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# MONETARY POLICY REPORT

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April 2023

# MONETARY POLICY REPORT

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\* Presented by the technical staff to the Board of Directors for its meeting on 28 April 2023.

*Banco de la República*  
Bogotá, D. C. (Colombia)

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**Head**

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Santiago Forero Alvarado  
Anderson Grajales Olarte

(\*) José David Pulido, leading economist at the Office For Monetary Policy and Economic Information; Eliana González, head of the Statistics Section; Deicy Cristiano, Julián Cárdenas, Isleny Carranza, and Ramón Hernández, analysts at the Statistics Section; Jesús Bejarano, Director of the Applied Macroeconomic Analysis Department; Steven Zapata, David López, and Manuela Quintero, analysts of the Fiscal and Sector Analysis Group; Camilo González, Advisor to the Financial Office; and Juan David Bonilla Pérez, María Corina Hernández Linares, Federico Meneses Serrato, Joseph Yesid Palomino Velandía, Valeria Ramírez Sánchez, Juan Sebastian Mayorga Guayacán, and Nicolle Valentina Herrera Pinto, student interns, also participated in the making of this Report.

Edited in Bogotá D.C., Colombia

Suggestions and comments: +57 (1) 343 1011 / [atencionalciudadano@banrep.gov.co](mailto:atencionalciudadano@banrep.gov.co)



# Monetary Policy in Colombia

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*Banco de la República* (the Central Bank of Colombia) is required by the Constitution to maintain the purchasing power of Colombia's currency in coordination with general economic policy<sup>1</sup>. In order to fulfill this mandate, *Banco de la República's* Board of Directors (hereafter BDBR) has adopted a flexible inflation-targeting scheme, by which monetary policy actions (MP) seek to lead inflation to a specific target and achieve maximum levels of sustainable output and employment.

The flexibility of this scheme allows the BDBR to maintain an adequate balance between reaching its inflation target and smoothing output and employment fluctuations around their sustainable growth paths. The BDBR has set a 3% inflation target based on annual change in the consumer price index (CPI). In the short term, inflation may be affected by factors outside of monetary policy control, such as changes in food prices due to climate-related phenomena. To factor in this reality, the BDBR has also set a  $\pm 1$  percentage point range outside its inflation target (i.e.,  $3.0 \pm 1$  pp). This range does not represent a monetary policy target, but rather reflects the fact that inflation can fluctuate around the target and will not always be equal to 3%.

The main instrument used by the BDBR to control is the policy interest rate (overnight repo rate, or benchmark interest rate). Given that monetary policy actions take time to have their full effect on the economy and inflation<sup>2</sup>, the BDBR assesses the inflation forecast and inflation expectations vis-à-vis the inflation target, as well as the current situation and outlook of the economy, in order to determine their value.

The BDBR meets once a month, producing monetary policy decisions in eight of its meetings (January, March, April, June, July, September, October, and December). In principle, no such decisions are made in the BDBR's four remaining meetings (February, May, August, and November)<sup>3</sup>. At the end of the meetings in which monetary policy decisions are produced, a press release is published and a press conference held by the Governor of the Central Bank and the Minister of Finance. The minutes of the meeting describing the positions that led the BDBR to its decision are published on the following business day. Additionally, the Monetary Policy Report (MPR)<sup>4</sup>, produced by the Central Bank's technical staff, is published in January, April, July, and October, together with the minutes. On the Wednesday of the week following the Board meeting, the Governor clarifies concerns about the minutes, and the Bank's Deputy Technical Governor presents the MPR. This dissemination scheme<sup>5</sup> seeks to deliver relevant and up-to-date information to contribute to better decision-making by the agents of the economy.

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1 Political Constitution of Colombia (1991), Article 373 and Decision C-481/99 of the Constitutional Court.

2 For further details, see M. Jalil and L. Mahadeva (2010). "Transmission Mechanisms of Monetary Policy in Colombia", Universidad Externado de Colombia, Faculty of Finance, Government, and International Relations, ed. 1, vol. 1, no. 69, October.

3 A Board Member may request an extraordinary meeting at any time to make MP decisions.

4 Formerly known as the Inflation Report.

5 The current communication scheme was approved by the BDBR in its August 2019 meeting



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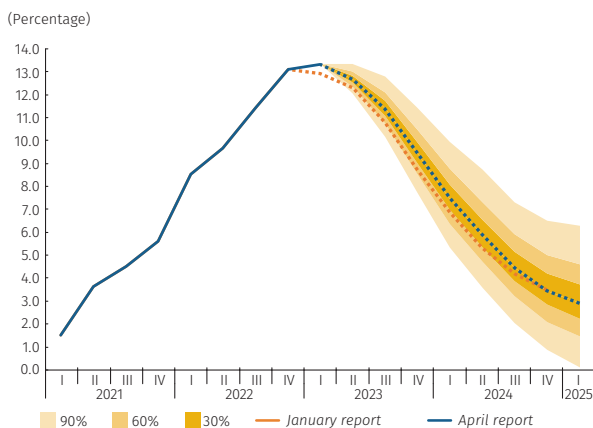
# 1. Summary

## 1.1 Macroeconomic Summary

**The current macroeconomic outlook requires a contractionary monetary policy stance to bring inflation to the target and contribute towards adjusting aggregate demand to levels compatible with the economy’s productive capacity and with a sustainable external position.** The economic growth observed in the last quarter of 2022, together with economic activity indicators at the beginning of this year, suggest that the economy would have continued to decelerate due to lower domestic demand. Nevertheless, the estimated excess demand remains significant, reflected in an output level that exceeds the economy’s sustainable productive capacity and a high current account deficit. Regarding inflation, the external and domestic supply shocks that had placed upward pressure on prices and production costs continued to diminish during the first quarter. Despite this, inflation did not decline as expected in the January report due to a less pronounced annual deceleration in food prices, higher increases in the regulated items group, indexation to the minimum wage and to the high inflation of 2022, and greater aggregate exchange rate pressures on prices. These exchange rate pressures have recently eased, partly because of lower expectations of interest rate increases in the United States. The technical staff’s inflation forecast for 2023 increased mainly because of the expected behavior of fuel prices, shifting further away from the target. Inflation expectations have risen for the end of this year, and two-year-ahead expectations have stabilized, yet remain above 3.0% for both horizons. This macroeconomic setting of excess demand and high inflation, with forecasts and expectations above the target, requires a contractionary monetary policy stance to ensure convergence to the inflation target within the forecast horizon and the achievement of sustainable output levels.

**The accumulated monetary policy measures and the observed amelioration of certain shocks that have placed upward pressure on prices will help inflation begin to decline from the second quarter of 2023, moving close to the target by 2024 (Graph 1.1).** During the first quarter of this year, supply and external and internal cost shocks that affected the economy continued to subside, which was reflected in the annual deceleration of food prices and the producer price index (PPI). Despite this, inflation did not slow down as expected in the January report, increasing from 13.1% in December to 13.3% in March due to a less pronounced slowdown in perishable food prices, higher increases in fuel and utility prices, and greater aggregate exchange rate pressures on prices. For 2023, the new inflation forecast path shifted up, particularly owing to the higher expected fuel prices. However, inflation is anticipated to decline as of the second quarter of 2023, as food pri-

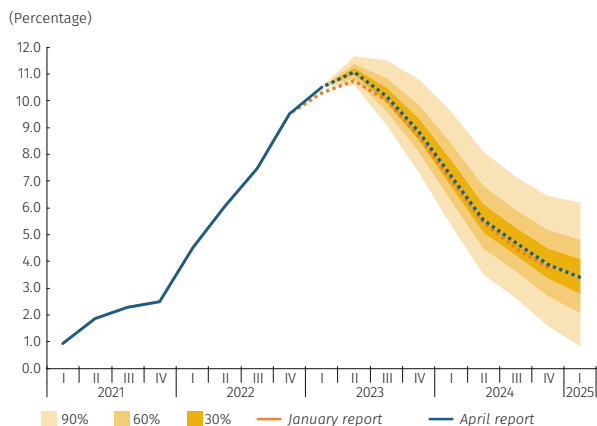
Graph 1.1  
Consumer Price Index<sup>a/</sup>, <sup>b/</sup>  
(annual change; end-of-period)



a/ This graph presents the forecast probability distribution on an eight-quarter time horizon. Density characterizes the prospective balance of risks with areas of 30%, 60%, and 90% probability surrounding the central forecast (mode), through a combination of densities from the Patacon and the 4GM monetary policy models. b/ The probability distribution corresponds to the forecast exercise from the April report.

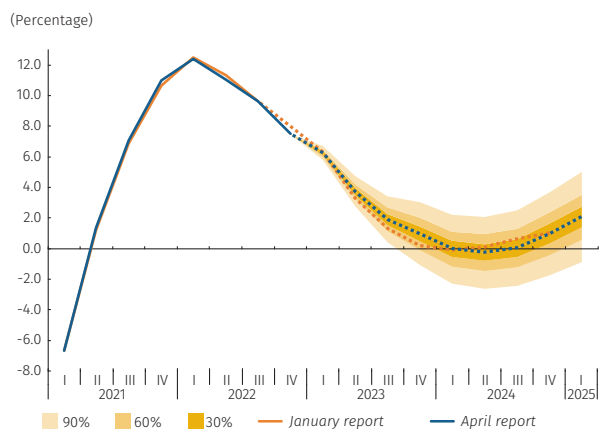
Source: DANE – calculations and projections by Banco de la República.

**Graph 1.2**  
CPI excluding food and regulated items <sup>a/, b/</sup>  
(annual change; end-of-period)



a/ This graph presents the forecast probability distribution on an eight-quarter time horizon. Density characterizes the prospective balance of risks with areas of 30%, 60%, and 90% probability surrounding the central forecast (mode), through a combination of densities from the Patacon and the 4GM monetary policy models.  
b/ The probability distribution corresponds to the forecast exercise from the April report.  
Source: DANE – calculations and projections by Banco de la República.

**Graph 1.3**  
Gross Domestic Product, four quarter accumulation <sup>a/, b/, c/</sup>  
(annual change)

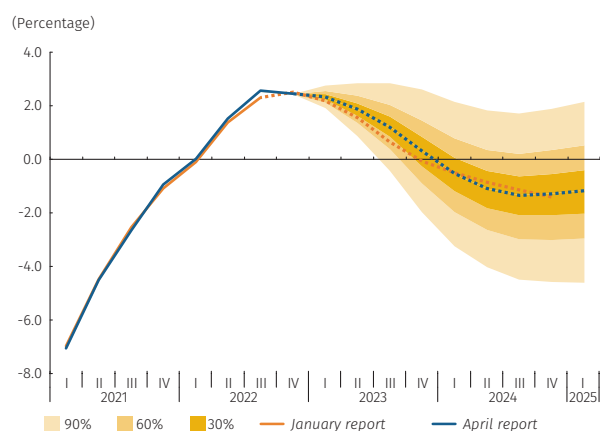


a/ This graph presents the forecast probability distribution on an eight-quarter time horizon. Density characterizes the prospective balance of risks with areas of 30%, 60%, and 90% probability surrounding the central forecast (mode), through a combination of densities from the Patacon and the 4GM monetary policy models.  
b/ Seasonally adjusted and corrected for calendar effects.  
c/ The probability distribution corresponds to the forecast exercise from the April report.  
Source: DANE, calculations and projections by Banco de la República.

ce increases lessen. Lower expected exchange rate pressures and further curbing of international costs and prices would contribute to an annual deceleration of the consumer price index (CPI) for goods. Moreover, tighter domestic and external financial conditions would help reduce excess demand over the forecast horizon and lower inflation. Consequently, by the end of 2023, total and core inflation excluding food and regulated items would approach 9.5% and 8.9%, respectively, and by December 2024 would reach values of approximately 3.4% and 3.9% (Graphs 1.1 and 1.2). These forecasts are highly uncertain, especially concerning the future behavior of international financial conditions, the depreciation of the Colombian peso, the pace of domestic demand adjustments, the degree of indexation of nominal contracts and decisions taken regarding domestic fuel and electricity prices.

**In 2023, economic activity would continue to decelerate, reaching levels that are more compatible with the economy's productive capacity and helping reduce demand pressures on prices (Graph 1.3).** At the end of 2022, economic activity continued its annual slowdown and gross domestic product (GDP) posted a year-on-year growth of 2.9% in the fourth quarter, which is lower than the figure estimated in the January report (4.1%), but at levels consistent with the initial estimate given the historical data revisions. For the first quarter of 2023, the new economic activity measures suggest that annual economic growth would have been similar to that of the previous quarter (3.0%), with real domestic demand comparable to that recorded at yearend 2022. The level of private consumption would have remained stable, with a quarterly drop in spending on durable and semi-durable goods, which would have been offset by services consumption. Higher general and personnel expenses would produce an increase in public consumption levels. The actual and estimated decline in imports of machinery and equipment would exceed the improvement expected in housing investment and, consequently, the level of gross fixed capital formation would fall. The trade deficit would have narrowed due to a decline in imports against an expected increase in exports. For the remainder of the year, consumption is expected to decline from its current high levels, partly as a result of tight financial conditions. The latter, coupled with local uncertainty, would also affect investment, which would remain at lower levels than those seen before the pandemic. In real terms, the trade deficit would narrow due to lower projected domestic demand. It is worth mentioning that the downward revision of the 2022-GDP level, a more paced slowdown in early 2023, and the expectation of a more tempered economic slowdown implied an upward adjustment in the output forecast for the entire year. Hence, the economic growth for both 2023 and 2024 would be 1.0% (Graph 1.3). Excess demand (as measured by the output gap) would fade toward the end of 2023 and could turn negative in 2024 (Graph 1.4). These estimates continue to be subject to a high de-

Graph 1.4  
Output gap<sup>a/, b/, c/</sup>  
(four-quarter accumulation)



a/ The historical output gap estimate is calculated as the difference between observed GDP (four-quarter accumulation) and potential GDP (trend; four-quarter accumulation) based on the 4GM model.

b/ This graph presents the forecast probability distribution on an eight-quarter time horizon. Density characterizes the prospective balance of risks with areas of 30%, 60%, and 90% probability surrounding the central forecast (mode), through a combination of densities from the *Patacon* and the 4GM monetary policy models.

c/ The probability distribution corresponds to the forecast exercise from the *April report*.

Source: DANE, calculations and projections by Banco de la República.

gree of uncertainty associated with global political tensions, rising international interest rates and their effects on external demand, and changes in the country's external financing conditions. Domestically, uncertainty about the economic and fiscal effects of the reforms announced for this year (pension, health, labor), and future measures regarding hydrocarbon production may affect risk premiums, the exchange rate, investment, and the country's economic activity.

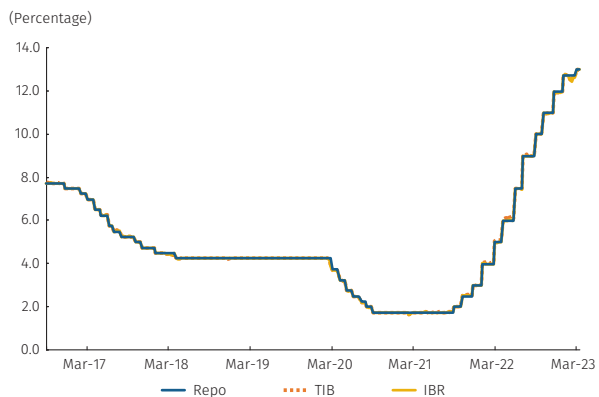
**In 2023, the current account deficit would narrow, mainly reflecting lower domestic demand.** In 2022, the country's high external imbalance (6.2% of GDP) was mainly explained by the growth in domestic demand and profit remittances from foreign companies. By 2023, the adjustment in domestic demand would be seen in a reduced current account deficit, which would fall to 4.1%, primarily because of lower imports and decreased profits sent abroad by companies with foreign direct investment (FDI). Despite the expected substantial correction of the external imbalance, it would remain high as a percentage of GDP, and the Colombian economy would continue to be vulnerable if the external situation deteriorates significantly.

**Despite recent improvements in risk indicators, external financial conditions are expected to remain tight.** In the United States and the European Union, central banks once again increased their policy interest rates to address high inflation levels. This has occurred in an environment where risks to the stability of the financial system in the United States and Europe could limit increases in monetary policy rates in these economies, even though the actual and projected inflation rates continue to exceed their targets. The new information available suggests that the Federal Reserve (Fed) would make an additional increase in the interest rate, and then maintain it within a range between 5.0% and 5.25% for the remainder of the year. Contemplating the greater likelihood of an early end to the Fed's upward interest rate adjustments, risk premiums have fallen and the US dollar has depreciated. The Brent oil prices, which had dropped in March, recently returned to above USD 80 per barrel and are expected to remain largely steady for the remainder of 2023. The steeper cost of global financing, the loss of real income due to high global inflation levels and the enduring war in Ukraine, among other factors, would continue to impact the global economy and suggest a slowdown in external demand that is relevant for the country. Uncertainty about external forecasts and their impact on the country remains high, given the unpredictable evolution of the war in Ukraine, geopolitical tensions, and external financial conditions, among others.

## 1.2 Monetary Policy Decision

In its March and April of 2023 meetings, Banco de la República's Board of Directors (BDBR), decided to continue the monetary policy tightening process. In March, the BDBR decided

**Graph 1.5**  
 Monetary policy interest rate, interbank rate and BBI<sup>a/</sup>  
 (weekly data)



a/ IR: interbank rate. BBI: benchmark banking indicator.  
 Sources: Office of the Financial Superintendent of Colombia and *Banco de la República*.

