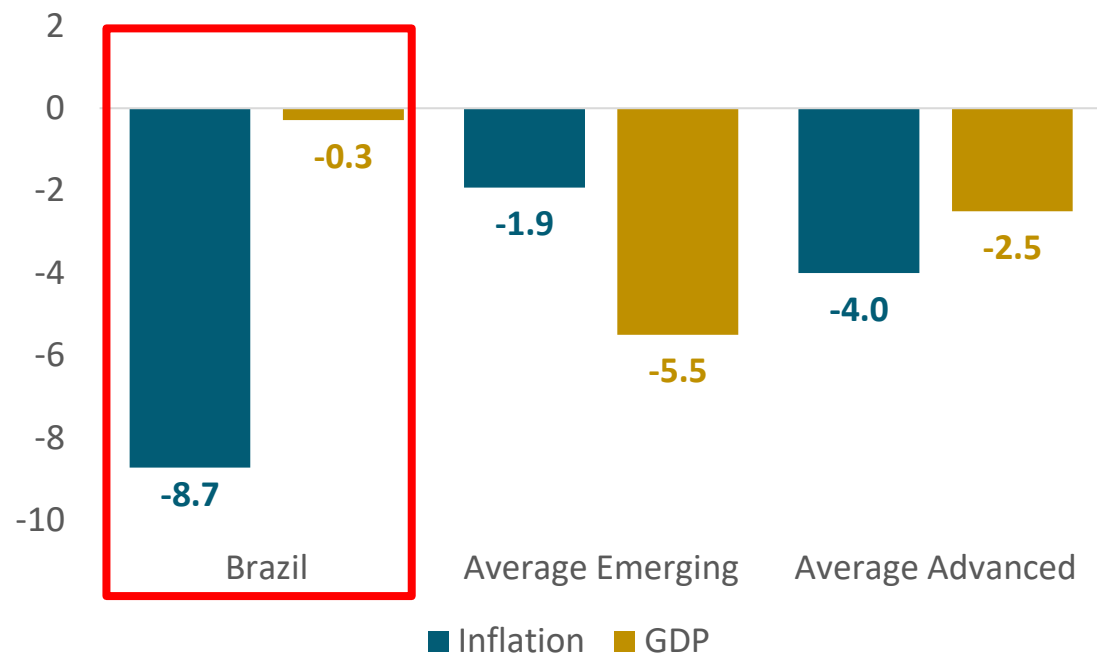
Change in effective productivity, by sector

(% change compared to the same period of the previous year)

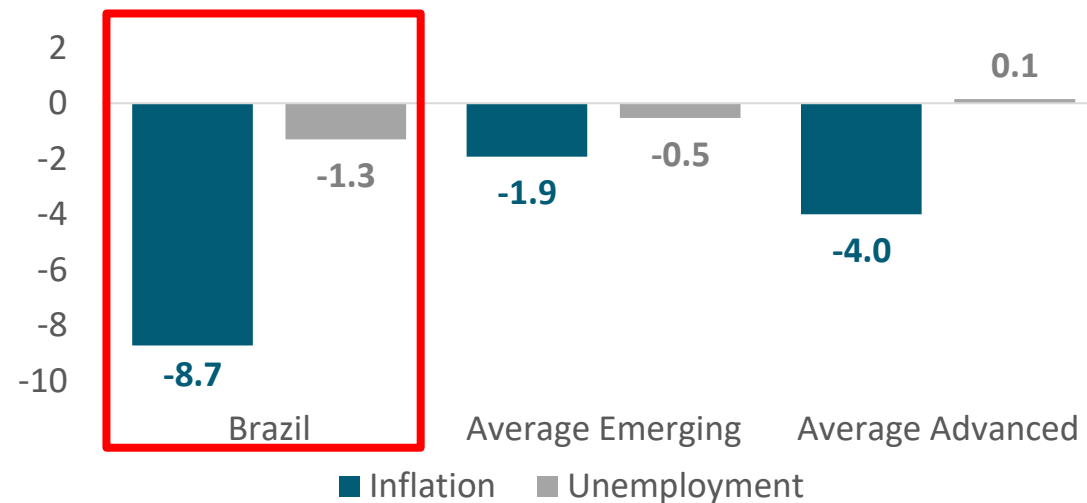


Brazil has managed to make a soft landing, reducing inflation with a low impact in terms of GDP, unemployment and credit.

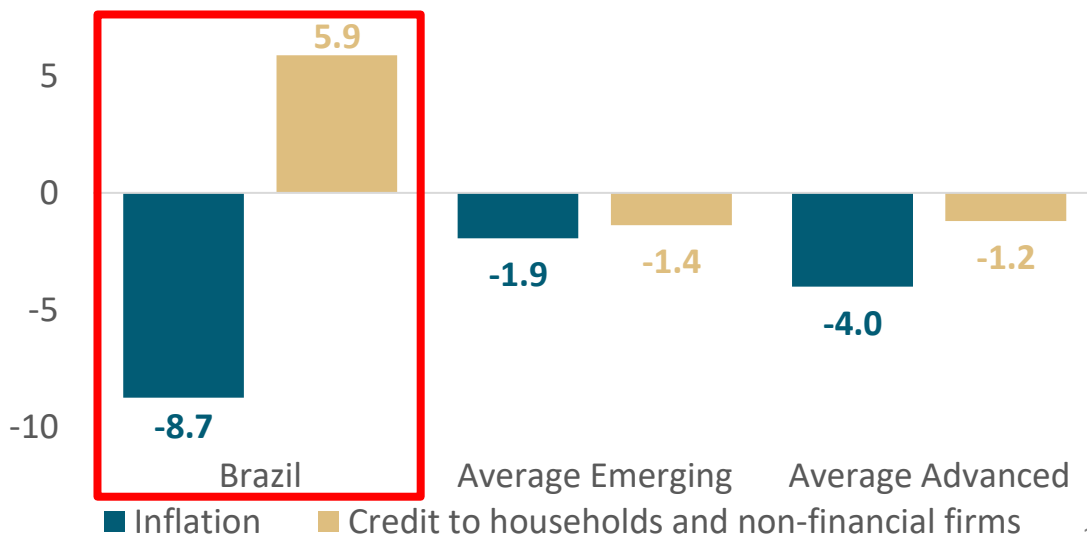
Change in inflation and GDP
(difference between 2023 and 2022, p.p.)



Change in inflation and unemployment rate
(difference between 2023 and 2022, p.p.)



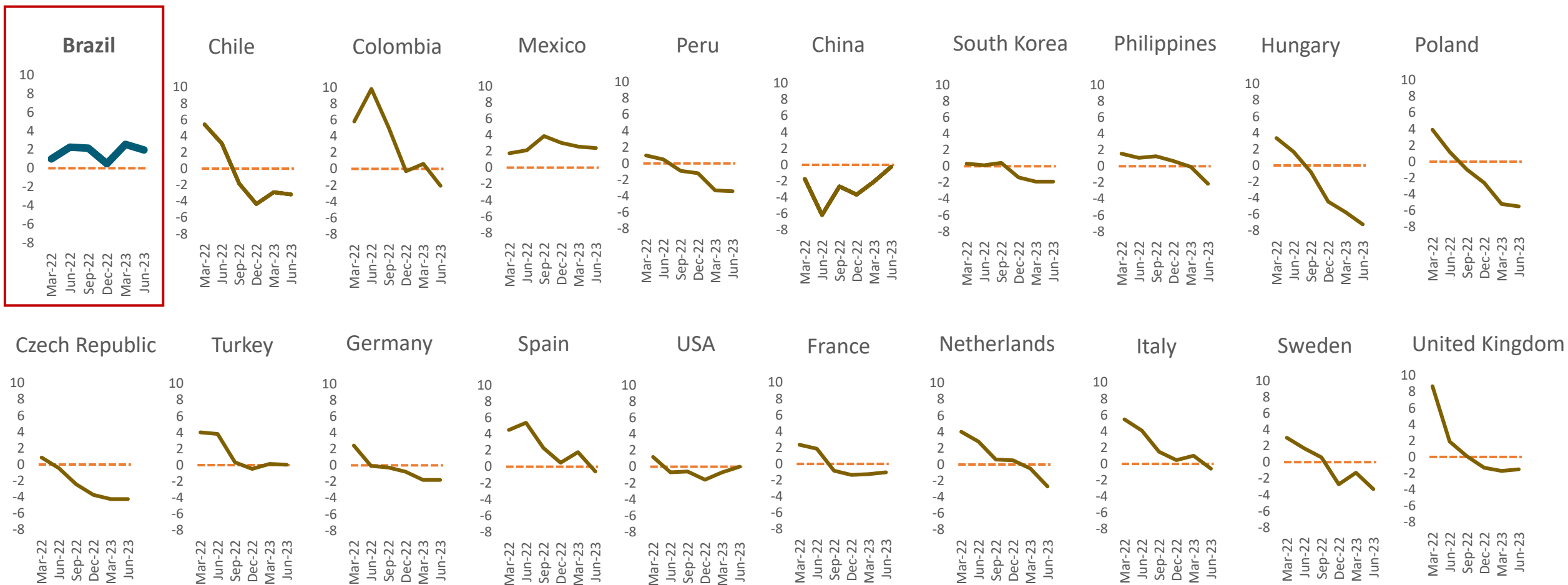
Change in inflation and credit to households and non-financial firms
(difference between 2023 and 2022, p.p.)



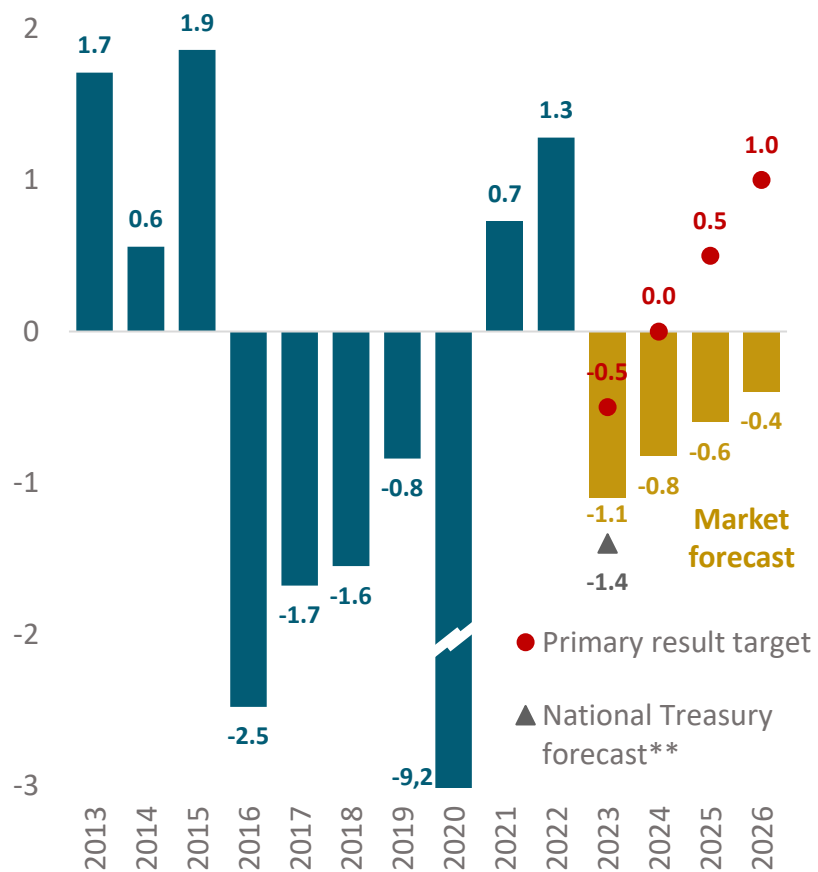
- Inflation: Difference between consumer price index (YoY) between June 2023 and June 2022.
- GDP: Difference between change (YoY) between June 2023 and June 2022.
- Unemployment: Difference in the rate between June 2023 and June 2022.
- Credit to households and non-financial firms: difference between June 2023 and June 2022 Outstanding amounts, deflated with index based on June 2022.
- Average Emerging Countries: Chile, Colombia, Mexico, Peru.
- Average Advanced Countries : Canada, Euro area, United Kingdom, USA.

In most countries GDP growth rates have decreased to levels below their pre-pandemic average. Brazil is one of the exceptions.

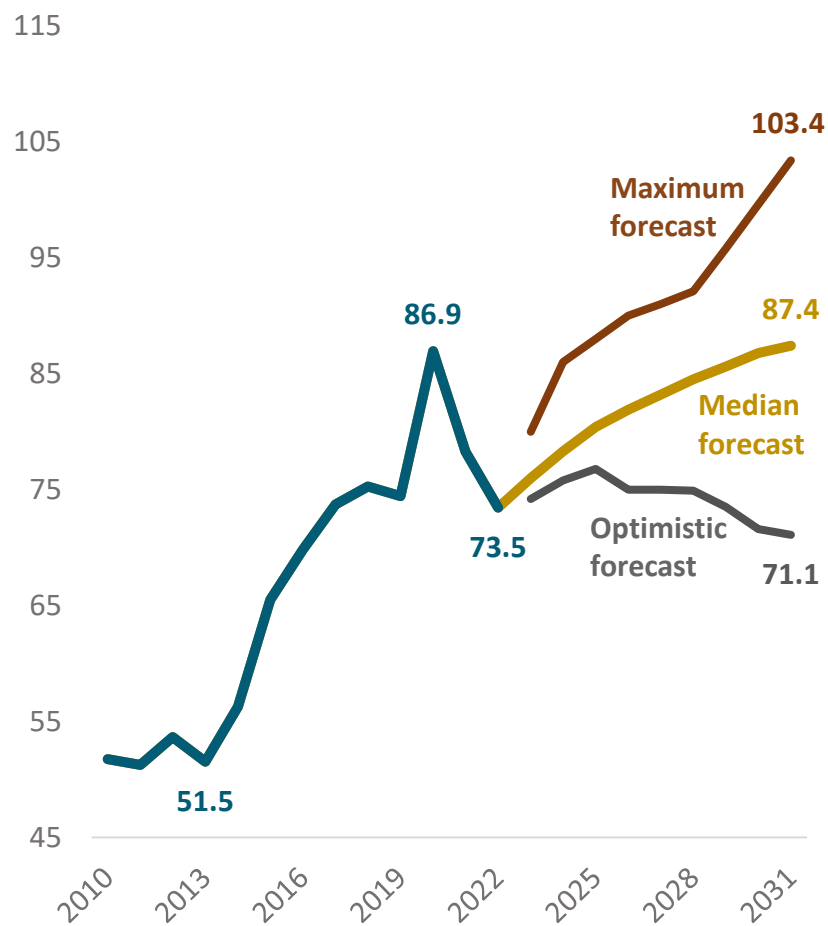
Quarterly GDP (% YoY) since Q12022 (difference for the average 2017-2019)