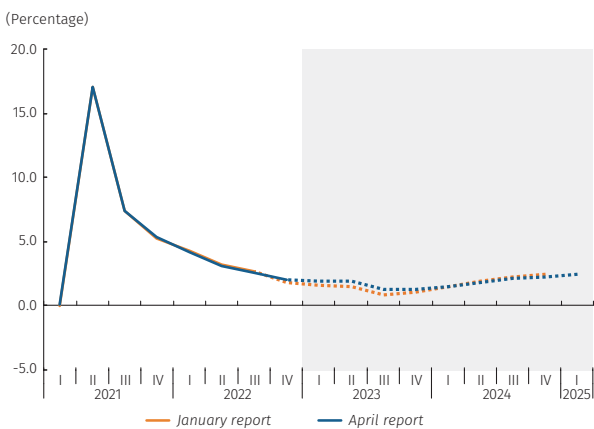
unanimously to raise the monetary policy interest rate by 25 basis points (bps), and in its April meeting, by a majority vote increase it by 25 bps. Therefore, the rate stands at 13.25% (Graph 1.5).

## 2. Macroeconomic Forecast and Risk Analysis

### 2.1 International Outlook

#### 2.1.1 Foreign Demand

Graph 2.1  
Real GDP, main trade partners.  
(Annualized change, projections according to full-year assumption)

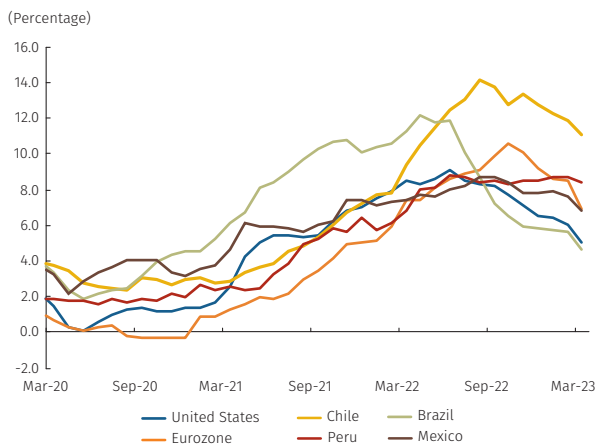


Sources: Bloomberg, statistics offices and central banks, calculations, and projections by Banco de la República.

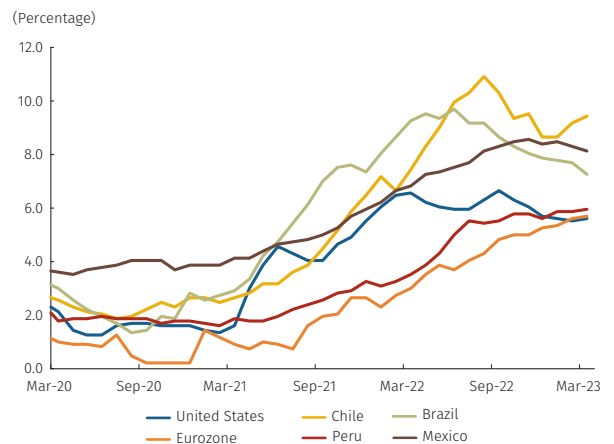
The technical staff maintains its assumption of a slowdown in external demand for Colombia, although at a more gradual pace than foreseen in the previous report (Graph 2.1). Along with said slowdown, high global uncertainty and the persistence of factors such as Russia’s invasion of Ukraine, geopolitical and trade tensions, inflation rates above the targets, and relatively high monetary policy interest rates would also occur (Graph 2.2). In addition to the recent risk of financial instability in the United States and some European countries. The International Monetary Fund (IMF)<sup>1</sup> projects a slowdown in world economic growth to 2.8% in 2023, which would be expected to recover slightly to 3.0% in 2024 (Graph 2.3). As for the country’s trading partners, a slowdown in average growth to 1.6% is assumed for 2023, which is higher than the 1.2% stated in the January report, mainly due to the economic activity seen in the first quarter of the year in the United States and some countries in the region. Despite the energy crisis, the eurozone economies are performing better than anticipated, which together with China’s elimination of Covid-19 restrictions would also benefit Colombia’s external demand. However, it is worth noting that the reduction in inflation could be slower than anticipated, and global monetary policy could remain restrictive for a longer period, leading to a modest expansion of external

Graph 2.2  
Total inflation, select main trading partners

#### A. Headline Inflation



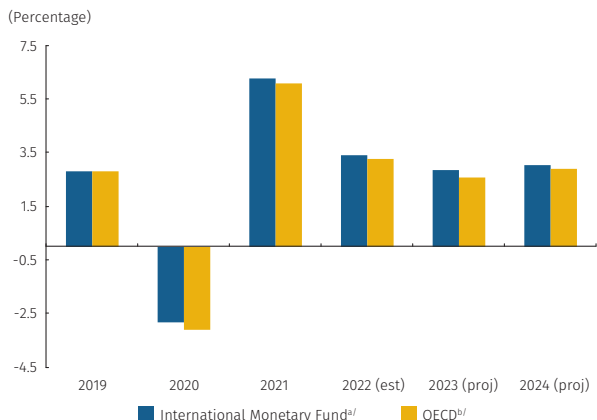
#### B. Core Inflation



Source: Bloomberg.

1 International Monetary Fund. 2023. World Economic Outlook: A Rocky Recovery. Washington, DC. April.

**Graph 2.3**  
Global economic growth



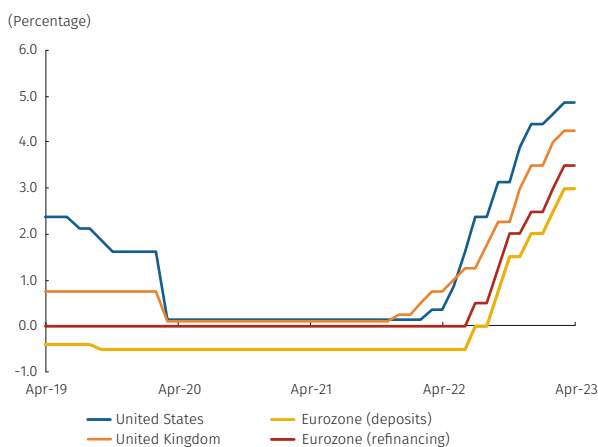
(est): estimated. (proj): projected.  
 a/ Corresponds to IMF projections for its April 2023 report  
 b/ Corresponds to OECD projections for its March 2023 report  
 Sources: International Monetary Fund and OECD

demand for Colombia of 1.9% in 2024, which is lower than the 2.0% stated in the previous report.

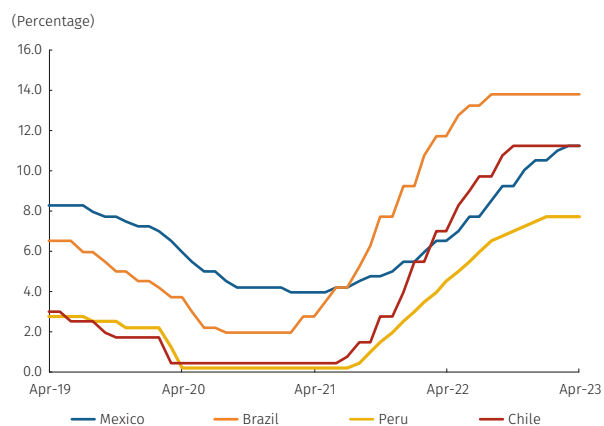
**For 2023, a reduction in economic growth would be expected in the major advanced economies. However, China’s growth is expected to increase, which would benefit the global dynamic.** In the United States, a GDP growth rate of 1.0% would be expected for 2023, which is lower than the economy’s potential and the previous year’s growth rate (2.1%). This assumption includes a weak economic performance in the second half of the year, amid the tightening of monetary policy (Graph 2.4, panel A), a decline in investment, and an impact on the internal financial conditions amid the recent financial stability risks. On the other hand, the eurozone would also be expected to experience a significant economic slowdown, falling to 0.6% in 2023. This would occur in an environment of additional adjustments to monetary policy, gradual withdrawal of fiscal support, and continuing risks in the natural gas supply (Graph 2.4, panel B). In the first quarter of 2023, the Chinese economy grew by 4.5% annually, and the expectation is that it would continue to recover, reaching 5.2% by year-end 2023. This upturn would be explained by the easing of health restrictions and by new government stimulus,<sup>2</sup> yet would be limited by a weakened real estate sector, heightened geopolitical tensions with the United States, and the slowdown in growth in advanced economies.<sup>3</sup>

**Graph 2.4**  
Monetary policy interest rate, select main trading partners

**A. Developed Economies**



**B. Latin America**



Note: January 2023 includes data observed on the 24th of said month.  
 Source: Bloomberg.

2 In March 2023, the People’s Bank of China (PBOC) cut the reserve requirement rate by 25 bps in order to stimulate private consumption.  
 3 At the close of this report, preliminary figures showed that in the first quarter of 2023, the US GDP grew by 1.6% annually. The eurozone would be expected to have grown by 1.3% in annual terms.

Table 2.1  
Economic Growth among Major Trade Partners<sup>a/</sup>

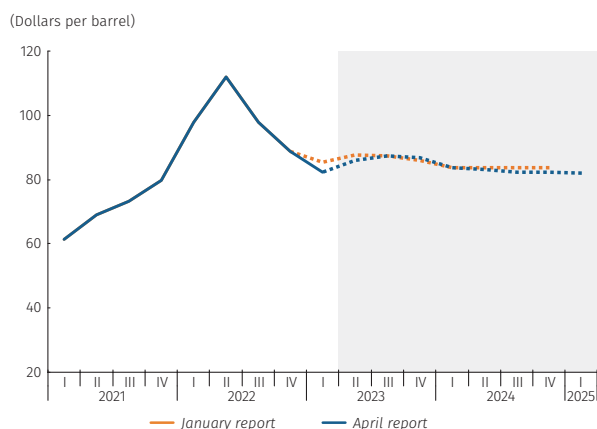
Main partners	2021 (pr)	2022 (proj)	2023 (proj)	2024 (proj)
United States	5.9	2.1	1.0	1.0
Eurozone	5.3	3.5	0.6	1.3
China	8.4	3.0	5.2	5.0
Ecuador	4.2	2.9	2.4	2.3
Brazil	5.0	2.9	0.9	1.6
Peru	13.6	2.7	2.0	2.6
Mexico	4.7	3.1	1.4	1.7
Chile	11.7	2.4	-0.7	2.1
All trade partners <sup>a/</sup>	7.1	3.0	1.6	1.9

(pre): preliminary, (proj): projected

a/ Projections based on contribution of non-traditional trade.

Sources: Bloomberg, Focus Economics, statistics offices and central banks (observed data); Banco de la República (projections and calculations).

Graph 2.5  
Assumed quarterly oil price



Source: Bloomberg, calculations, and projections by Banco de la República.

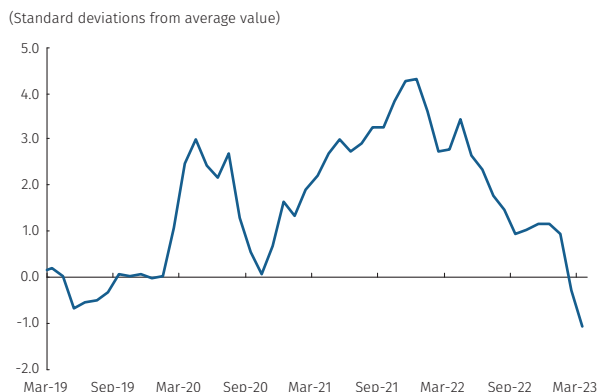
**For 2023, low economic growth would be expected for the main trading partners of the region<sup>4</sup> (1.5%) (Table 2.1).** In 2023, the slowdown in these economies would occur in an environment of tight internal and external financial conditions, lower year-on-year growth in advanced countries, and high global uncertainty. Some of these countries would continue to endure political and social uncertainty, while limited fiscal space would continue to impact the performance of their economic activity. However, prospects for private consumption have improved in some of these countries and they would benefit from China's expected economic performance improvement.

## 2.1.2 International Prices

**For 2023 and 2024, a reduction in oil prices would be expected compared to the 2022 average, although they would remain relatively high (Graph 2.5).** In the first quarter of 2023, oil prices showed increased volatility with an average Brent price of USD 82 per barrel (bl). In particular, the sharp price drop recorded in March occurred amid concerns about global financial stability. For the forecast horizon, the expected reduction in crude prices compared to 2022 would occur in a backdrop of a sharp slowdown in advanced economies and a fear of recession in the United States. This is compounded by Russia's cap on oil prices and the redirection of its exports, particularly to Asia, the increase in oil production in non-OPEC countries, better gas supply in Europe and a relatively strong dollar. However, the oil price would be pushed up by the economic recovery of China and outstanding growth in India and other Asian countries, larger cuts in oil extraction by OPEC+ and expectations of lower oil production in Russia. This explains the assumption of a relatively high oil price compared to pre-pandemic levels, averaging Brent prices of around USD 86 per barrel (bl) in 2023 and USD 83 bl in 2024. This implies some downward revision compared to the previous report (USD 87 bl in 2023 and USD 84 bl in 2024). In general, uncertainty surrounding the evolution of this price is high, primarily due to the multiple shocks affecting this market. In this environment, in 2023, the country's terms of trade for goods would present annual decreases, which would be associated with lower prices for the country's main exported products (oil, coal, and coffee), and would be partially offset by a moderation in the dollar price of imports as a result of normalization in global supply chains (Graph 2.6) and lower global demand pressures.

4 Is the average trade-weighted real GDP of Ecuador, Brazil, Chile, Mexico, and Peru.

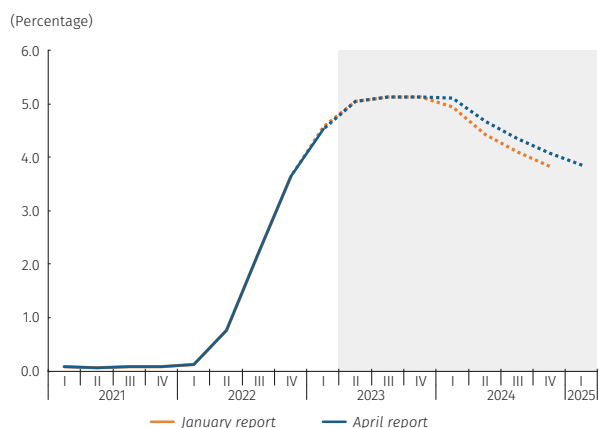
**Graph 2.6**  
Global Supply Chain Pressure Index<sup>a/</sup>



a/ For its construction the authors used international shipping indicators (Baltic Dry Index (BDI), Harpex index, among others) and certain subcomponents of the Purchase Manager Index (PMI) surveys for the Eurozone, China, Japan, South Korea, Taiwan, the UK, and the US.  
Sources: Gianluca Benigno, Julian di Giovanni, Jan J. J. Groen, and Adam I. Noble, "A New Barometer of Global Supply Chain Pressures" Federal Reserve Bank of New York Liberty Street Economics.

**In 2023, global inflation would be expected to decrease, yet remain above the target of most central banks.** According to the IMF’s April report, after reaching its peak in 2022 (8.7%), the average annual total global inflation would fall to 7.0% and 4.9% in 2023 and 2024, respectively. The moderation in inflation is occurring within a setting of lower commodity prices and the normalization of global supply chains (Graph 2.6). However, these values represent an upward revision from the IMF’s January report. In the United States, annual headline inflation continued to moderate in March and stood at 5.0% compared to 6.0% in February (Graph 2.2). However, the annual core inflation increased in March, reaching 5.6% after the 5.5% reported for the previous month.<sup>5</sup> On the other hand, annual headline inflation for the eurozone decreased in March, standing at 6.9% compared to 8.5% in February, while the annual core inflation increased to a historical high of 5.7% from 5.6% in the previous month (Graph 2.2). Finally, market expectations suggest that headline inflation would continue to temper in these countries, though it would be expected to remain above their 2.0% target at the end of this year.<sup>6</sup>

**Graph 2.7**  
Assumed U.S. Federal Reserve quarterly interest rate



Source: Federal Reserve Bank of Saint Louis, calculations, and projections by Banco de la República.

### 2.1.3 International Financial Developments

**For 2023, the assumption of the policy interest rate in the United States remained unchanged. For 2024, reductions with a terminal rate between 3.75% and 4.0% are expected, which is 25 basis points higher than the previous report (Graph 2.7).** In February and March, the Federal Open Market Committee (FOMC) increased the policy interest rate by 25 basis points at each meeting, bringing it to between 4.75% and 5.0% by the end of the first quarter, in line with the technical staff’s expectations in the January report. This occurred in a context of a tight labor market and emerging financial stability risks that would have moderated expectations of increases in the policy interest rate. Additionally, inflation - although reduced - remains elevated, with persistent upward pressures on its core component. Going forward, an increase of 25 basis points is still expected at the May meeting, which would place the rate between 5.0% and 5.25% by yearend 2023. This assumption is aligned with FOMC forecasts and different market surveys.<sup>7</sup> In contrast, futures markets have exhibited high volatility amid recent events associated with the banking system and sug-

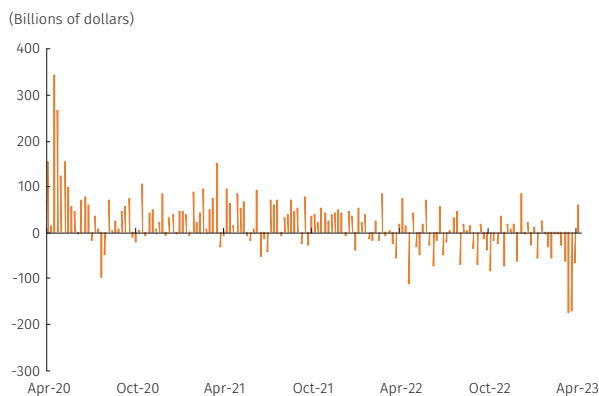
5 Lower fuel prices in March contributed to lower total annual inflation, while services prices continued to push core inflation upward.