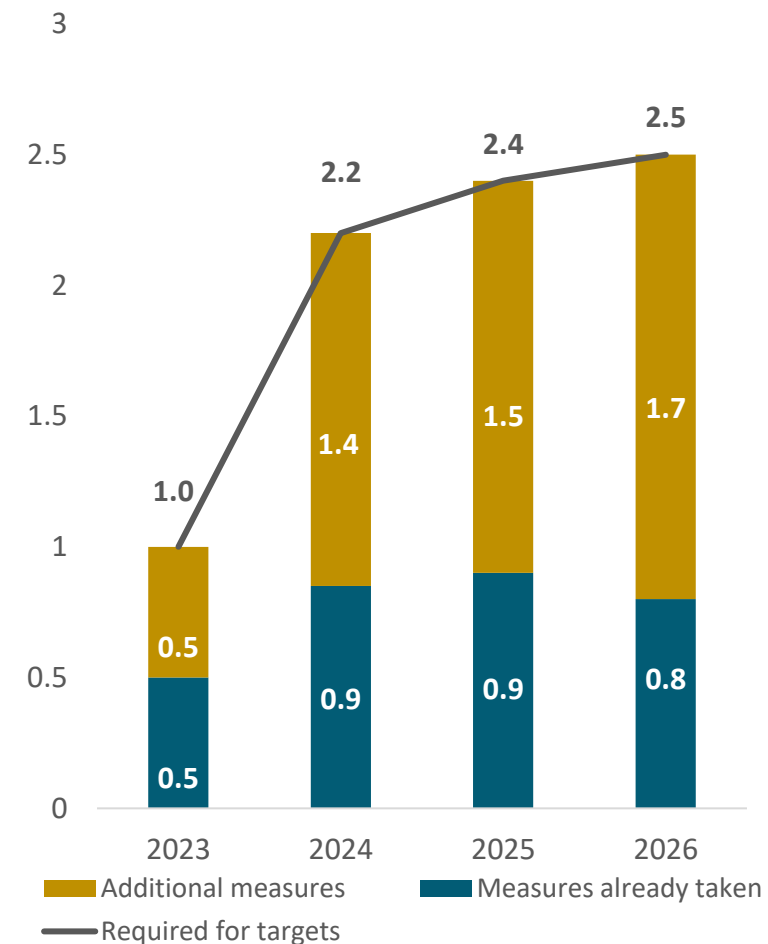
Consolidated public sector primary result
(% GDP, several years and forecast, Focus* median)



Evolution of GGGD/GDP forecast
(%, several years, Focus* median)



Necessary tax revenues to achieve the primary result target
(% GDP)



* Updated until 10/06/2023

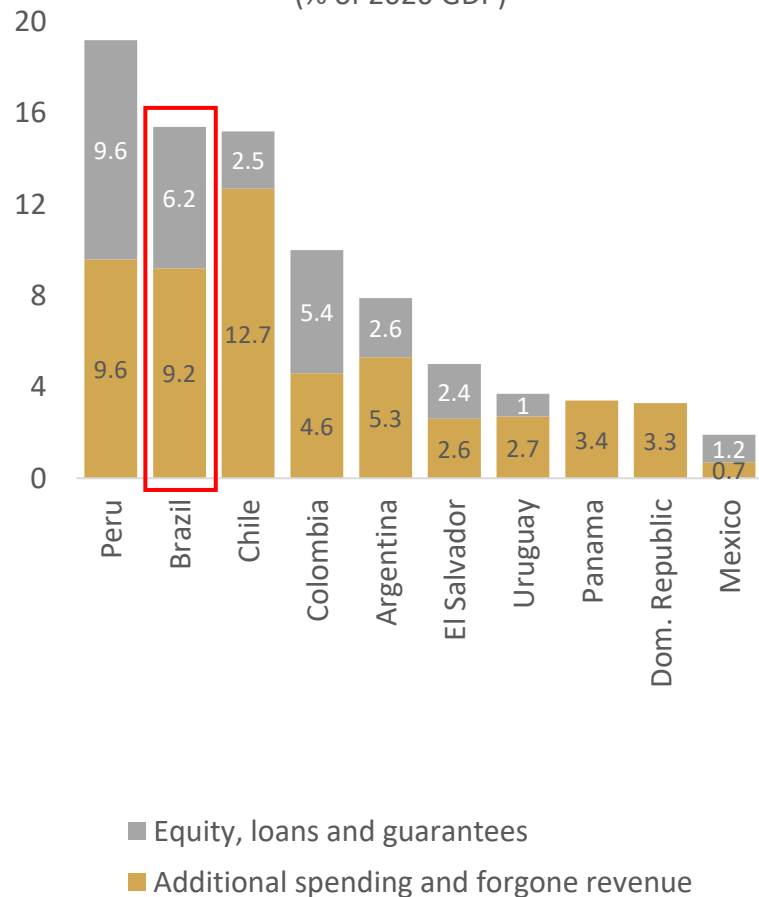
** Primary revenue and expenditure assessment report, June/2003

Sources: BCB (Focus report) and National Treasury.