6 In March, consumer inflation expectations stood at 4.7% and 2.8% for one and three years, higher than expected in the February survey (New York Federal Reserve). In the euro zone, the median harmonized headline inflation would stand at 3.2% and 2.2% for the last quarter of 2023 and 2024, respectively (March European Central Bank survey).

7 According to the FOMC’s March projections, the median policy rate for the end of 2023 and 2024 stands at 5.1 percent and 4.3 percent (up from 4.1 percent previously), respectively.

**Graph 2.8**  
U.S. bank deposits and financial conditions for select advanced economies

**A. Weekly change in bank deposits**



**B. Financial conditions in advanced economies**



Note: Data to 24 April 2023.

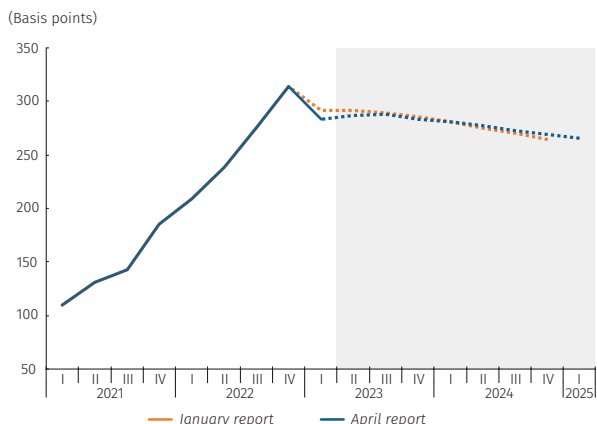
Sources: Federal Reserve Bank of Saint Louis, and Bloomberg.

gest lower rates starting from the last quarter of 2023<sup>8</sup>. For 2024, reductions are assumed that would bring the interest rate to a range between 3.75% and 4.0% by the end of the year, which implies a 25-basis point upward revision compared to the previous report. On the other hand, at its March meeting, the European Central Bank (ECB) increased its benchmark interest rates by 50 basis points to control inflation. Additionally, according to market surveys, further increases would occur in the coming months.<sup>9</sup>

**In March 2023, international financial conditions deteriorated compared to the first two months of the year.** After the collapse experienced by some banks in the United States in March and the financial difficulties affecting major banks in Europe towards the end of that month, international markets showed a strong risk aversion and concern about the soundness of the banking system in advanced economies. Similarly, the world's major stock markets recorded significant monthly declines, in particular regarding financial services companies' equity indices. In addition, volatility indicators in advanced economies (Vix, Vstox and Move) increased significantly compared to February, and deposits in US banks declined (Graph 2.8, panel A). Also, the yield curve in the United States continued to suggest a possible economic recession as it remained inverted despite a slope decrease recorded for March; consequently, international financial conditions deteriorated for that period (Graph 2.8, panel B). However, following the implementation of a new liquidity support program by the Federal Reserve, as well as the backing of the Swiss National Bank in UBS's acquisition of Credit Suisse, the turmoil in the banking market decreased during the last few weeks. The effect of recent international financial events on Colombia's financial conditions is uncertain, as short-term risk premiums may increase while in the medium term, they may decrease if central banks in advanced economies respond with a loose monetary policy to unfavorable domestic credit conditions. In this context, trade balance data for Colombia indicates outflows of foreign portfolio investments worth USD 661 million during the first quarter of 2023. This contrasts with portfolio investment inflows reported by the Institute of International Finance (IIF) in emerging economies worth USD 96.9 billion during the same period. These flows were mainly directed toward Asian countries (USD 55.4 billion) and Latin America (USD 29.0 billion).

- 8 At the beginning of March, expectations that the Fed would accelerate the pace of its benchmark rate hike to control inflation were high. Following the emergence of financial stability risks, the futures market began to signal reductions in the policy interest rate for this year.
- 9 The ECB's survey average anticipates that the interest rate for main re-financing operations (MROs) would increase from 3.5% in March 2023 to 4.25% by year-end.

**Graph 2.9**  
Colombia's assumed quarterly risk premium (CDS)<sup>a/</sup>

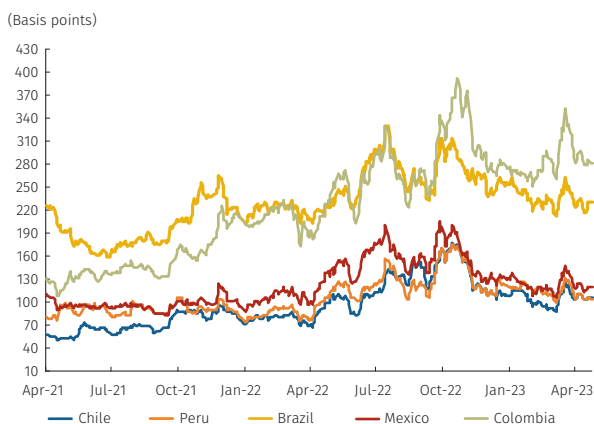


a/ Five-year credit default swaps  
Source: Bloomberg, calculations, and projections by Banco de la República.

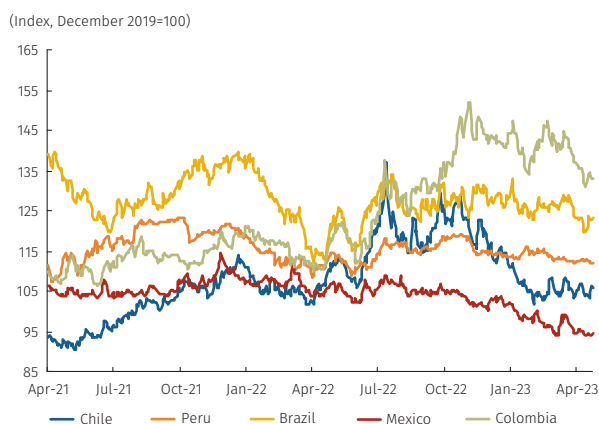
**Similar to the previous report, it is assumed that the forecast horizon for Colombia will continue to show a risk premium above its historical average and pre-pandemic level (Graph 2.9).** Due to high volatility and concerns about financial stability in advanced economies, risk premiums in several emerging economies increased in March compared to the values recorded in the first two months of the year (Graph 2.10, panel A). In the case of Colombia, the five-year Credit Default Swap (CDS) average increased from 275 basis points in February to 305 in March, peaking at 352. However, despite high volatility and concerns in international markets, exchange rates in the region remained relatively stable in March. As of April 25th, risk premiums for emerging economies have moderated, and currencies in the region, especially the Colombian peso, have shown a trend toward appreciation (Graph 2.10, panel B). The levels that the risk premium for Colombia has upheld are higher than its historical average due to external uncertainty factors such as concerns about a possible credit contraction in the United States and global financial stability, geopolitical uncertainty, and possible additional interest rate hikes in advanced economies, among others. Domestic factors such as the relatively high level of public debt to GDP ratio, ambiguity surrounding local economic policy and a credit rating for foreign currency debt that remains below investment grade also contribute to this premium. Considering the above, the technical staff would expect a risk premium similar to that of the January report, which would average 285 basis points in 2023. An average reduction up to 275 basis points would be expected for 2024, in line with the expected resolution of adverse events in international financial markets and the reduction of the country's macroeconomic imbalances.

**Graph 2.10**  
Behavior of nominal exchange rate and risk premium for select Latin American countries

**A. Five-year credit default swaps**



**B. Nominal exchange rate**



Note: Data to 25 April 2023.  
Source: Bloomberg, calculations by Banco de la República.

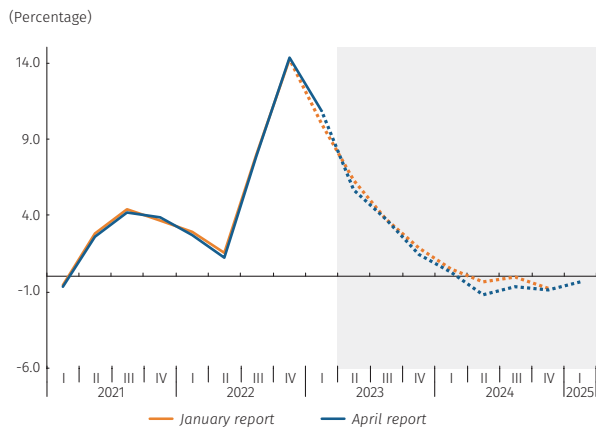
## 2.2 Macroeconomic Projections<sup>10</sup>

### 2.2.1 Inflation

**The decline in annual consumer inflation has been postponed to the second quarter of 2023, moment from which it would converge towards the target within the forecast horizon partly as a result of the cumulative effort of monetary policy.** For 2023 and most of 2024, inflation was revised upwards principally because of a greater expected adjustment in fuel prices. In addition, there were other unforeseen supply shocks, indexation to high inflation rates, higher cumulative exchange rate pressures and a wider output gap in 2023, among others. Throughout the forecast horizon, inflation would exceed the target, especially due to indexation effects and the necessary increase in domestic fuel prices. Despite this, headline inflation would be expected to decrease and adopt a convergence path towards 3.0% starting in the second quarter of 2023. This is a result of exchange rate pressures that would gradually subside, as suggested by the inflationary gap in the real exchange rate (Graph 2.11). This would be accompanied by a gradual decrease in international prices and costs, the deceleration of the Producer Price Index and the exhaustion of excess demand, in an environment where monetary policy has adopted a stance aimed at bringing inflation to levels close to 3.0% by the end of 2024. Additionally, an increase in agricultural supply would be expected as climate conditions normalize, the incentives for planting driven by high prices at the end of 2022 bear fruit and bottlenecks resulting from roadblocks subside. Based on the above, it would be expected that, by the end of 2023, annual headline inflation will stand at approximately 9.5% and that it will continue to decrease during 2024, reaching a figure close to 3.5% by the end of the year (Graph 2.12).

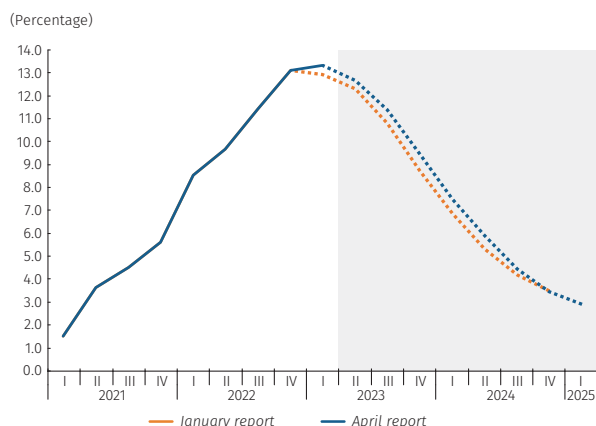
**The core inflation rate would be expected to gradually decrease as of the third quarter of this year as a result of tempering in demand growth and the convergence of inflation expectations towards the target.** The path for core inflation, measured through the CPI (excluding food and regulated items) was revised slightly upward, especially for 2023, mainly as a result of a wider output gap for much of this year and the indirect effects of higher fuel prices, as explained below. A further increase in core inflation would be expected in the second quarter; however, as the year progresses, the monetary policy measures implemented will help to gradually alleviate some of the upward pressures resulting from excess demand and high inflation expectations, allowing for a reversal of the upward trend and a convergence path towards 3.0% from the second half of the year. This would also be aided by the gradual lessening of pressures from the exchange rate, interna-

Graph 2.11  
Quarterly RER inflationary gap<sup>a/</sup>  
(annual change, period average)



a/ The real exchange rate (RER) inflationary gap captures inflationary pressures caused by the exchange rate. Positive values imply upward inflation pressures. The gap is calculated as the deviation in the real exchange rate relative to a non-inflationary trend estimate under the 4GM monetary policy model.  
Source: Banco de la República.

Graph 2.12  
Consumer Price Index (CPI)  
(Annual change, end-of-period)

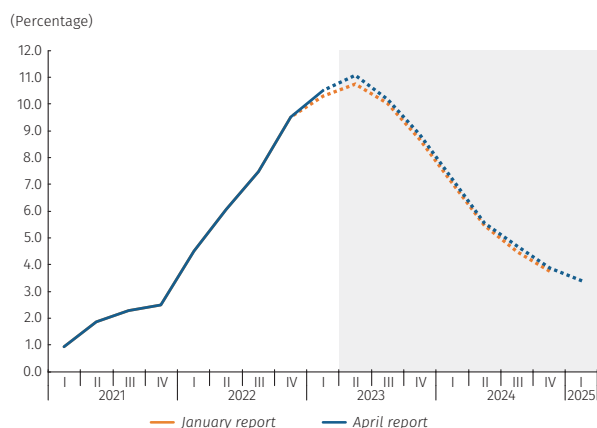


Source: DANE, calculations and projections by Banco de la República.

<sup>10</sup> Results assume an active monetary policy wherein Banco de la República's benchmark interest rate is adjusted to ensure compliance with the inflation target.

tional prices and costs, as well as the dilution of the upward effects associated with changes in indirect taxes and VAT-free days. On the goods sub-basket side, the effects of changes in VAT implemented last year<sup>11</sup> would dissipate in the second half of the year. This would allow the annual variation of this CPI sub-basket to significantly break its current trend from the third quarter, aided by the gradual reduction of the aforementioned external, exchange rate and demand pressures. Meanwhile, the annual variation of the CPI for services would be expected to face some upward short-term pressures stemming from disruptions in transport supply due to recent difficulties experienced by some airlines. Coupled with the significant weight of indexation factors and the upward shock earlier this year resulting from the full reinstatement of indirect taxes on some services<sup>12</sup> this sub-basket would only start to decrease from late 2023. Its reduction would be the result of the gradual alleviation of excess demand, inflation expectations, and costs of some services such as food away from home. Therefore, core inflation of around 8.9% would be expected by the end of 2023. For 2024, this indicator should maintain a convergence path toward the target, aided by the reversal of the shocks that have affected it, the elimination of excess demand, an indexation at lower inflation rates and the anchoring of inflation expectations to the target resulting from monetary policy actions. By the end of that year, core inflation would be forecast to close at 3.9% (Graph 2.13).

**Graph 2.13**  
CPI excluding food and regulated items  
(Annual change, end-of-period)



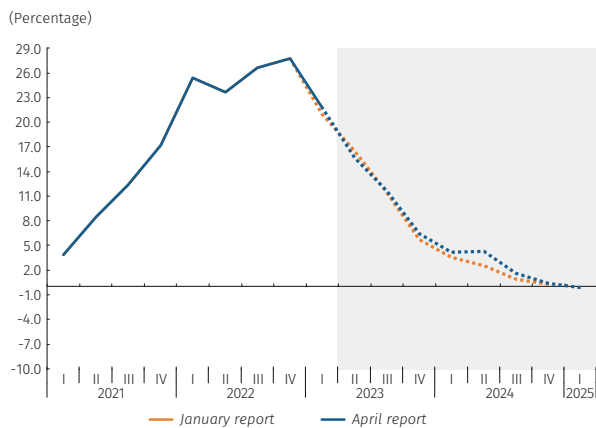
Source: DANE, calculations and projections by Banco de la República.

**The path for the annual variation of the CPI for food has been revised upward for yearend 2023 and for 2024, although it would continue to exhibit a decreasing trend insofar as supply shocks continue to be overcome and exchange rate pressures ease.** The substantial decrease in the annual adjustment of food prices projected throughout the horizon responds, in part, to the role that decreased international prices and costs, the dissipation of the exchange rate shock, and the recovery of domestic supply of perishable foods would play. The latter, thanks to the normalization of climatic conditions and the high internal prices observed in recent months should stimulate investment in the sector. In this context, it would be expected that the CPI of perishable foods experience a significant decrease in the second quarter of this year and subsequently show increases at much lower rates than those observed in 2022. Additionally, the CPI of processed foods should continue to increase, although at a lesser pace than that of the last two years. Thanks to the above, in both cases, more moderate annual variations are expected in the coming quarters. These forecasts assume normal climatic conditions throughout the

11 These changes correspond to (1) a reinstatement of VAT on toiletries and personal hygiene products as of July 2022; and (2) the last VAT-free day in June 2022. Due to the design of the collection of information by DANE, these changes in the VAT were reflected in the CPI for September 2022. Thus, their effect on the annual adjustment figures will remain for another twelve months.