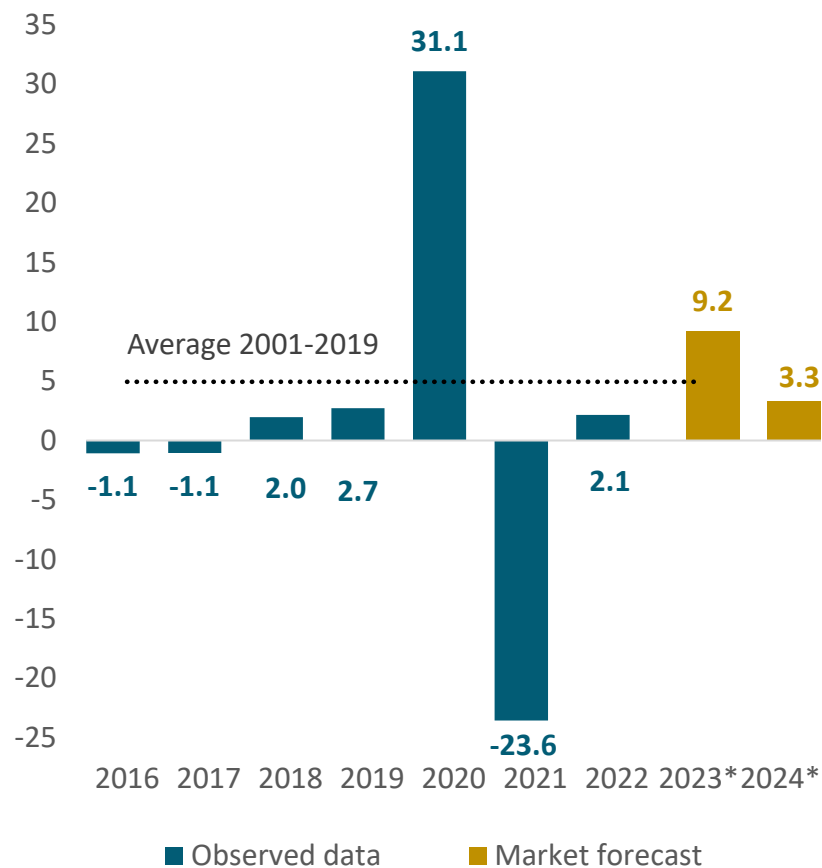
* Updated until 10/06/2023

Brazil has a high expenditure history, even compared to peers. The current forecast is still for real growth in the coming years.

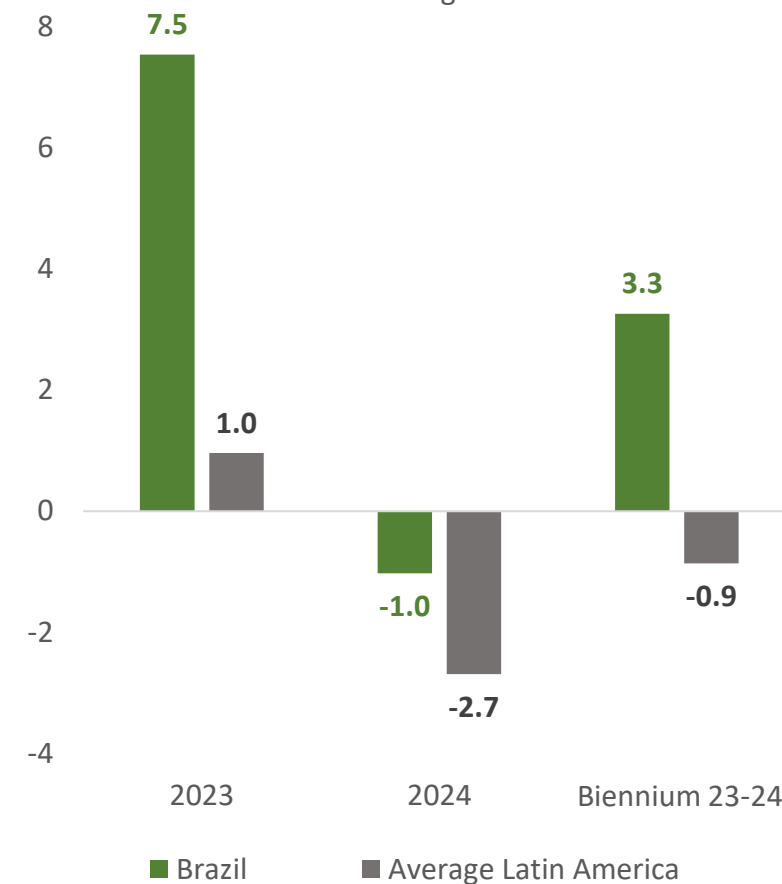
Fiscal measures in response to the pandemic
(% of 2020 GDP)



Total primary expenditure of central Govt.
Real annual growth %



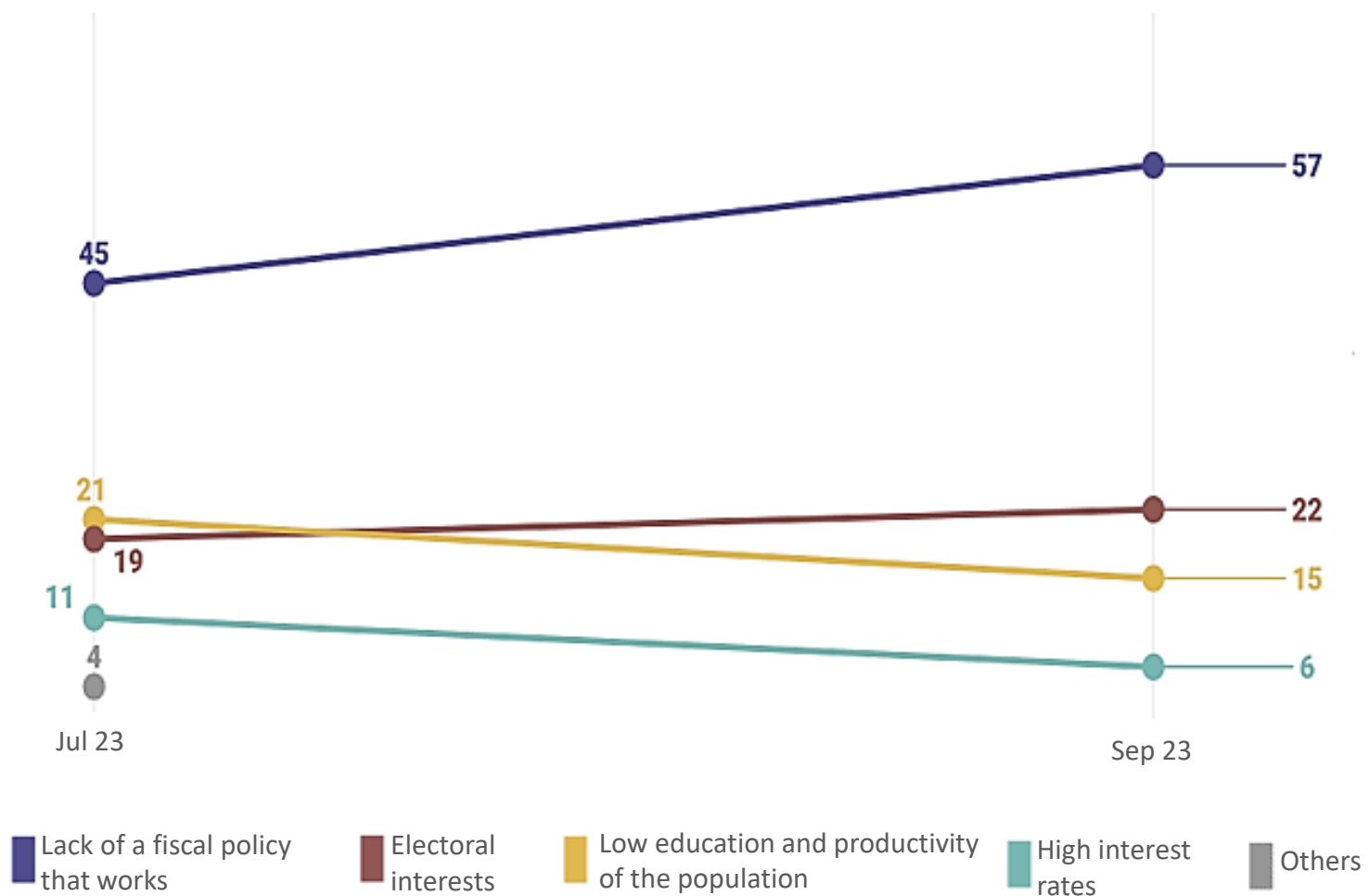
General Govt. expenditure
Real annual growth %



* Based on forecasts from PCS and Focus report.

April/2023 WEO expenditure forecast for 4 countries: Chile, Colombia, Mexico, Peru. Deflation; 12 months accumulated inflation until June/23 and Bloomberg projections.

What is the main problem that hinders the improvement of the economy today?



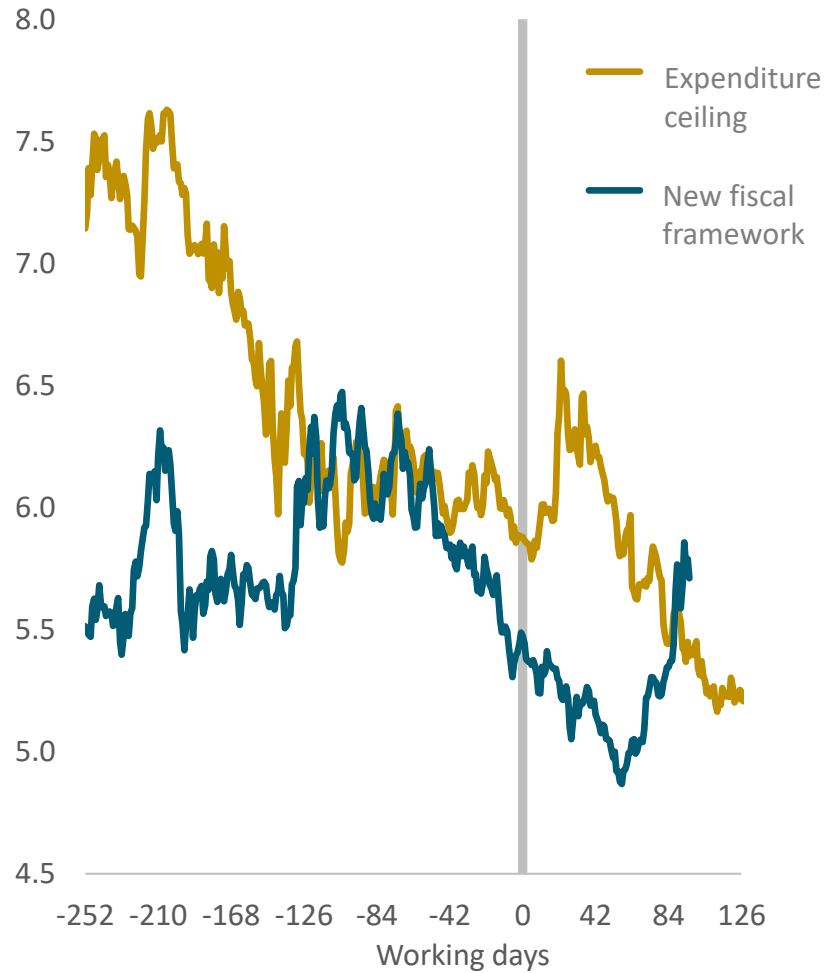
Nominal interest rate

(5-year bond, % p.y.)



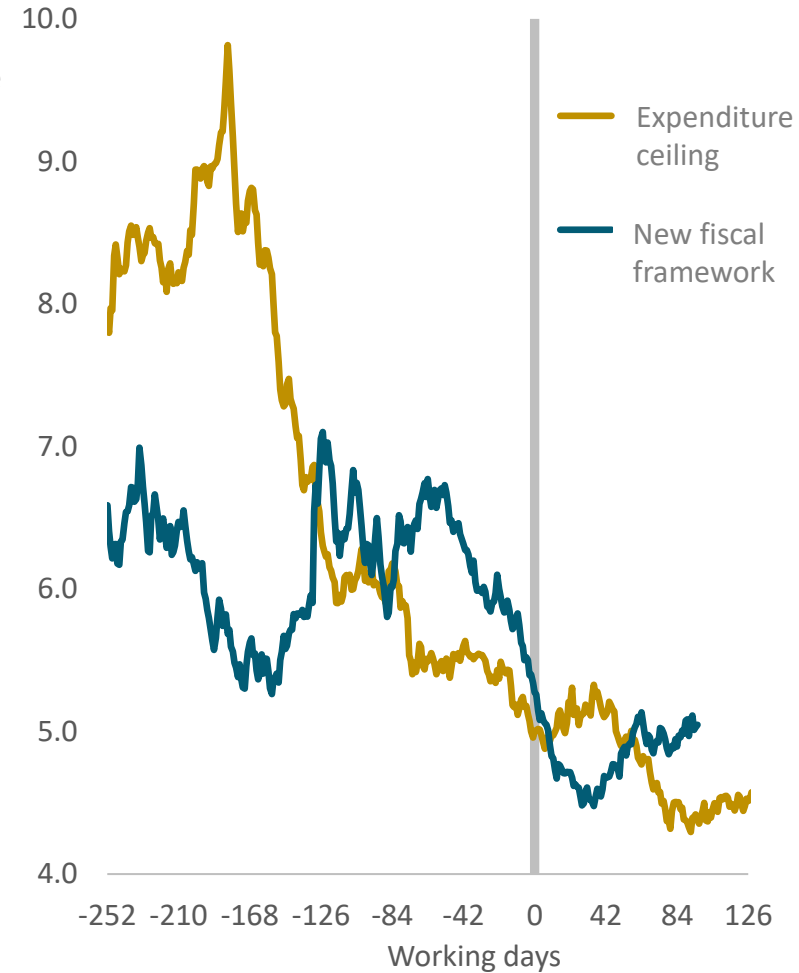
Real interest rate

(5-year bond, % p.y.)