12 Full reinstatement of VAT on airline tickets and tourism-related services, and excise tax on food away from home.

Graph 2.14  
CPI for foods  
(Annual change, end-of-period)



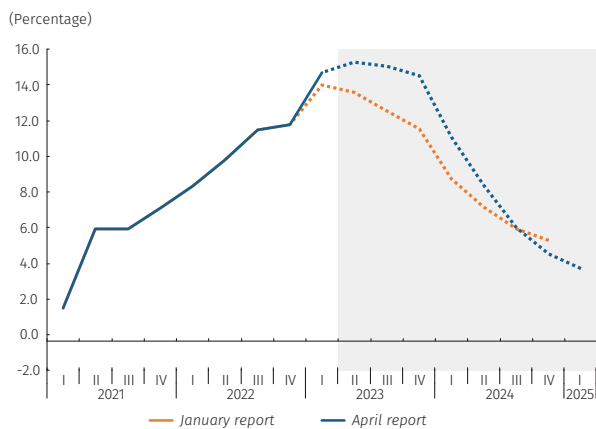
Source: DANE, calculations and projections by Banco de la República.

horizon. That is, they do not include the possible impact that a weak or moderate *El Niño* phenomenon could have at the end of this year and the beginning of the next, which has a high probability of occurrence according to some climate agencies. Considering the above, it would be expected that the annual variation of CPI of food for 2023 will close near 6.4% and in 2024 at around 0.4% (Graph 2.14).

**CPI for regulated items would continue to be subject to significant indexation pressures and would depend largely on the authorities’ decisions on fuel prices.**

The annual adjustment of the CPI for this sub-basket would remain high during 2023, close to 15.0%, and above the expectations set in January’s report, largely because of a higher path of observed and expected adjustments in fuel prices and some public services. However, the annual variation of the CPI for regulated items and services would decrease significantly in 2024, driven by a lessening of indexation pressures and a moderation in fuel adjustments, in an environment where upward exchange rate pressures and other costs that affect the tariffs of some public services are absent. For fuel prices, increases would be expected throughout the forecast horizon above those anticipated in the previous report, taking into account that the modifications observed at the beginning of the year exceeded the technical staff’s projections. These higher prices would also have an indirect upward impact via higher transportation costs primarily on the food and other items sub-baskets. Thus, the annual variation of the CPI for regulated items and services would be expected to reach its peak during the second quarter of 2023 and, from there, reverse direction towards a declining trend that would lead it approximately to 14.5% by yearend. This trend would subsequently continue throughout 2024, allowing for a year-end closure of 4.5% (Graph 2.15).

Graph 2.15  
CPI for regulated items  
(Annual change, end-of-period)

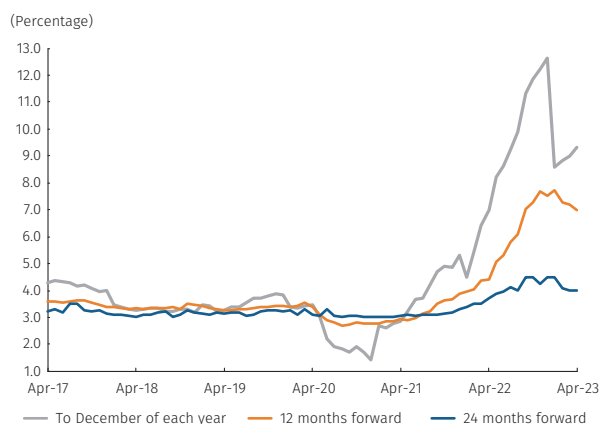


Source: DANE, calculations and projections by Banco de la República.

**The various measures of inflation expectations at all horizons continue to be above the target. Compared to January figures, expectations for the end of 2023 increased, while those for the end of 2024 did not change and one, two and five-year ahead inflation expectations fell or remained unchanged. The latter is a positive sign for re-anchoring expectations and the convergence of inflation towards the target.**

The expectations of economic analysts obtained from the monthly survey conducted by *Banco de la República* between April 10 and 12 (Graph 2.16) suggest a median headline inflation rate of 9.3% (8.6% in the January survey) and 9.4% for inflation excluding food (8.0% in the January survey) by the end of 2023. By yearend 2024, according to the survey results, these measures would drop to 5.0% (the same as indicated in the January survey) and 4.7% (4.6% in the January survey), respectively. Additionally, in the current survey, expectations for one- and two-year ahead headline inflation fell compared to the January survey from 7.7% to 7.0% and from 4.5% to 4.0%, respectively. For a five-year horizon, they remain stable at 3.4%. Moreover, with information to April 21, the expecta-

**Graph 2.16**  
Bank and stockbroker inflation forecast<sup>a/</sup>



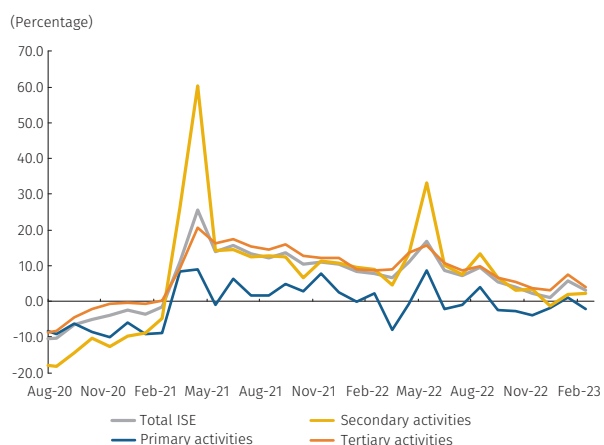
a/ Corresponds to the median response of the Monthly survey of economic analyst expectations conducted by Banco de la República.  
Source: DANE, calculations and projections by Banco de la República.

tions based on public debt bonds (breakeven-inflation, BEI) adjusted by the inflation and liquidity risk premiums,<sup>13</sup> show two-, three- and five-year ahead inflation expectations of 7.4%, 6.8%, and 5.8%, respectively (8.2%, 7.5%, and 6.3%, respectively, in April's report)<sup>14</sup>.

### 2.2.2 Economic Activity

**Available figures for the first quarter would have confirmed a slowdown of the Colombian economy on a year-on-year basis, although less pronounced than anticipated in the previous report. Despite the slowdown, GDP would have grown in the first quarter and the levels of economic activity would continue to be high.** For this period, the available sectoral indicators, including the Economic Tracking Index (ISE) as of February (Graph 2.17), suggest that the GDP would have grown at an annual rate of 3.0%, like the rate observed in the fourth quarter of 2022, but considerably lower than that observed during the rest of that year (Graph 2.18). Despite the above, the new forecast is higher than that contemplated in the January report (1.8%) and would imply a leveled expansion of the GDP (with a quarterly annualized growth rate of 2.7%). On the supply side, where most information is available to date, tertiary activities would have continued to show the highest activity, mainly because of the positive performance of financial and insurance, information and communication activities, and the high levels maintained by art and entertainment. Additionally, the agricultural sector would have a greater dynamic on account of the recovery of coffee production and livestock farming. Conversely, the manufacturing sector would have contributed to a slowdown of secondary activities.

**Graph 2.17**  
Economic Tracking Indicator (ISE), and ISE by sectors<sup>a/, b/</sup>  
(Annual change)



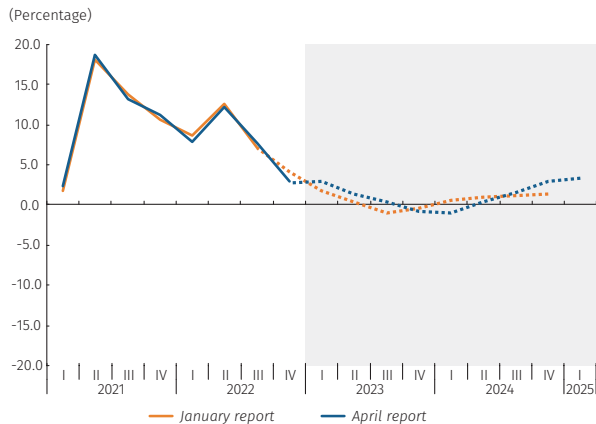
a/ Seasonally adjusted and corrected for calendar effects  
b/ Primary activities: agriculture, hunting, forestry and fishing, mine and quarry exploitation. Secondary activities: manufacturing industries and construction. Tertiary activities: electricity, gas, and water supply; commerce, repairs, transportation and lodging; information and communications, financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support services; public administration and defense, education and health; arts and entertainment  
Source: DANE, calculations and projections by Banco de la República.

**Domestic demand would have continued to slow down, particularly due to the weakening of investment.** In the first quarter, the annual growth of domestic expenditure would have moderated (2.0%) with a limited quarterly increase (0.3%). The expected decline in investment levels would explain much of the domestic demand's loss of momentum. Machinery and equipment investment fell during this first quarter, especially in the transportation category, according to preliminary in-

13 Inflation expectations net of premiums are calculated as the difference between nominal and real rates excluding risk based on public debt markets at multiple terms (Abrahams et al., 2015; Espinosa et al., 2015). Consequently, the so-called inflationary risk premium is derived by subtracting the premium by term on the TES in UVR from the premium on the TES curve in pesos. The differences between these term premiums can reflect uncertainty over future inflation, however it can also be influenced by friction in particular markets, such as the preference of some agents to invest in certain types of bonds. Meanwhile, the liquidity component is calculated as the difference between the liquidity premium from the TES curve in pesos and the premium from the TES curve in UVR. As a result, total BEI calculated with this methodology can be disaggregated by expected inflation, the inflationary risk premium, and a liquidity component.

14 These figures correspond to the calculation made in April for January rates.

**Graph 2.18**  
Quarterly GDP <sup>a/</sup>  
(Annual change)

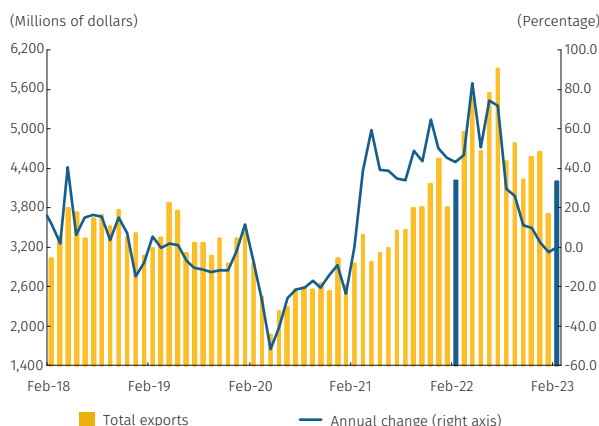


a/ Seasonally adjusted and corrected for calendar effects  
Source: DANE, calculations and projections by Banco de la República.

formation from capital goods imports in March. In contrast, construction investment (other buildings and structures, and housing) would have shown some progress in this period, primarily in the civil works subcomponent, which would be associated with increased execution of investment projects by local and regional governments.

**Total consumption would also have decelerated, largely due to a moderation of private consumption growth, despite continuing to display relatively high levels at the beginning of the year.** First-quarter expansion of private consumption would have occurred at a lower annual rate than that observed during 2022. Service consumption would have continued to report the highest dynamics, while the consumption of goods, particularly durable goods, would have been reporting setbacks. Available indicators support them, including tertiary ISE, retail sales, consumer credit disbursements and consumer goods imports (Graph 2.19). The expected deceleration of household consumption would occur within a context of low confidence levels and the depletion of savings amassed during the pandemic, in addition to tighter credit conditions than in 2022 partly because of monetary policy adjustments. Regarding first-quarter public consumption, some recovery is expected following the sharp drop reported by DANE in the second half of last year. This recovery implies an increase in the levels of expenditure by regional and local governments. Given the above, total consumption in the first quarter would have decelerated in terms of annual variations.

**Graph 2.19**  
Total goods exports (FOB)  
(Monthly)

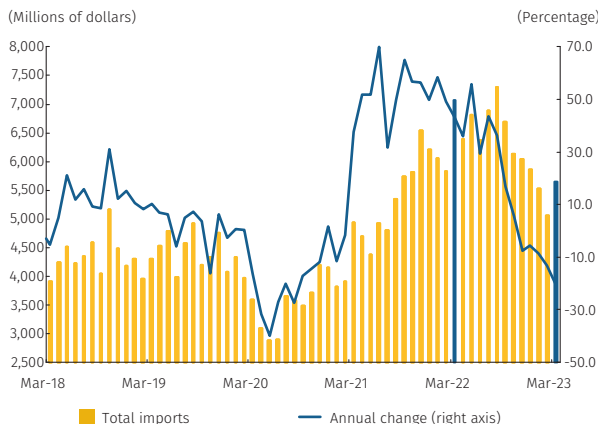


Source: DANE, calculations by Banco de la República.

**A moderate expansion of exports coupled with a correction of imports towards more long-term sustainable levels would have allowed net external demand to positively contribute to the quarterly annual growth.** A slight increase in exports for the first quarter would be associated with external sales of manufacturing and services, especially for non-resident tourism. This latter subcomponent would benefit from the depreciation of the peso. However, export growth would be limited by external sales of basic goods. This is suggested by the export volume figures observed in February (Graph 2.19), which show declines in coal and coffee exports. The higher coffee production observed at the beginning of the year should translate into increased external sales toward the second quarter of 2023. On the import side, a further decline in import volumes is expected, mainly due to lower purchases of capital goods, as suggested by preliminary DIAN figures for March (Graph 2.20). Thus, imports would present an annual decline largely due to the deceleration of domestic demand, particularly private consumption and investment in machinery and equipment. Considering the abovementioned, a drop in the trade deficit in constant pesos is expected compared to year-end 2022, as well as a positive contribution to annual GDP variation for the first time in two years.

**The downward revision of the 2022 GDP level and a more gradual slowdown during 2023 drove an upward adjustment in**

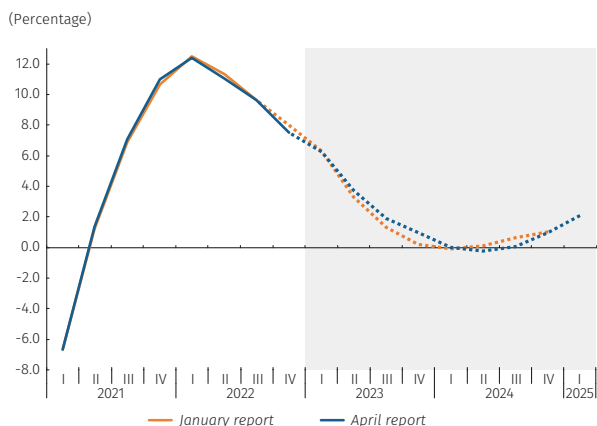
**Graph 2.20**  
Total goods imports (CIF)  
(Monthly)



Source: DANE and DIAN (preliminary foreign trade data); calculations by Banco de la República.

**the growth forecast for the whole year.** The economy would be expected to continue its slowdown in terms of annual variations, with quarterly setbacks in economic activity starting in the second quarter of 2023. In this way, the Colombian economy would enter a phase of moderation after having reached relatively high levels in 2022. This would occur in a backdrop of tight internal and external financial conditions, relatively low consumer and business confidence, and high—albeit declining—inflation, as previously noted. These circumstances would lead to a minimal expansion of private consumption throughout the year, without ruling out negative annual and quarterly variations in some quarters. On the contrary, slightly higher levels of public consumption are expected versus 2022, consistent with the National Government’s Financial Plan. Investments would be expected to fall both in annual and quarterly terms throughout the year, especially due to investment in machinery and equipment, concluding the high levels observed in 2022 will not be repeated. Housing investment levels could also see a contraction given the high supply and financing costs for households and businesses. This lower performance would be partially offset by investments made by local and regional administrations during their last year in office. On the international front, a scant increase in exports would be expected for the whole of 2023, partly as a result of the economic slowdown anticipated for the country’s main trading partners, as stated in the first part of this chapter. Given the above and considering the lower basis for comparison for 2022 resulting from the latest figures revised by DANE, GDP growth for the whole of 2023 is forecast at 1.0%, higher than the figure published in the January report (0.2%) (Graph 2.21).

**Graph 2.21**  
GDP, four-quarter cumulative<sup>a/</sup>  
(annual change)



a/ Seasonally adjusted and corrected for calendar effects  
Source: DANE, calculations and projections by Banco de la República.

**The adjustment of the economy would extend into 2024, with GDP growth rates below long-term levels, which would contribute to the convergence of inflation to its target.** By 2024, the baseline forecast scenario assumes that the shocks from international commodity prices and global supply chain problems, as well as the consequences of the conflict in Ukraine, would have been largely overcome. Thus, greater dynamism is expected in terms of trading partner economic growth which would boost Colombian exports. However, on the domestic front, the economic adjustment process should continue with scant growth in private consumption and investment. Although a gradual recovery in spending is expected as inflation declines and financial conditions begin to ease, the effect of these more favorable circumstances would be felt beyond the forecast horizon. With all this, a growth rate of 1.0% is projected for the Colombian economy for all of 2024 (Graph 2.22).