Break-even inflation

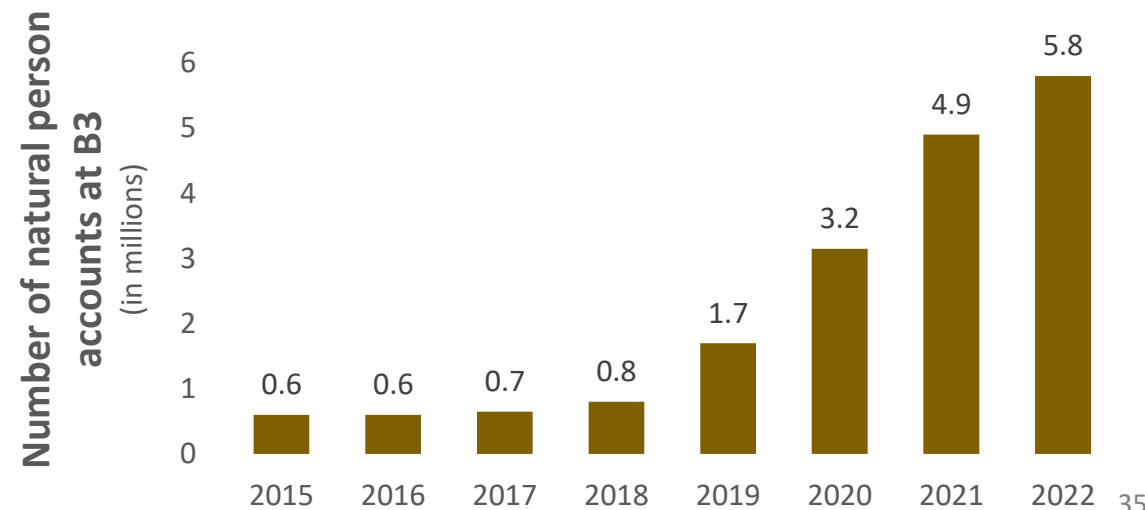
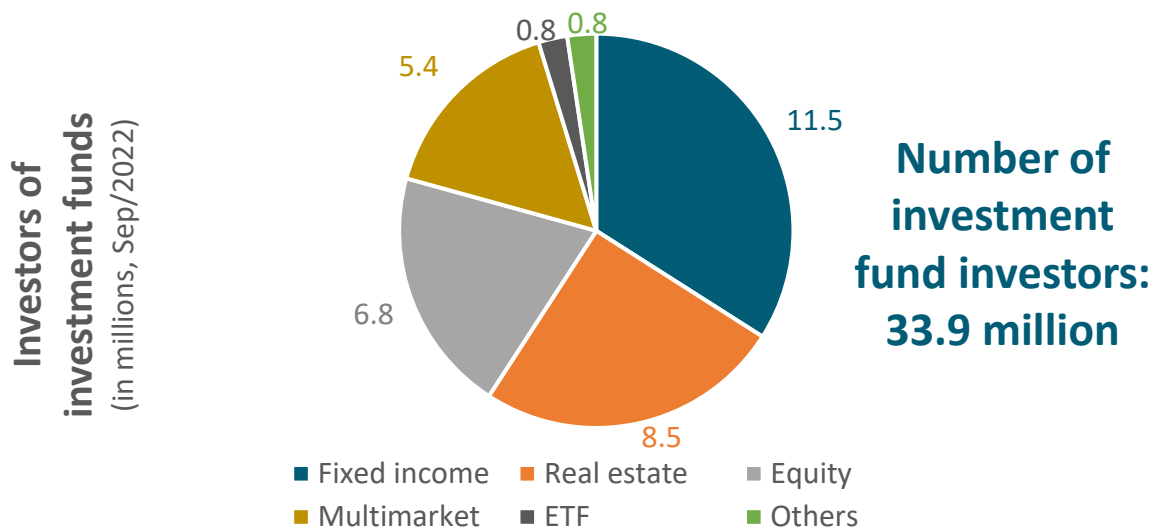
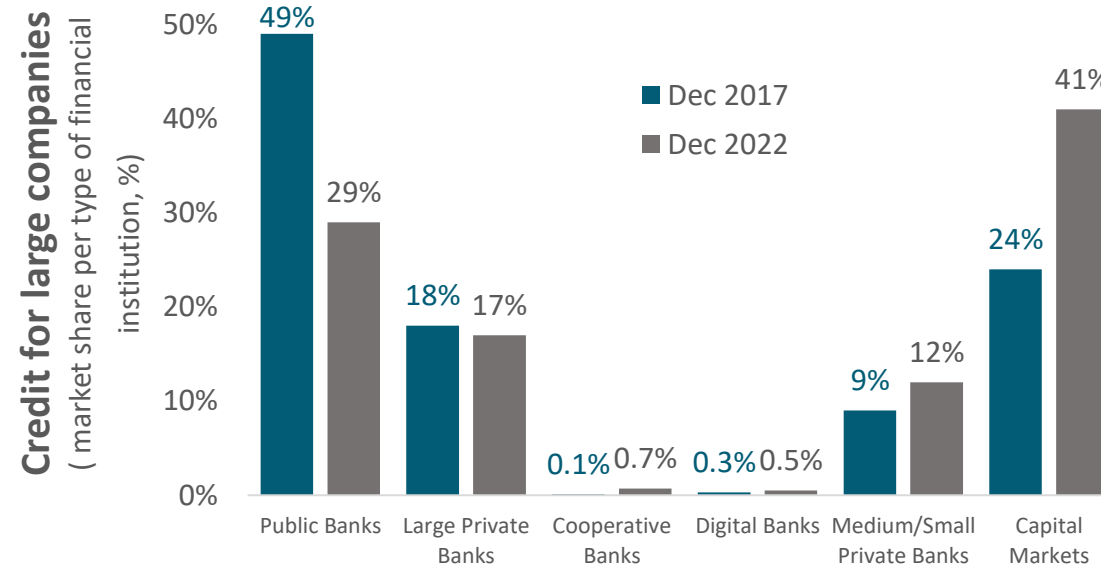
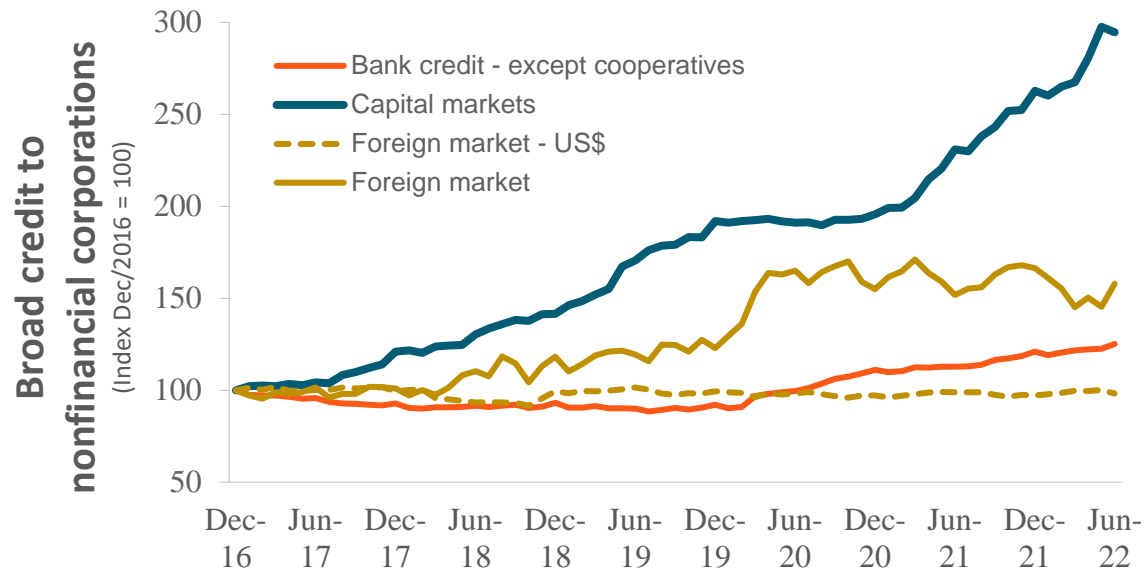
(3-year bond, % p.y.)