**In 2023, the Colombian economy would continue to show significant excess demand. This positive output gap would decrease throughout the year due to the projected restraint of domestic demand, then reach negative levels, thus contributing to the convergence of inflation to its target.** In 2022,

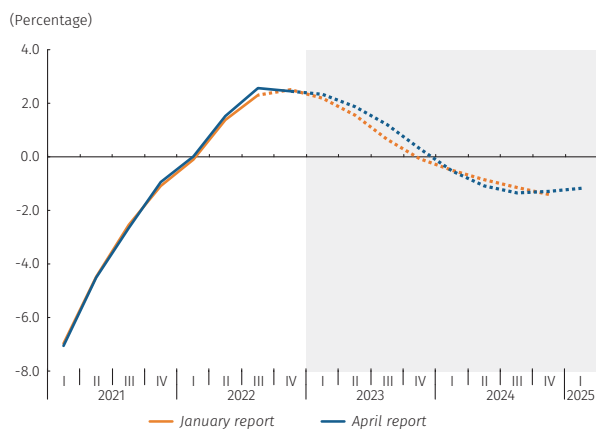
Graph 2.22  
GDP, yearly levels



Source: DANE, calculations and projections by Banco de la República.

the high GDP growth, driven by vigorous domestic demand, improvements in the labor market, along with core inflation that surprised on the upside with annual variations above the target, suggest that the Colombian economy would have operated above its productive capacity, as suggested by the current estimated output gap. For 2022, a similar annual positive output gap is estimated (2.4%), to that mentioned in the January report (2.5%) with an annual potential output growth that would have reached 4.0%. For 2023, it would be expected that these excesses of demand would gradually dissipate, consistent with tight internal and external financial conditions leading to an annual contraction of domestic demand. However, upward revisions for 2023 in both headline and core inflation as well as in the GDP's projected annual growth, among other factors, imply a slower closure of the output gap with slightly higher levels than those considered in the previous report. Thus, the central forecast scenario of this report includes an annual output gap that would be close to 0.3% by the end of 2023, which would then enter into negative territory and reach -1.3% by the end of 2024 (Graph 2.23). These estimates would be consistent with potential output level increases and annual rate growths of 3.1% in 2023 and 2.6% in 2024. It should be noted that these estimates are surrounded by great uncertainty due to the internal and external risks mentioned in other sections of this report.

Graph 2.23  
Output gap<sup>a/</sup>  
(four-quarter cumulative)



a/ The historical estimate of the output gap is calculated as the difference between observed GDP (four-quarter cumulative) and potential GDP (trend; four-quarter cumulative) from the 4GM model; for the forecast, it is calculated as the difference between the technical staff's GDP estimate (four-quarter cumulative) and potential GDP (trend; four-quarter cumulative) from the 4GM model. Source: DANE, calculations and projections by Banco de la República.

**Considering recent labor market behavior and economic activity forecasts, it is estimated that the national unemployment rate would remain stable during 2023 at 11.0%, ranging from 9.8% to 12.2%.** The information provided by the DANE's Integrated Household Survey (GEIH) and administrative records shows a slight growth in the labor market in annual terms, although monthly levels remain relatively stable. This slowdown in employment is more noticeable in the salaried segment and confirmed by other sources of information such as pension-dependent contributors and affiliates to occupational hazards and family compensation funds. It is also consistent with the relative stability shown in job vacancies and hiring expectations. Based on the aforementioned, the national unemployment rate for the rolling quarter that ended in February was 11.0%.<sup>15</sup> However, unemployment figures for February reported the lowest values in five years, partly due to improved employment dynamics in rural areas. Based on this situation and the macroeconomic scenario foreseen in this report, the technical staff estimates that the national unemployment rate would remain relatively stable throughout 2023. Hence, the yearly average would range between 9.8% and 12.2%, with a most likely value of 11.0%. In urban areas, the yearly average would range between 10.3% and 12.7%, with a most likely value of 11.5%. These forecasts as well as non-accelerating inflation rate of unemployment (NAIRU) estimates suggest that the urban unemployment gap remains

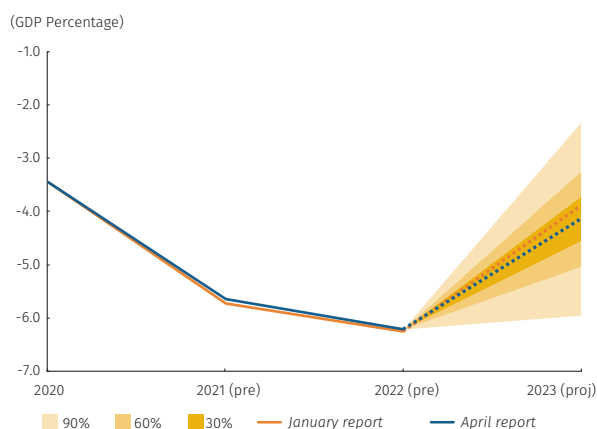
15 See Chapter 3 of this report for additional information.

in negative territory yet would close over the year.<sup>16</sup> This indicates that while the labor market remains tight, this situation would gradually correct itself during the year. Consequently, inflationary pressures from salary cost dynamics associated with the labor market would ease, although regulatory-related pressures would persist, particularly due to minimum wage adjustments.

### 2.2.3 Balance of Payments

**A current account deficit of 4.1% of GDP is projected for 2023, lower than the 6.2% observed a year ago (Graph 2.24).**<sup>17</sup> The lower trade deficit of goods and services would play a significant role in correcting the deficit. The aforementioned is primarily a result of the economic slowdown and domestic demand adjustment, which would thus reflect in lower import levels, coupled with the impact of lower prices of imported commodities and freight costs for merchandise transport as global supply chains return to normal. Favorable dynamics in tourism services exports are expected to continue surpassing pre-pandemic levels. However, the correction of the trade deficit would be constrained by the reduction in international prices of key export products such as oil, coal, and coffee, as well as the slowdown in external demand. This would be compounded by the relatively low production levels of the main export commodities, given the supply disruptions observed in recent years.<sup>18</sup> Lower net outflows in the primary income balance would also contribute to the annual adjustment of the current account deficit, where the effect of reduced profits of companies with foreign capital would dominate despite the expected increase in interest payments on debt by non-residents. Finally, regarding the current flows associated with secondary income, a relatively high surplus is expected to remain. This is because in 2023 worker remittances are expected to increase, in line with the increase in Colombian migration abroad and tight labor markets in several countries where Colombian migrants reside. From the perspective of savings and investment aggregates, the reduction of the current account deficit would be compatible with the smaller imbalance of the public sector and an adjustment of private sector consumption and investment. Overall, the uncertainty about current account forecasts and its components is high due to multi-

**Graph 2.24**  
Annual current account <sup>a/, b/</sup>  
(four-quarter cumulative)



(pre): preliminary, (proj): projected

a/ The graph displays the probability distribution and its most likely path for 2022 and 2023. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using primarily as reference the densities from the *Patacon* model.

b/ The probability distribution is derived from the forecasting exercise of the April report.

Source: Banco de la República.

16 See April 2023 Labor Market Report.

17 For the fourth quarter of 2022, the current deficit represented 6.1% of GDP, explained by high net factor income outflows and the trade imbalance. For the first quarter of 2023, the current account deficit is expected close at 4.5% of GDP, which represents a correction compared to the previous year.

18 In the case of coal, some mines have closed, resulting in a fall in production and exploitation. As for oil, in 2020 international prices fell significantly, affecting production and investment in the sector, and as a result, pre-pandemic extraction levels have not recovered. With regard to coffee, production has declined in the midst of climate-related issues and within a context of high agricultural supply costs.

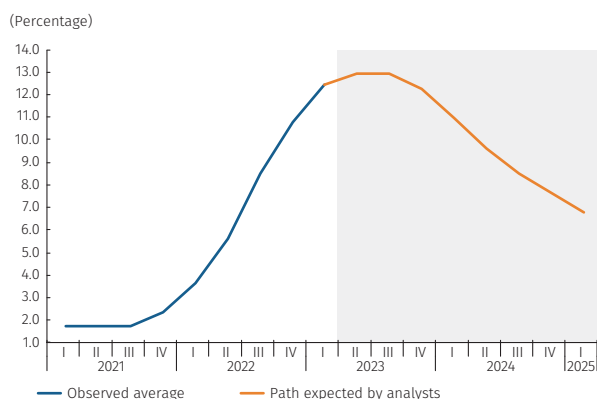
ple shocks affecting the global economy, risks to the country's growth and the volatility of international financial markets.

**In 2023, lower external financing needs are expected due to the reduced current account deficit.** This report assumes that the country would continue to have access to different sources of financing under an environment of high international interest rates and financial market volatility. Under this assumption, the financing of the current account deficit would continue to be largely supported by FDI. However, a decrease in capital inflows is expected owing to the economic slowdown, lower commodity prices and a high base for comparison given the large investment operations carried out in 2022. Private external borrowing would also continue to bring in resources. On the other hand, net capital inflows to the public sector would decrease in line with the expected lower fiscal deficit for this year.

#### 2.2.4 Monetary Policy and Interest Rates expected by Analysts

**The median analyst expectations for the second-quarter policy rate is 13%, decreasing to 12.3% by the end of the year (Graph 2.25).** The median response to *Banco de la República's* monthly survey of analyst expectations carried out at the beginning of April suggests that the policy interest rate during the second quarter of 2023 would stand at 13.0% and would begin to decline during the fourth quarter of the year, ending that quarter at 12.3% (Graph 2.25). Analysts anticipate significant reductions in the policy interest rate during 2024, projecting an average of 7.7% during the fourth quarter of 2024 and 6.8% at the beginning of 2025. In comparison, the technical staff would expect the policy interest rate to behave in a manner consistent with the gradual convergence of the inflation to the target, which is on average higher than what was anticipated by the market in the April 2023 survey. It is worth mentioning that the respondents also expect higher growth and inflation rates than those forecasted by the technical staff. The forecast horizon continues to be characterized by high levels of uncertainty around the speed at which external and internal shocks affecting inflation will dissolve, the speed at which excess demand will be corrected, and the external financial conditions that could increase or reduce inflationary pressures stemming from the exchange rate.

**Graph 2.25**  
Monetary policy interest rate: average observed quarterly, and rate expected by analysts <sup>a/</sup>



a/ These projections are calculated considering the quarterly average of the current rate according to the median response of the Monthly survey of economic analyst expectations conducted by Banco de la República for April 2023.  
Source: Banco de la República.

### 2.3 Balance of Macroeconomic Risks

**Several of the upward inflationary risks have materialized and been incorporated into the central scenario, resulting in higher projected inflation despite a more balanced risk environment.** Compared to the previous report, several of the shocks that have affected prices have been incorporated into the central inflation scenario, which implies a higher projec-

tion by yearend 2023. In the predictive densities (PD)<sup>19</sup> exercise carried out in this report, uncertainty remains high, and several risk factors are incorporated into the macroeconomic scenario, including uncertainty about the external context of the economy, the pace of adjustment of domestic demand, the speed at which supply shocks dissipate, and the future evolution of fuel prices (given external factors and local administrative decisions affecting such prices).

**Uncertainty surrounding the external outlook remains significant, particularly concerning the factors that determine the financing conditions of emerging economies.** In this context, the predictive density exercise incorporates high levels of uncertainty about the Fed's interest rate amid risks of more persistent inflationary pressures, concerns about financial stability, and the possibility of a slowdown in the United States. In turn, the risk premium (five-year CDS) maintains an upward bias especially because of local factors in a backdrop of persisting significant macroeconomic imbalances. Finally, there remains a moderate negative bias on global economic activity insofar as important geopolitical conflicts continue, as well as risks of further global trade fragmentation and increases in social and political tensions in the region. Considering the above, inflationary pressures from the exchange rate would be expected to have significant uncertainty and an upward bias in the forecast horizon.

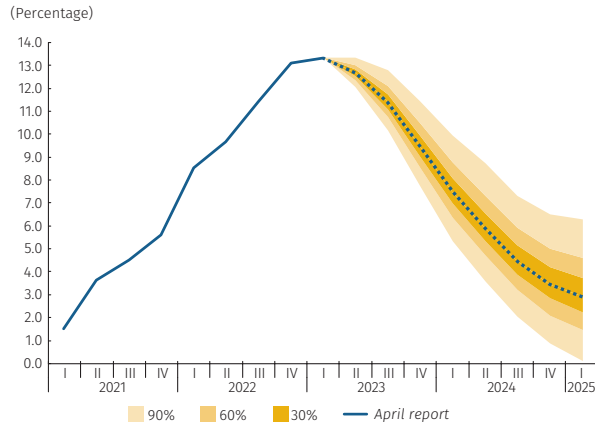
**The DP exercise includes an upward bias in headline inflation for 2023, which is accentuated in 2024. However, the materialization of risks has led to a more balanced outlook (Graphs 2.26 and 2.27).** This report considers that the volatility of the external environment and its consequences on exchange rate pressures continues to generate significant uncertainty and an upward bias on the goods, regulated items and food baskets. Additionally, there are still certain specific risks that affect the uncertainty and inflation biases over the projection horizon. In particular, the DP exercise incorporates risks related to the effects on the prices of rents as the housing supply decreases, greater adjustments in the price of fuels and some public utility tariffs, as well as air and land transportation fares.

**Risks to economic activity forecasts would be relatively balanced in 2023 with a downside bias for 2024 (Graph 2.28), although high uncertainty remains regarding the speed at which consumption would slow down.** The predictive density exercise incorporates the new GDP growth path which assumes a more balanced risk profile than in the previous report. However, the speed at which economic activity, particularly consumption, would slow down remains an important source of uncertainty in the forecasts. For 2024, the predictive density exercise considers risks that generate downward biases in GDP growth and the output gap (Graph 2.29). Among the most noteworthy factors that affect this result is the upward bias in the cost of external financing originating from a less favorable behavior of risk premiums (CDS) than expected, as well as the possibility of lower global economic activity. In this context, the predictive density for GDP growth and the output gap continues with a high level of uncertainty and a downward bias in 2024.

**In summary, the balance of risks is characterized by a significant level of uncertainty for inflation in 2023. For 2024, there remains a downside bias for GDP growth and an upside bias for inflation.** In this context, there is a 90% probability that headline inflation would lie between 7.8% and 11.5% by yearend 2023 and between

<sup>19</sup> Technical details on the construction of the risk balance through the predictive density exercise can be found in the paper "*Caracterización y comunicación del balance de riesgos de los pronósticos macroeconómicos: un enfoque de densidad predictiva para Colombia*" (Méndez-Vizcaíno et al., 2021) and in Box 1 of the July 2021 Monetary Policy Report.

**Graph 2.26**  
Consumer price index, predictive density a/, b/  
(annual change, end-of-period)



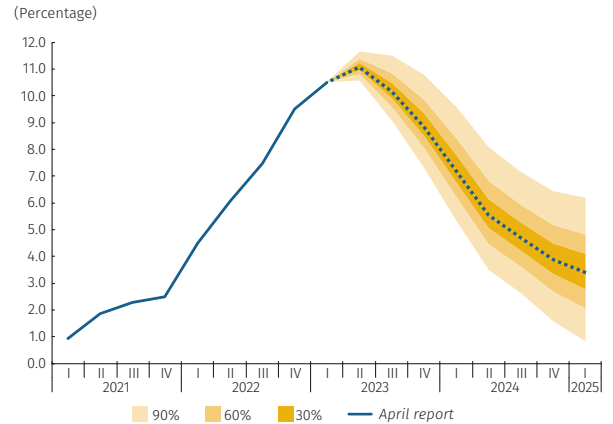
	2Q 2023	4Q 2023	4Q 2024
<b>Mode</b>	12.7	9.5	3.4
<b>&lt; Mode</b>	53%	54%	55%
<b>Intervals</b>			
<b>&lt;2</b>	0.0%	0.0%	16.7%
<b>2 a 4</b>	0.0%	0.0%	40.6%
<b>&gt;4</b>	100.0%	100.0%	42.7%

a/ The graph displays the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the *Patacon* and 4GM models.

b/ The probability distribution is derived from the forecasting exercise of the April report.

Source: DANE; calculations and projections by Banco de la República.

**Graph 2.27**  
CPI excluding food and regulated items, predictive density<sup>a/, b/</sup>  
(annual change, end-of-period)



	2Q 2023	4Q 2023	4Q 2024
<b>Mode</b>	11.1	8.9	3.9
<b>&lt; Mode</b>	54%	56%	54%
<b>Intervals</b>			
<b>&lt;2</b>	0.0%	0.0%	8.5%
<b>2 a 4</b>	0.0%	0.0%	41.5%
<b>&gt;4</b>	100.0%	100.0%	49.9%

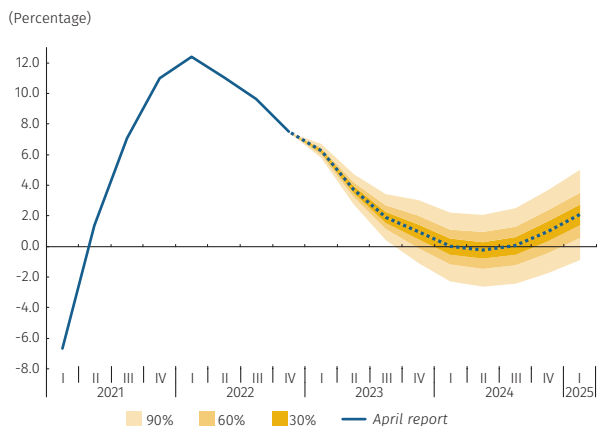
a/ The graph displays the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the *Patacon* and 4GM models.

b/ The probability distribution is derived from the forecasting exercise of the April report.

Source: DANE; calculations and projections by Banco de la República.

0.9% and 6.5% at the end of 2024. Meanwhile, core inflation, with the same degree of certainty, would be between 7.3% and 10.8% at the end of 2023, and between 1.6% and 6.4% in the fourth quarter of 2024. The probabilities of headline and core inflation being below 4.0% during the fourth quarter of 2024 are 57% and 50%, respectively, similar to those estimated in the January report. As for economic activity, there is a 90% probability that annual GDP growth would be in a range between -1.1% and 3.0% for 2023 and between -1.8% and 3.7% for 2024.