P.S: Day 0 is the date of the first-round approval of the fiscal rules by the Chamber of Deputies.

Source: BCB

Capital market has shown rapid growth in recent years, with an important role for credit and savings.



Sources: BCB, Economica and B3.

A hand is shown holding a smartphone. The phone's screen displays several data visualization elements, including a line graph with multiple colored lines (red, blue, green) and a bar chart. The background is a deep blue, featuring blurred, glowing data visualizations and network-like patterns, suggesting a digital or financial environment.

Technological Agenda



What is happening in the digital world?

- People look for a digital representation of value
- Assets are becoming encrypted
- Distributed ledgers allow assets to be verifiable and transferable, with divisibility

So, what is the real debate?

- Are we moving towards a tokenized economy?
- Tokenizing assets for negotiation is the main transformation
- To extract value from an asset in its digital form
 - Art, pictures, properties, ideas and even money

Complete digitalization of financial intermediation

- The 4 fundamental blocks : **Pix, Open Finance, Currency internationalization** and **Drex**

Goals:

- Greater inclusion
- Lower cost of intermediation
- More competition, with reduced entry barriers
- Risk control efficiency
- Data monetization
- Complete tokenization of financial assets and contracts

Modernization of FX regulation

- **Greater possibility of international use of Real:**
 - Facilitating international payments in reais
 - Enabling international banking correspondence in BRL
- **Greater agility for international payments:**
 - Simplifying the formalization of FX operations
 - Facilitating connections with payment systems in other countries



Pix gains space and increases its popularity



Pix growth promotes financial inclusion and enables small businesses

Pix growth

651 million

active Pix's keys.

141 million people and
12.7 million companies
use Pix.



3.8 billion transactions in Aug/23, against **2.2 billion** in Aug/22, **increase of 73%**.

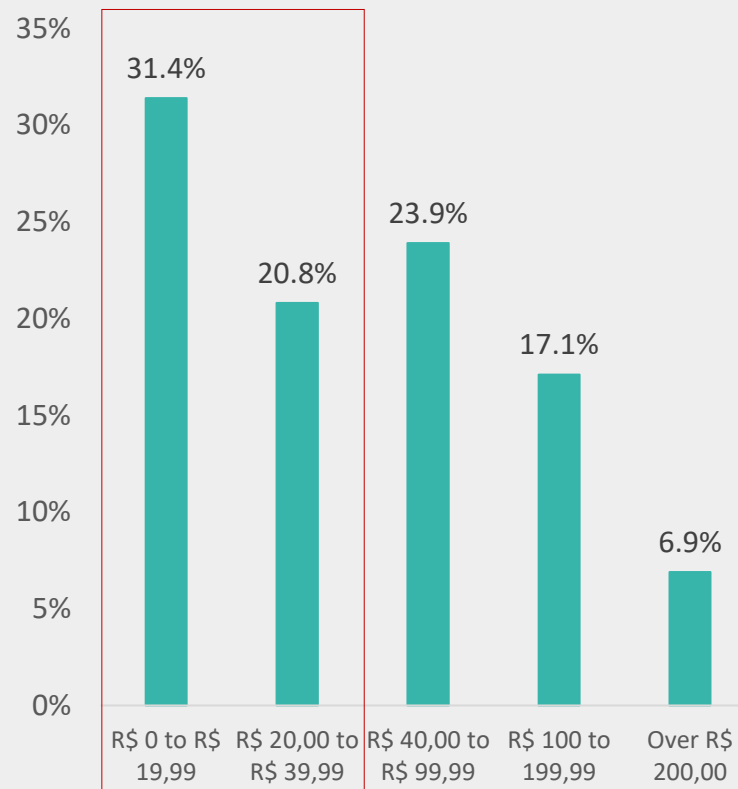
Sources: BCB, BIS.

Pix and financial inclusion

- 71.5 million new users included with Pix.*

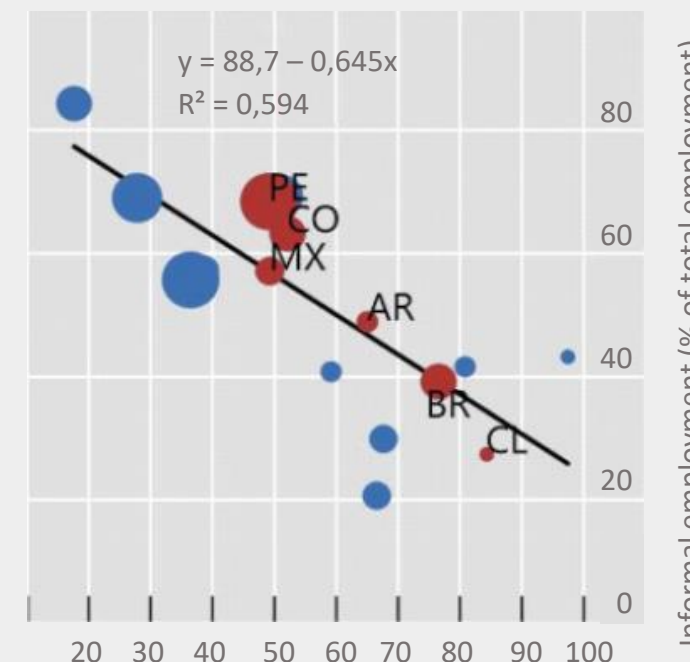
Transactions by value range

(Only natural persons payers – Nov/20 until Dec/22)



* Considering users who did not use TED in the 12 months prior to the launch of Pix and became PIX users.

Digital payments vs. informal employment



Use of digital payments (% of pop. > 15 years old)

- Latin America countries
- Other emerging and low-income countries

P.S.: Ball size is proportional to the level of production of the informal sector (as % of GDP)