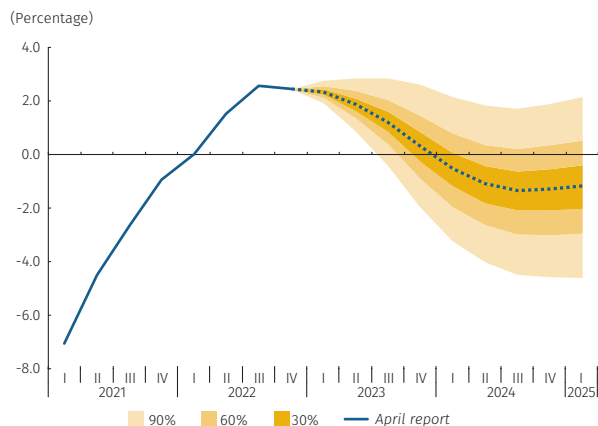
**Graph 2.28**  
GDP, four-quarter cumulative, predictive density <sup>a/, b/, c/</sup>  
(annual change)



	1Q 2023	4Q 2023	4Q 2024
<b>Mode</b>	6.3	1.0	1.0
<b>&lt; Mode</b>	50%	51%	52%
<b>Intervals</b>			
<0	0.0%	23.2%	28.9%
0 a 2	0.0%	56.7%	45.1%
2 a 5	0.0%	19.9%	24.8%
>5	100.0%	0.2%	1.2%

a/ The graph displays the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the *Patacon* and 4GM models.  
b/ The probability distribution is derived from the forecasting exercise of the April report.  
Source: DANE, calculations and projections by *Banco de la República*.

**Graph 2.29**  
Output gap, predictive density <sup>a/, b/, c/</sup>  
(four-quarter cumulative)

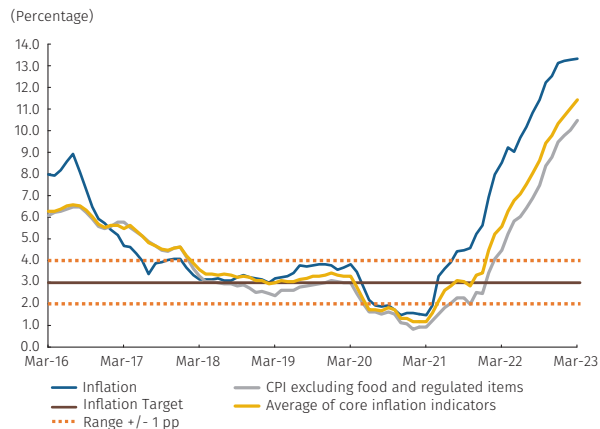


	I trim. 2023	IV trim. 2023	IV trim. 2024
<b>Mode</b>	2.3	0.3	-1.3
<b>&lt; Mode</b>	51%	51%	53%
<b>Intervals</b>			
< -2	0.0%	4.7%	38.1%
-2 a 0	0.0%	37.6%	37.1%
0 a 2	9.7%	46.2%	19.5%
>2	90.3%	11.6%	5.2%

a/ The graph displays the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the *Patacon* and 4GM models.  
b/ The probability distribution is derived from the forecasting exercise of the April report.  
Source: DANE, calculations and projections by *Banco de la República*.

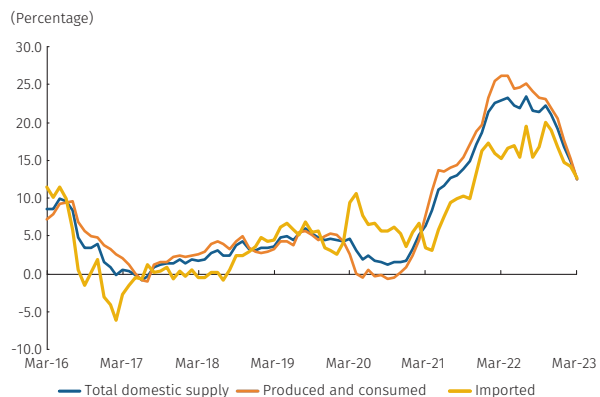
## 3. Current Economic Situation

Graph 3.1  
CPI and core inflation indicators  
(Annual change)



Sources: DANE and Banco de la República.

Graph 3.2  
PPI by origin  
(Annual change)



Sources: DANE, calculations by Banco de la República.

Graph 3.3  
CPI for goods and services, excluding food and regulated items  
(Annual change)



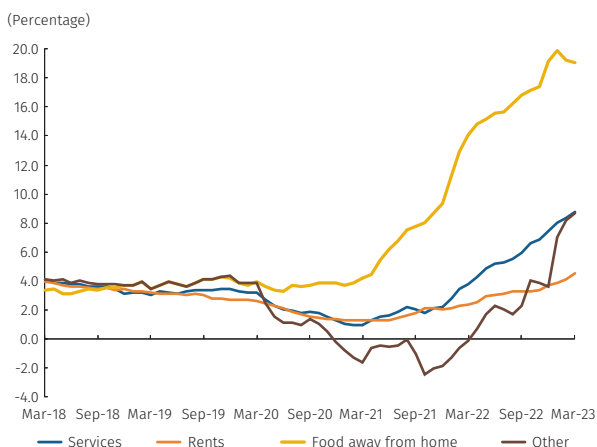
Sources: DANE, calculations by Banco de la República.

### 3.1 Inflation and Price Behavior

During the first quarter, annual consumer inflation remained relatively stable and slightly above 13% against a backdrop of decreasing external inflationary pressures, but with still persistent upward local pressures. Annual inflation ended the first quarter of the year at 13.3%, higher than forecast in the previous report (Graph 3.1). Annual core inflation (CPI excluding food and regulated items) continued the ascending path it had been following since the beginning of 2021, climbing from 9.5% in December 2022 to 10.5% in March 2023. In the year to date, consumer inflation was affected by inflation-indexed prices of goods, services and regulated items to the observed inflation rate, along with some indirect tax reinstatement which took place early in the year. The demand and exchange rate pressures also encouraged the marked price adjustments, as indicated by the positive output and real exchange rate gaps referred to further on. External pressures continued to subside early in the year, as suggested by falling international commodity and goods prices and declining inflation in the United States and other countries (see Chapter 2 of this report). The aforementioned, along with improved weather conditions, has been reflected in a deceleration in the rate of food price increases, with its annual variation beginning to drop as of February. These same factors influenced producer inflation, which in March was below the rate witnessed in December, reaching 12.5% and 19.2% respectively, a fall that was also aided by a favorable base of comparison. Within the PPI basket, the drop in both the local component (from 20.5% in December to 12.5% in March) and the imported component (from 16.4% to 12.7%, respectively) contributed to a fall in producer inflation (Graph 3.2).

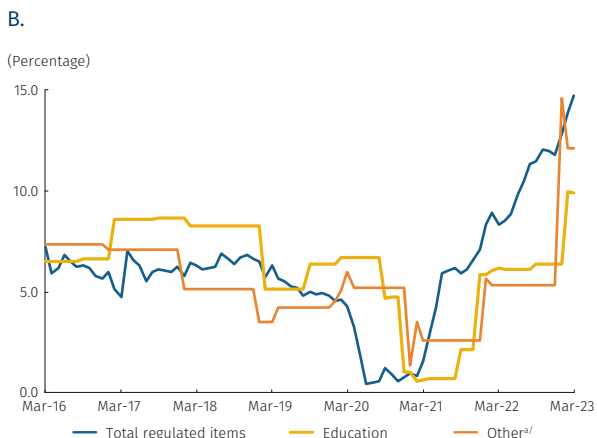
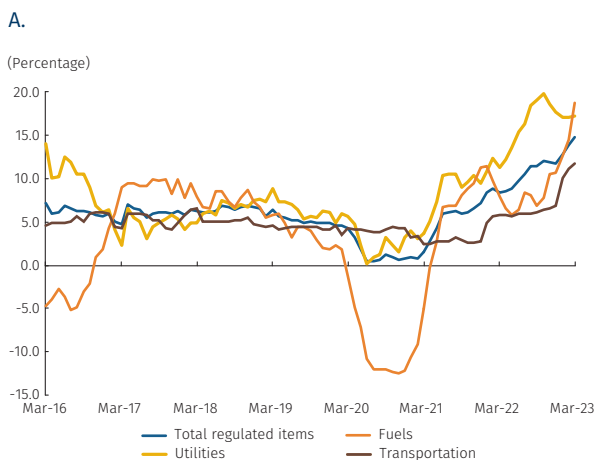
During the first quarter, annual growth in the CPI for goods remained relatively stable and disrupted the upward path it had been following since the beginning of last year. In fact, the ascending momentum of goods decelerated between December (15.0%) and March (15.1%) (Graph 3.3). Nevertheless, the annual rate of change in goods remained high, largely due to idiosyncratic factors including an enduring positive output gap and a particularly strong demand for means of transportation (vehicles, motorcycles and bicycles). Additionally, there are upward pressures resulting from the indirect tax reinstatement (on toiletries, hygiene and some medical products) as of mid-2022, an event that implicates a rise in prices that in annual terms will last until the middle of this year. The cumulative exchange rate depreciation from previous quarters also augments this, as suggested by the positive real exchange rate gap of the second quarter (Graph 3.3).

**Graph 3.4**  
CPI for services, excluding food and regulated items and its components  
(Annual change)



Sources: DANE, calculations by Banco de la República.

**Graph 3.5**  
CPI for regulated items and its components  
(Annual change)



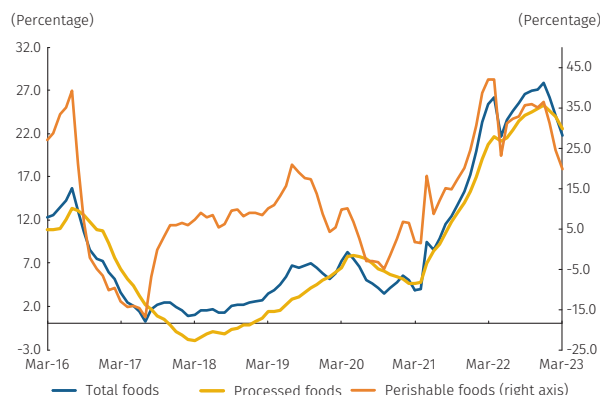
a/ Includes moderated EPS quotas, administrative certificates and documents, and professional fee payments  
Sources: DANE, calculations by Banco de la República.

**The annual change in the CPI for services continued to rise during the first quarter because of the indexation of certain prices to the high inflation seen in 2022 and the significant adjustment of the minimum wage.** This upward trend resulted in an annual change in services that reached 8.7% in March. During the first quarter, the CPI for services was largely driven by the escalation of rent prices, which in March recorded an annual change of 4.5% (Graph 3.4). Another sub-basket that heightened the CPI for services was the sub-set “others”, which in March registered an annual change of 8.6%. Most notable in this sub-set were more expensive prices for vehicle insurance and higher education in general. In the former, the increase was primarily derived from higher automobile prices and, in the latter, from the role of indexation to the higher wages and 2022 inflation mentioned before. Furthermore, the price of airline tickets and tourism, in general, increased due to the post-pandemic reinstatement of the VAT on these services. Annual changes in the CPI for food away from home began to level off at around 19.0% during the first quarter, after exhibiting a marked upward trend as of the second quarter of 2021. The recent stability seen in food away from home may be the result of a slowing in food price changes, as explained further on.

**During the first quarter, the annual change in the CPI for regulated items accelerated significantly, mainly due to adjustments in domestic fuel prices.** The annual change in the CPI for regulated items increased between December (11.8%) and March (14.7%), mainly owing to a revision in the price of regular gasoline, which increased during the first quarter by more than COP 1,000 and spurred the annual percentage change thereof from 10.7% in December 2022 to 18.7% in March 2023 (Graph 3.5, panel A). As explained in previous reports, this price increase is an adjustment resulting from the Government’s policy aiming to correct the deficit of the Fuel Price Stabilization Fund (*Fondo de Estabilización de los Precios de los Combustibles*, FEPC) by closing the gap between the spot price of gasoline and its international benchmark. These greater fuel costs, higher inflation, and minimum wage increases significantly intensified the annual adjustments to regulated transportation components between December (6.8%) and March (11.6%). Moreover, public utilities continued to register high annual adjustments, slightly above 17% in the first quarter. Finally, both basic education (9.9%) and the “others” group (12.1%) also contributed to increasing the CPI of regulated items between January and March, as a result of their indexation to higher inflation and wages (Graph 3.5, panel B).

**The increases in food prices began to taper off during the first quarter owing to more favorable international conditions.** Between December (27.8%) and March (21.8%), the annual change in the CPI for food fell for the first time since the first quarter of 2021, with slowdowns especially in the perishable foods segment (Graph 3.6). International prices and costs continued

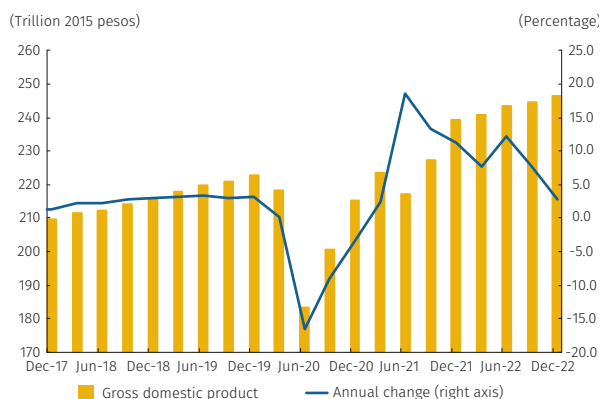
**Graph 3.6**  
CPI for foods and its components  
(Annual change)



Sources: DANE, calculations by Banco de la República.

to fall in the first quarter, in contrast to the steep increases experienced during the same period of the previous year when the conflict in Ukraine began, which considerably heightened food prices in Colombia. The gradual abatement of this shock became apparent at the beginning of 2023 and has translated into a decline in annual perishable and processed foods changes, which also enjoyed a favorable base of comparison. The fall in the annual change during the first quarter was partially offset by still unfavorable weather conditions that provoked, among other factors, supply problems in certain regions of the country due to the closure of several roads, including the Pan-American Highway, which was the most detrimental. Other factors that have prevented a greater drop in the CPI for food were the cumulative exchange rate depreciation, higher labor costs, and domestic supply problems for milk, beef, tuber and plantain products.

**Graph 3.7**  
Gross domestic product <sup>a/</sup>  
(Quarterly and annual change)

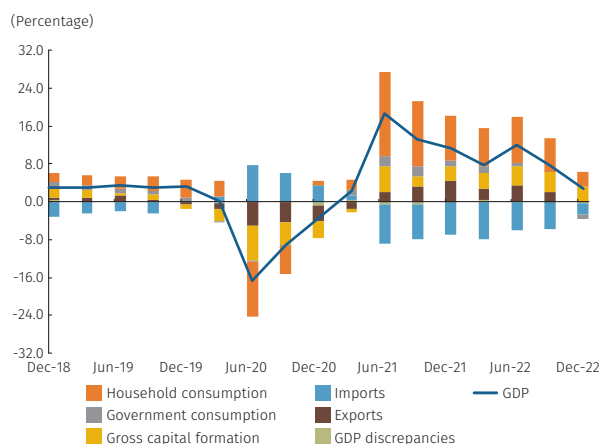


a/ Seasonally adjusted and corrected for calendar effects  
Sources: DANE, calculations by Banco de la República.

### 3.2 Growth and Domestic Demand

**In the fourth quarter, annual GDP growth moderated significantly due to a slowdown in domestic demand.** In this period, the economic activity posted a year-on-year growth of 2.9%, continuing the downward trend prevailing since early 2022 (Graph 3.7). This is lower than the figure estimated in the January report (4.1%), largely due to an upward revision in historical data. In quarterly terms, GDP growth was moderate (2.7% quarterly annualized, according to seasonally adjusted data corrected for calendar effects). Consequently, the Colombian economy for the whole of 2022 grew by 7.5%, reaching levels that surpassed by 10.7% those seen in 2019 (see Box 2). These results occurred in a domestic setting of high inflation and rising loan interest rates, as well as tighter international financial conditions and the economic slowdown of Colombia's trading partners. These factors, in the aggregate, began to translate into a more moderate domestic demand as of the third quarter, continuing into the fourth quarter, with exports contributing less to growth (Graph 3.8). On the supply side, tertiary activities maintained a positive growth momentum, while the agricultural sector, mining and construction registered year-on-year contractions.

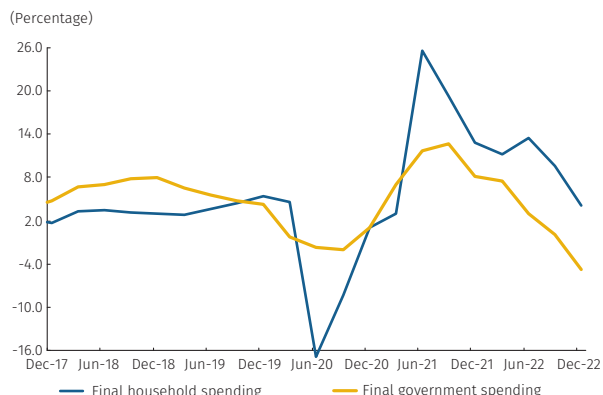
**Graph 3.8**  
Contributions to annual changes to quarterly GDP <sup>a/</sup>  
(Annual change, contribution)



a/ Seasonally adjusted and corrected for calendar effects  
Sources: DANE, calculations by Banco de la República.

**Consumption grew at a slower pace, which in turn diminished the annual growth of domestic demand.** In this quarter, domestic demand grew by 4.6%, annually, the first negative quarterly rate (-1.6%) since the second quarter of 2020. This slowdown was primarily due to a significantly lower quarter-on-quarter decrease in total consumption, which expanded annually by only 2.0% in this period. In household spending, the durable and semi-durable goods segments contracted in both annual and quarterly terms, while non-durable goods and services grew marginally, although decreasing in annual terms. The slowdown in private consumption occurred against a backdrop of high real interest rates, low confidence

**Graph 3.9**  
Final household and General Government spending <sup>a/</sup>  
(Annual change)

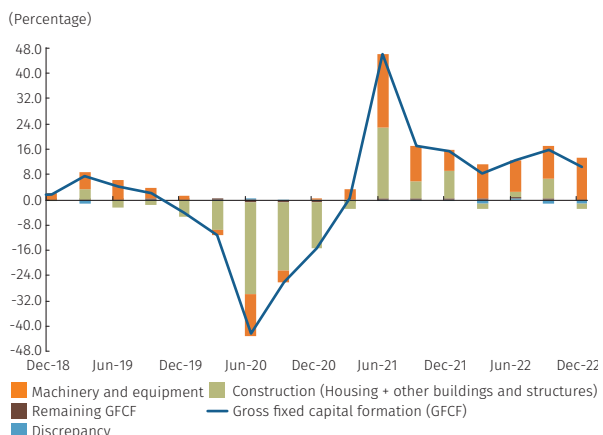


<sup>a/</sup> Seasonally adjusted and corrected for calendar effects  
Sources: DANE; calculations by Banco de la República.

levels and the depletion of household savings accumulated during the pandemic, which supported a good part of the consumption recovery seen in 2021 and 2022. Additionally, during the fourth quarter, public consumption recorded a significant annual and quarterly drop (4.8% and 5.1%, respectively), partly attributed to lower reimbursements to healthcare providers for services and medicines, as well as lower purchases of Covid-19 vaccines.

**Total investment also decelerated, but continued its double-digit annual growth, reaching new highs.** During the fourth quarter, gross capital formation increased quarter-on-quarter, although the annual growth leveled off significantly (Graph 3.10). The quarterly improvement was the result of increased investment in machinery and equipment, a segment that performed better than expected, expanding in the quarter by 6.2%, and by 31.3% on an annual basis. Construction investment, however, showed only modest performance, with decreases in both the housing component and in other buildings and structures. For the former, although annual growth was relatively low (3.6%), it continued to surpass pre-pandemic levels (see Box 1). The latter saw an annual decline (-8.3%), mainly associated with weak spending on civil works that continued throughout the year.

**Graph 3.10**  
Quarterly gross fixed capital formation <sup>a/</sup>  
(Annual change, contributions)

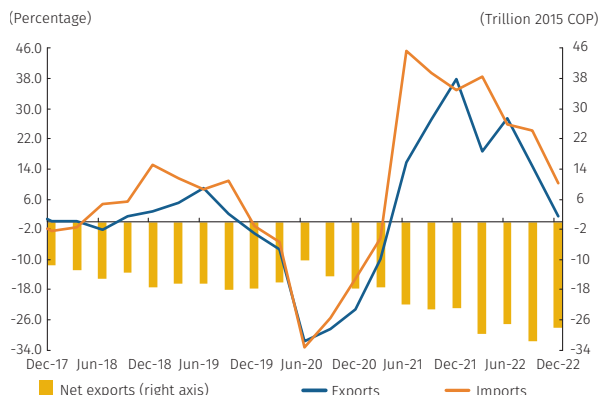


<sup>a/</sup> Seasonally adjusted and corrected for calendar effects  
Sources: DANE, Calculations by Banco de la República.

**In the fourth quarter, there was a significant decline in imports in real COP, while exports continued to gradually increase.** The slowdown in domestic demand, specially seen in lower consumption levels, translated into a considerable quarterly drop in imports during the fourth quarter (-5.3%), and although annual growth remained high (10.1%), it moderated versus previous quarters. This fall in imports was largely explained by lower purchases of capital goods and durable consumer goods. In contrast, exports kept levels close to those of the third quarter, driven mainly by external sales of manufactured goods and services. Nevertheless, this growth was offset by declines in exports of basic goods, such as coal and coffee. Accordingly, the trade deficit in constant pesos for the fourth quarter was slightly smaller than in the third quarter (Graph 3.11), although its contribution to annual GDP change remained negative.

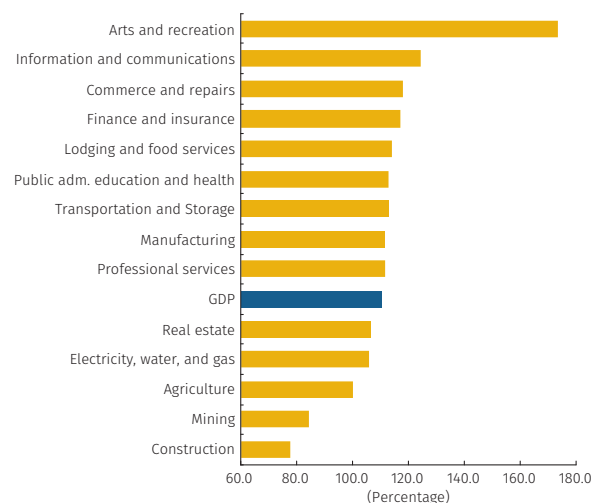
**On the supply side, except for art and entertainment activities, all GDP components exhibited a slowdown in annual growth.** In the fourth quarter of 2022, tertiary activities continued to be the most dynamic, with an annual increase of 4.3%. This behavior was mainly explained by the solid performance of the arts and entertainment sector (40.2%), given the boom in online gaming and sports betting. Likewise, the financial and insurance sector (8.4%), and information and communications activities (6.3%) also continued to show momentum. Secondary activities, on the other hand, only grew by 1.6%, given a significant annual decline in the civil works segment and a slowdown in the annual growth of the manufacturing industry.

**Graph 3.11**  
Exports, imports, and trade balance <sup>a/</sup>  
(Annual change and trillion 2015 COP)



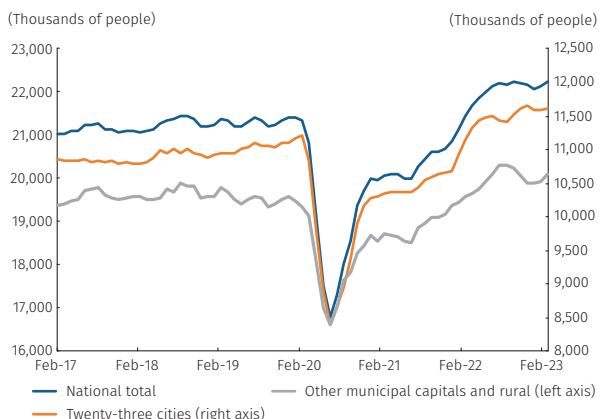
a/ Seasonally adjusted and corrected for calendar effects  
Sources: DANE, calculations by Banco de la República.

**Graph 3.12**  
Sectoral value added in 4Q 2022 relative to 4Q 2019 <sup>a/</sup>  
(4Q 2019 = 100%)



a/ Seasonally adjusted and corrected for calendar effects  
Sources: DANE, calculations by Banco de la República.

**Graph 3.13**  
Employed population by location



Note: corresponds to rolling seasonally adjusted data  
Sources: DANE (GEIH), calculations by Banco de la República.

The primary sector continued to show a negative growth trend (-3.2%), given the poor performance of agricultural activities that were adversely affected by negative weather conditions, among other factors, which mainly impacted coffee as well as some other crops. The primary sector was also affected by very low growth in coal and oil extraction, sectors whose fourth-quarter results were markedly below pre-pandemic levels (Graph 3.12). It should be noted that although most of the productive sectors registered annual growth, it was below the levels observed in previous quarters.

### 3.3 Labor Market<sup>20</sup>

**The most recent labor market information shows that annual employment growth continues to moderate yet remains at relatively stable levels.** In the rolling three-month period ending in February, the results of the Integrated Household Survey (GEIH) show an annual growth for employment of 3.6%, which equals 768,000 new jobs. Employment in recent months has remained stable,<sup>21</sup> with employment in rural areas showing signs of recovery after the fall experienced in the second half of 2022, while employment in urban areas has stopped growing. Expressly, between January and February, the change in average employment in rural and urban areas was 0.9% and 0.1%, respectively (Graph 3.13). On a sector breakdown, annual employment growth for the rolling three-month period ending February was driven mostly by the positive performance in the commerce and lodging, transportation and communications, and manufacturing sectors, which together contributed 2.3 pts to the total annual change in employment. On the other hand, finance and construction showed annual contractions, while the public administration, health and education sectors, as well as the agricultural sector, remained stable.

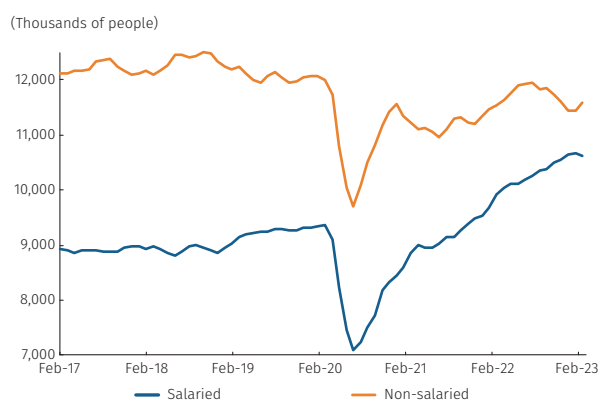
**In recent months, there have been contrasting behavior in employment by occupation.** In February, rolling three-month data showed the salaried segment drove national aggregate employment, mainly through the private employment component.<sup>22</sup> However, in this period, compared to January, salaried employment remained stable, while non-salaried employment grew by 1.4% (Graph 3.14). Other sources of information on salaried and formal employment, such as pension contributions in the Comprehensive Contribution Settlement System (PILA) and the records of affiliates to family compensa-

20 For a more detailed analysis of the labor market, we invite you to consult Banco de la República's Labor Market Report, available at <https://www.banrep.gov.co/es/reporte-mercado-laboral>

21 In line with employment behavior, average total national employment remains stable (56.5%); the employment rate for rural areas grew (55.4%), while remaining constant in urban areas (57.6%).

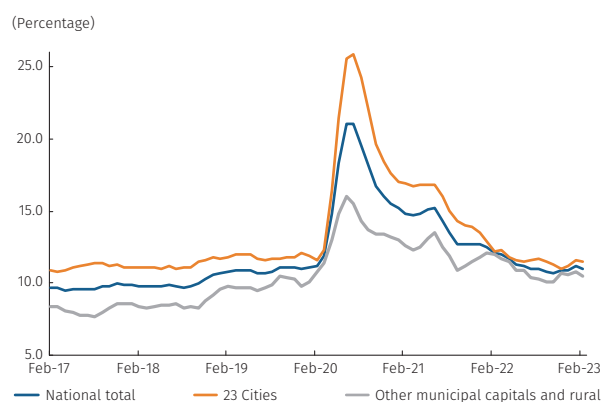
22 In February, rolling quarter data show that salaried employment grew by 7.2% and non-salaried by 0.5%.

**Graph 3.14**  
Jobs by type of employment: national total



Note: data corresponds to rolling quarter seasonally adjusted data.  
Sources: DANE (GEIH), calculations by Banco de la República.

**Graph 3.15**  
Unemployment rate by location



Note: corresponds to rolling seasonally adjusted data  
Sources: DANE (GEIH), calculations by Banco de la República.

tion funds (CCF), confirm that salaried employment remained static. The growth of non-salaried and informal employment, together with the leveling off in the formal segment, has led to an increase in informal employment in recent months. For the rolling quarter ending in February, this national indicator stood at 57.4%, remaining at historic low levels.

**The national aggregate unemployment rate corrected in February the slight increases registered in recent months.**

In February, the rolling quarter national unemployment rate stood at 11.0%, reversing the upward trend it had been following since October 2022. By geography, this correction primarily arose from a reversal in the rural unemployment rate, which stood at 10.4% (Graph 3.15). The urban unemployment rate remained relatively stable (11.5%) but with significant differences among the main cities. Those that presented the largest drops in annual unemployment rates were Tunja (-5.2 pts), Santa Marta (-4.9 pts) and Popayán (-4.9 pts); in contrast, the most significant increases were registered in Quibdó (7.1 pts), Ibagué (4.9 pts, Armenia (4.6 pts) and Riohacha (2.1 pts). As regards to unemployment by gender, the indicator for women was more stable than for men, the latter group having registered increases in unemployment over the fourth quarter of 2022, which were reversed in February. Consequently, during that month the gender gap, after several months of correction, widened once more and stood at 5 pts, a similar level to that seen before the pandemic.

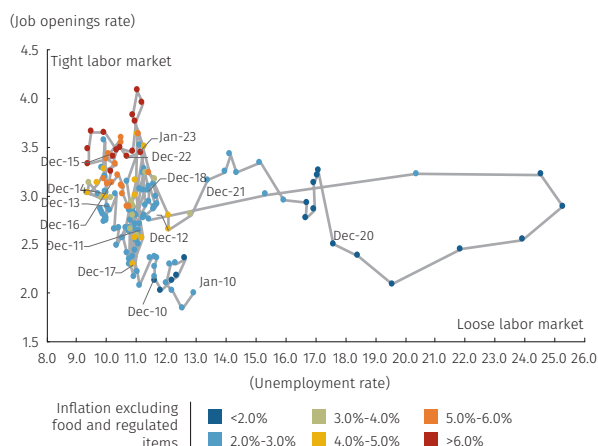
**Formal labor demand indicators have remained stable, which, together with the behavior of unemployment, suggests that the labor market is contracting.**

The job vacancy indexes obtained from the January classified ads and hiring derived from the GEIH and PILA figures to January and December, respectively, ceased the falloffs observed in the last months of 2022. On the other hand, the job vacancies index computed from the Public Employment Service (PES), available to December, continued to narrow. The mixed behavior of the job vacancy indexes suggests relatively stable job creation. This is confirmed by the hiring expectations in Banco de la República's monthly Survey of Economic Expectations (EMEE), which by the fourth quarter of 2022 shows a similar quarter-on-quarter equilibrium between those planning to increase and those planning to decrease their workforce in the short term. The behavior of urban unemployment rates and relatively high levels of job vacancy rates suggests, according to a Beveridge curve<sup>23</sup> (Graph 3.16), a tighter labor market that is consequently inflicting inflationary pressures.

**The labor market continues to be tight and, therefore, would still be generating inflationary pressures.**

23 The Beveridge curve is a graphical representation of the relationship between unemployment and the job vacancy rate.

Graph 3.16  
Beveridge curve for the seven largest cities



Notes: Seasonally adjusted series, rolling quarter. GEIH Vacancy rate estimated based on hires according to Morales, Hermida and Dávalos methodology (2019). Sources: DANE (GEIH), calculations by Banco de la República.

Table 3.1  
Average monthly interest rates  
(Percentage)

	Sep-21	Dec-21	Jun-22	Dec-22	Mar-23
<b>Interbank</b>					
Policy rate	1.75	2.70	6.00	11.48	12.76
Interbank overnight	1.79	2.73	6.06	11.47	12.62
BBI overnight	1.77	2.72	6.02	11.46	12.63
BBI 1-month	1.93	2.96	6.77	11.81	12.90
BBI 3-months	2.27	3.36	7.78	12.11	13.02
BRI 6-months	2.76	3.97	8.71	12.33	13.02
BRI 12-months			9.78	12.20	12.53
<b>Deposits</b>					
Savings	0.97	1.19	2.83	5.72	7.10
DTF 90-days	2.05	3.08	7.72	13.42	13.31
CDT* 180-days	2.45	3.71	8.40	15.58	13.99
CDT 360-days	3.16	5.10	10.75	17.08	14.52
CDT > 360-days	3.68	7.14	14.37	19.15	14.59
<b>Credit</b>					
Preferential	4.98	6.00	10.82	18.57	18.53
Ordinary	7.34	8.18	12.62	19.27	20.69
Non-public housing purchases	9.06	9.40	12.01	17.22	18.58
Public housing purchases	10.98	11.55	13.68	17.00	17.15
Personal loan consumption	17.09	17.51	23.08	31.23	34.60
Payroll loan consumption	11.23	11.65	13.83	19.45	19.99
Credit card	23.49	24.47	28.02	39.01	41.18

\*CDT (term deposit certificates)

Sources: Office of the Financial Superintendent of Colombia, calculations by Banco de la República.

stability of vacancies and hiring expectations would suggest that the tightness could begin to ease during 2023. Finally, as of January, labor income information from the household survey shows that nominal income continues an upward annual path, but at a slower pace than observed inflation for the salaried segment, which has a more rigid nominal income. Thus, the median real income of salaried workers fell annually by 2.4% versus that for non-salaried workers, which increased by 6.3%.

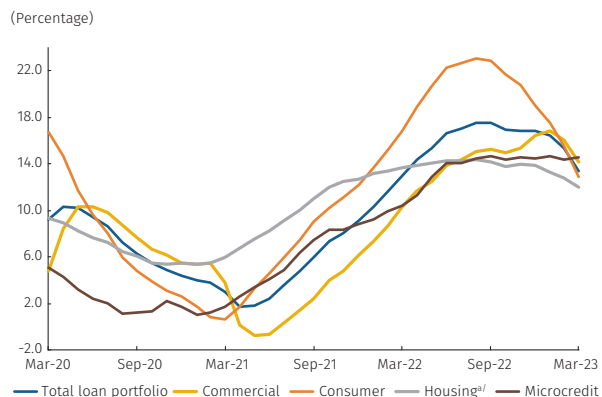
### 3.4 Financial and Monetary Markets

In the first quarter, the slowdown in lending became more marked and the upward trend in interest rates on deposits and some types of loans came to a halt (Table 3.1). This behavior occurred in an environment of somewhat tighter international and domestic financial conditions, but lower expectations of significant adjustments in monetary policy interest rates. Also, country risk premiums remained at high levels, with an upward trend in loan portfolio delinquency and increased criteria for grant loans by financial entities in Colombia. Up to February, increases in interest rates continued in the monetary, deposits and loan markets, with some recording decreases in March. Loan institutions recorded profits similar to those observed a year ago and maintain higher solvency levels than those required under regulations.