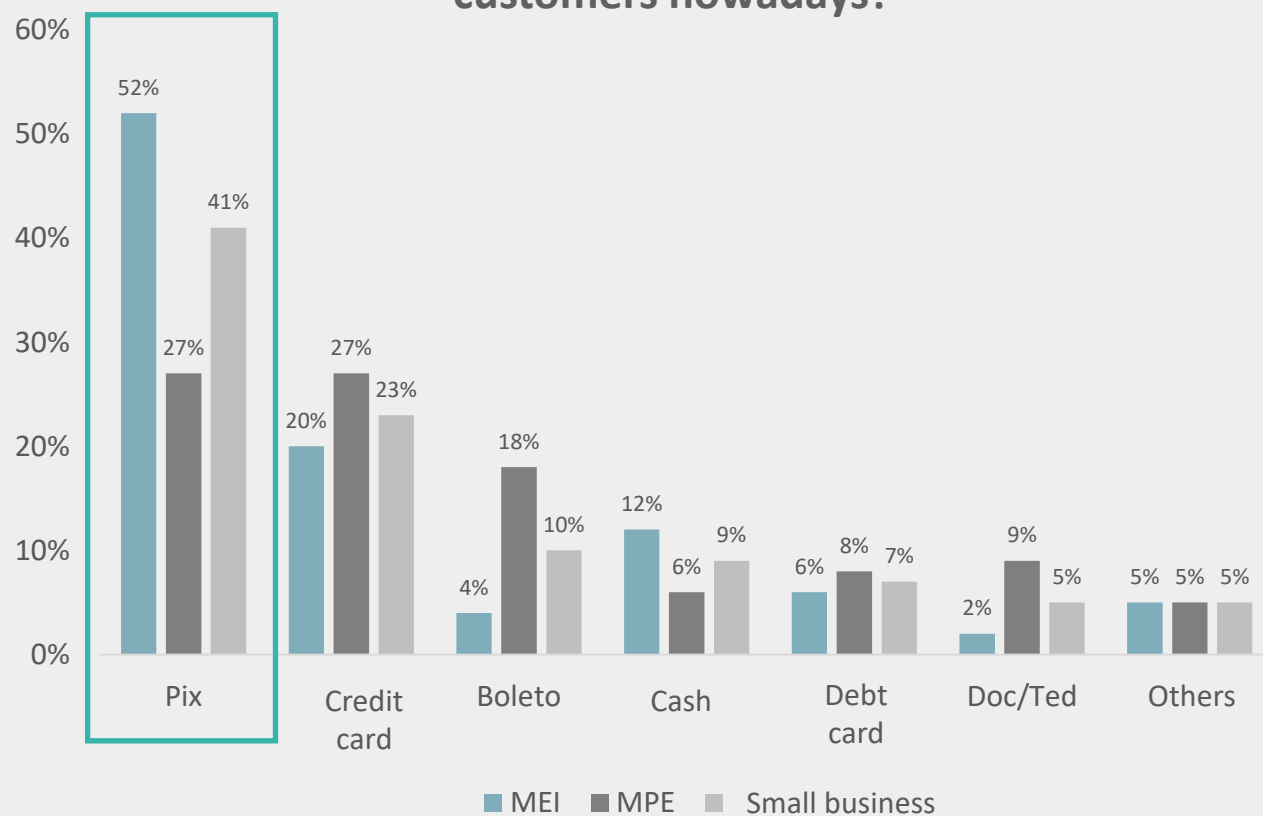
Pix gains space and increases its popularity



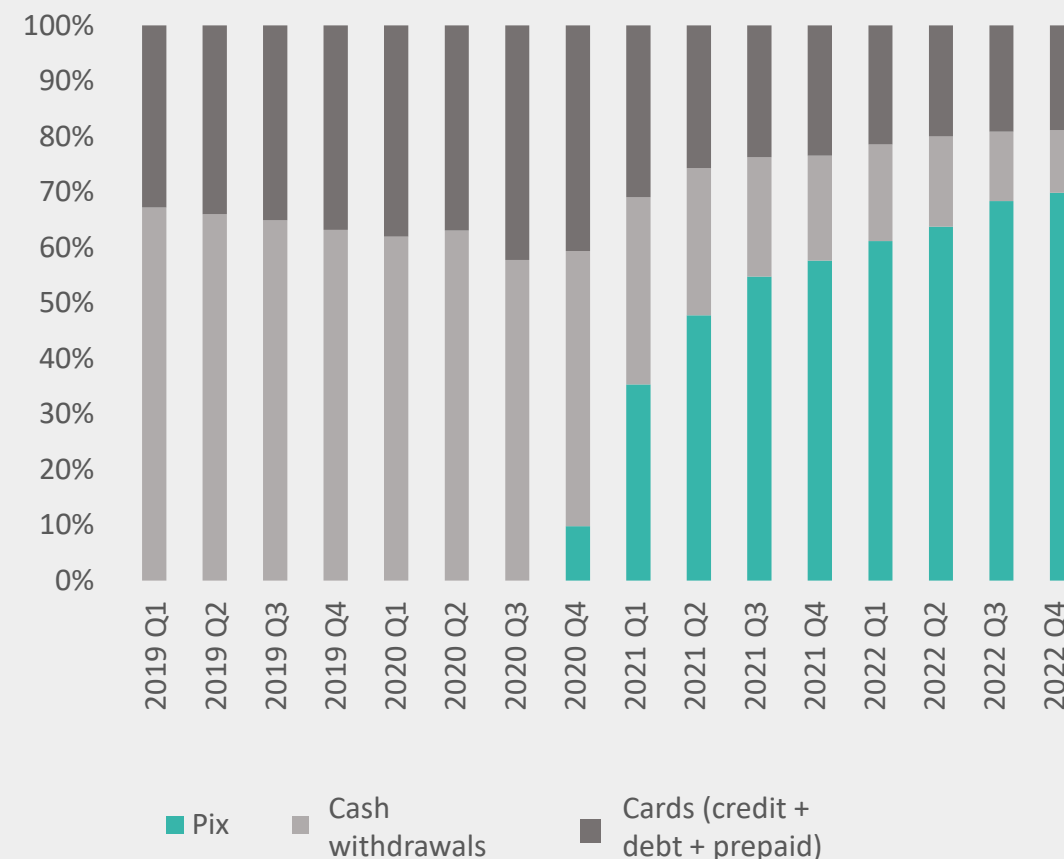
Pix growth promotes financial inclusion, enables small businesses and increases the efficiency of the means of payment.

- With Pix, the complementarity of digital payments reduces cash withdrawals and increases efficiency.

What is the main form of payment used by your customers nowadays?



Pix, cards e cash withdrawals – proportion (financial volume)



The Open Finance also promotes financial and digital inclusion

Open Finance in figures:

- **20 API developed and 12 under development.**
- **More than 37 millions of consents to share data.**
- **Average higher than 1 billion API calls (phase 2) per week.**
- **More than 37 billions API calls (phase 2).**
- **More than 800 participating institutions (phases 2 and 3).**

BCB's inclusive agenda

Drex: BCB's CBDC

- Bridge to De-Fi environment
- To introduce the concept of tokenization (broad base)
- Reduction of physical currency
- Increase of banking efficiency
 - Risk management
 - Settlement
 - Data analysis
 - Financing
 - Products
- Data monetization
 - Interaction of tokens with digital wallet
- Competition by channel, not only by product



Phases of the integration process

1. Pix and Open Finance
 - Payment initiator
2. Pix and other products
 - Ex.: Credit, etc.
3. Pix and currency internationalization
4. Pix and Drex (CBDC)
 - Digital wallet and non-digital wallet
5. Drex (CBDC) and Open Finance
6. Financial aggregator
 - Competition by channel
7. Build of a digital wallet

Super App: an example

Offline
Online



➤ Data wallet





BANCO CENTRAL DO BRASIL

Thank you!

Roberto Campos Neto
Governor of Banco Central do Brasil
October 12th 2023