**Credit in national currency was less dynamic, primarily in consumer loans (Graph 3.17).** The moderation of consumer credit, which had been observed since yearend 2022, continued during the first three months of the year and also affected other credit modalities. This slowdown has occurred in an environment of high credit interest rates, an increased debt and financial burden on agents, deteriorating delinquency indicators, and more onerous requirements by financial institutions to grant loans. In March, the annual growth of the loan portfolio in Colombian pesos was 13.4% (2.2% in real terms)<sup>24</sup>, 3.4 pts lower than that observed in December. This behavior was led by the consumer loan portfolio, which between December and March recorded a slight drop in its level and a deceleration in its annual growth from 19.0% to 12.8% (1.3% in real terms). Loans for house purchases recorded a slower deceleration, from 13.9% to 12.0% (0.4% in real terms), especially affected by the lower activity in the public housing segment (VIS) loans. As regards to commercial loans, these increased by 14.2% year-on-year in March (3.4%, in real terms), lower than the 16.4% figure registered in December. Commercial loans in USD granted by domestic banks recorded a slight recovery, exhibiting an annual growth in March of 4.7%, while bond placements in the domestic market fell by 5.4%. Finally, microcredit presen-

24 Deflated by CPI excluding food.

**Graph 3.17**  
Gross portfolio in national currency  
(Annual change, average monthly data)

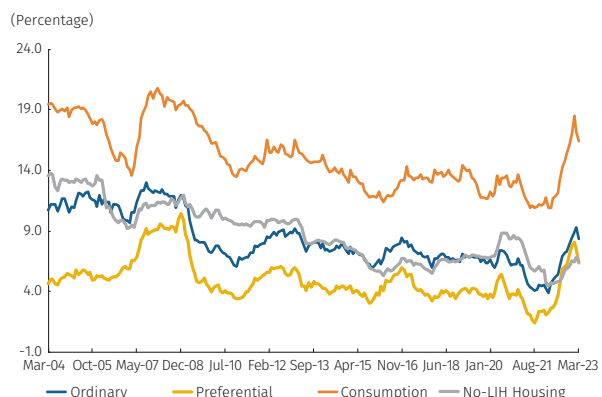


a/ Adjusted housing: banking portfolio plus securitizations  
Sources: Office of the Financial Superintendent, calculations by Banco de la República.

ted a slight increase in annual growth, escalating from 14.4% to 14.6% (2.9%, in real terms) between December and March, respectively.

**In March, the upward trend in nominal and real interest rates on term deposits and some loans halted (Table 3.1).** In the first quarter, the BDBR lessened the scale of monetary policy rate increases (MPR) (75 bps in January and 25 bps in March), which stood at 13.0% in March. In the money market, (the interbank rate, TIB, and bank benchmark index IBR), interest rates with terms of less than six months have adjusted to the same level as the MPR, while the twelve-month IBRs were on average 60 bps lower in March. This behavior suggests expectations that the MPR will stabilize in the coming months with possible decreases as of the last quarter of the year. Regarding deposits, interest rates on savings increased and reached 7.1%, while interest rates on term deposit certificates (CDTs), the only source of deposits that grew since last year, decreased in March and were below those seen in December 2022. The lower costs of funds captured through CDTs are believed to have contributed to the drop in some lending rates. In effect, interest rates for ordinary and preferential commercial loans decreased month-on-month in March versus February for the purchase of social interest housing and payroll loans. Additionally, in March, interest rate increases for consumer loans, for the purchase of non-social interest housing and for credit cards moderated. In real terms, the levels of commercial and consumer interest rates decreased, but remain above the average computed since 2003, while the rate for home purchases decreased and continued below its average (Graph 3.18).

**Graph 3.18**  
Real credit interest rates  
(monthly average data deflated by the CPI excluding food)



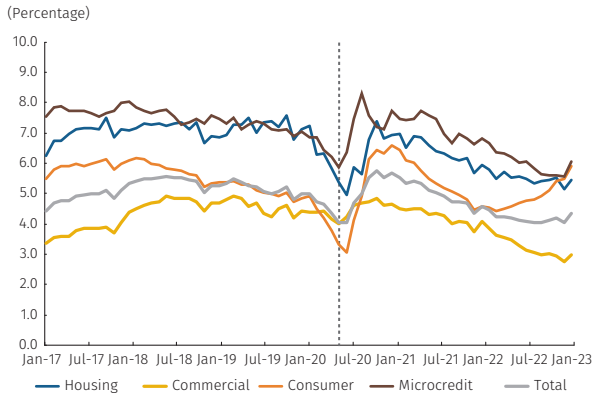
Sources: Office of the Financial Superintendent, calculations by Banco de la República.

**Credit institutions show suitable levels of solvency and profits that have slowed down..** The information to January 2023 shows core and total capital adequacy ratios at 14.5% and 18.2%, respectively, a significant margin with respect to the required minimums of 4.5% and 9.0%. The profits reported as of December (COP 16.2 t) were very near those of the previous year (COP 16.1 t), but lower than calculated in mid-2022 (COP 20.5 t)<sup>25</sup>. These profits were recorded after covering the materialization of credit risks, particularly consumer credit, whose delinquency rates increased between December 2021 and January 2023 from 4.5% to 5.9%. In January, microcredit recorded delinquency increases of 49 bps, the home purchase loan portfolio of 28 bps and commercial loans of 22 bps (Graph 3.19). In turn, the results of financial stress exercises<sup>26</sup> computed with information up to December 2022, which simulate extreme macroeconomic scenarios, continue to reveal that the institutions' equity would be able to assimilate the

25 Over a cumulative twelve-month window.

26 See the "Sensitivity Exercises" sections included in the Financial Stability Reports published by Banco de la República <https://www.banrep.gov.co/en/financial-stability-report>.

**Graph 3.19**  
**NPL Indicator**  
**(Past due portfolio/ Total portfolio)**



Sources: Office of the Financial Superintendent, calculations by *Banco de la República*.

shocks and meet the capital adequacy ratios required to continue operating.

## Box 1

# The Housing Market in Colombia, recent Developments and Outlook

Nicol Rodríguez  
Corina Hernández\*

Over the last two years, the real estate market in Colombia has shown a dynamism, reflected in historically high levels of housing starts, sales and launches. This has brought about an increase in housing investment, particularly as of the third quarter of 2022, which contributed to the recovery of overall investment in the Colombian economy after the Covid-19 crisis. This was generated, in part, by the expansionary fiscal and monetary policy measures implemented to stimulate the recovery of economic activity in the country.

However, in recent months the housing market has been registering signs that forewarn a change in housing investment trends going forward in light of a significant drop in sales and indications of a slowdown in future supply. The above, against a backdrop of moderating factors that drove the positive market performance of previous years, lower confidence levels and greater household debt, a steep increase of construction costs, higher financing costs and, in general, a macroeconomic adjustment process that the Colombian economy requires for inflation to return to its target and for the product and the external balance to reach sustainable levels.

### 1. The Housing Market, 2020-2022

From the second half of 2020 to mid-2022, the market for new homes showed significant increases in sales, driven by factors related to the recovery of economic activity after the pandemic. Consequently, influences such as the ample supply of subsidies, loose financial conditions, and the availability of household savings that at yearend 2020 and during 2021 helped finance pent-up demand, would explain a significant part of the high housing market dynamic. In 2021, sales reached an all-time high of 238,000 units, which exceeded 2019 figures by approximately 37%. This result was driven by both the social interest housing (VIS) and non-social interest housing segments (non-VIS).

Subsidies for housing purchases have been one of the most significant influences on positive sales performance. Under the 2020 *Compromiso por Colombia* (Commitment for Colombia) reactivation plan, the *Mi Casa Ya* (My House Now) program was expanded so that low-income households could purchase housing. As a result of this policy, 2021 and 2022 saw a significant upsurge in the number of subsidies allocated,<sup>1</sup> from around 30,000 in 2019 to more than 65,000 in said period. In the case of the non-VIS segment, the subsidies from the Mortgage Portfolio Reserve Stabilization Fund (FRECH)<sup>2</sup> program, provided until 2022, would have been the main accelerant that buoyed the increase in the number of finished home sales. This was compounded by loose financial conditions, with interest rates for home purchases that reached a historic low in mid-2021,

\* The authors are members of Banco de la República's Programming and Inflation Department. The views and opinions expressed herein do not necessarily reflect those of the Bank or its Board of Directors.

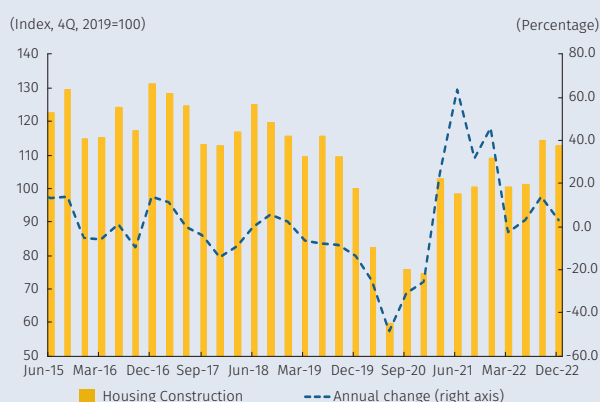
1 On May 2020, within the economic reactivation plan, the availability of 200,000 subsidies was announced for 2020 and 2022: 100,000 for VIS and 100,000 for non-VIS. According to figures from the Ministry of Housing, City and Territory (MinVivienda), in 2020 and 2021 the number of subsidies allocated through the *Mi Casa Ya* program increased by over 100% versus the number provided in 2019.

2 This subsidy was granted to buyers of new housing with a pre-approved mortgage loan or housing lease. The subsidy provides coverage over the agreed interest rate for homes whose price does not exceed 500 monthly minimum wages in force (SMMLV).

reflecting an expansive monetary policy and wide availability of credit for this mechanism.

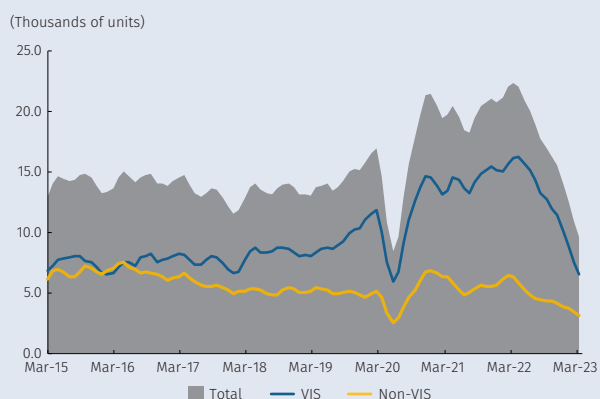
The housing supply would have responded to the improved sales scenario, both in the VIS segment through the greater supply of new homes, as well as in the non-VIS segment from inventory buildup over the previous years and the boost in new project launches. The growth in the new VIS supply was observed in the historic high starts and launches seen during the first half of 2022, which recorded levels of up to 30% above those seen before the pandemic. Furthermore, in the non-VIS segment, inventory buildup recorded since 2015,<sup>3</sup> together with the recovery of launches and project initiations, supported the increase in sales during 2021. It is worth noting that the supply response occurred in an environment of rising construction costs. According to residential figures in the DANE's building construction cost index (ICOCED), costs showed notable adjustments, from annual increases of 5.3% in April 2021 to values nearing 10% by mid-2022.

**Graph R1.1**  
Value-added housing construction<sup>a/</sup>



a/ Seasonally adjusted and corrected for calendar effects.  
Sources: DANE, calculations by the authors.

**Graph R1.2**  
Home sales by segment<sup>a/</sup>



a/ Quarterly average of the units in projects that were sold in the 13 regionals.  
Sources: Camacol, calculations by the authors.

The housing market's positive performance would have enabled housing investment levels, in 2022, to exceed pre-pandemic levels. In particular, in the fourth quarter of that year, this component of demand registered annual growth of 12.8% and 3.6% versus the same period in 2019 and 2021, respectively (Graph R1.1). Besides, housing sales and supply behavior would have found a relative market equilibrium, which was reflected by an absence of significant increases during 2021<sup>4</sup> in the real prices of new<sup>5</sup> and existing<sup>6</sup> housing. This was compounded by the regulatory limit imposed on sales prices of the VIS<sup>7</sup> segment, which recorded the greatest sales volumes.

## 2. Recent Slowdown in the Housing Market

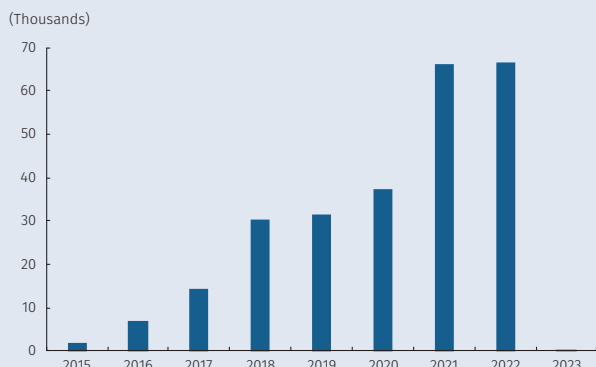
From the second half of 2022, certain real estate market indicators began pointing to a possible cooling of housing investment going forward. Indeed, since August 2022, sales recorded annual reductions which have accentuated in recent months (Graph R1.2) in both the VIS and non-VIS segments. The latter has occurred against a backdrop of increased household financial burden and debt, lower confidence levels and higher levels of country and exchange rate risk. This along with upward adjustments in the monetary policy interest rate in an environment of high inflation, an increase in construction costs that may have been passed on to selling prices, and strong aggregate demand dynamics primarily in goods and services consumption.

The downward trend in sales would be related to a downturn in the factors that propelled the market between 2021 and mid-2022.

- 3 The housing construction sector recorded a healthy activity during the beginning of the last decade, leveraged on high international oil prices and the increase in national income. When the price of crude dropped in 2013, sales of this asset contracted significantly and the sector, particularly the non-VIS segment, showed high inventory buildup rates through the following years. The latter would also have led to a significant decline of new supply indicators.
- 4 The DANE's new housing price index (IPVN for its Spanish acronym) is used as benchmark.
- 5 *Banco de la República's* used housing price index (IPVU for its Spanish acronym) is used as a benchmark.
- 6 See "Box 1: Recent Housing Market Performance" in the April 2022 Monetary Policy Report by *Banco de la República*.
- 7 The sales price of a VIS unit can range between 130 and 150 minimum monthly wages in force (SMMLV).

Graph R1.3  
Factors affecting housing demand

A. Number of subsidies assigned through the Mi Casa Ya program



Note: Data to the first week in April 2023.  
Sources: Ministry of Housing, City and Territory, calculations by the authors.

B. Interest rate for home purchases by segment



Note: Information to March 31, 2023  
a/ The weighted average by interest rate value of the disbursements in pesos and in UVR to purchase non-VIS homes. Additionally, the data are smoothed over a 4-week rolling average.  
b/ The weighted average by interest rate value of the disbursements in pesos and in UVR to purchase VIS homes. Additionally, the data are smoothed over a 4-week rolling average.  
c/ The simple average between VIS and non-VIS purchase interest rates.  
Sources: Office of the Financial Superintendent of Colombia, calculations by the authors.

Primarily, uncertainty surrounding the continuity of some of the housing subsidy programs coupled with the termination of others would have dampened the households' purchase intent. Particularly in the case of the VIS segment, the anticipated depletion of the *Mi Casa Ya* program subsidies by 2022<sup>8</sup> and changes announced in the requirements for access<sup>9</sup> would explain, to a large extent, the drop in sales.<sup>10</sup> (Graph R1.3, panel A). In the non-VIS segment, the end of the FRECH program in 2022 would have reduced their incentives to purchase housing. In addition, with the Colombian economy facing an environment of high inflation and excess demand, monetary policy adjustments have involved interest rate increases<sup>11</sup> to guarantee the convergence of inflation to its target in the medium term. In turn, this necessary correction of the monetary policy interest rate has been reflected in higher borrowing costs for home purchases,<sup>12</sup> which could have affected households' home purchase decisions, resulting in the consequent delay thereof (Graph R1.3, panel B). Likewise, higher borrowing costs would imply an increase in the financial burden of households, limiting their borrowing capacity for home purchases.

Sales in the non-VIS segment could also be affected by the recent increase in the preference for foreign assets by residents and non-residents<sup>13</sup>, in an environment of greater perception of country risk, which has been echoed in an increase in the risk premium for Colombia (measured through the five-year CDS). This is a result of the perception of housing as an investment asset that may affect portfolio reallocation decisions in the face of changing market conditions. Furthermore, the approved tax reform would result in fewer incentives to purchase housing, by reducing the tax deduction ceiling for housing interest payments and tax benefits for voluntary contributions to pension plans and AFC accounts (savings accounts to encourage housing investments).<sup>14</sup> This was compounded by more restrictive financial conditions in loans for home purchases, amidst an increase in the loan quality

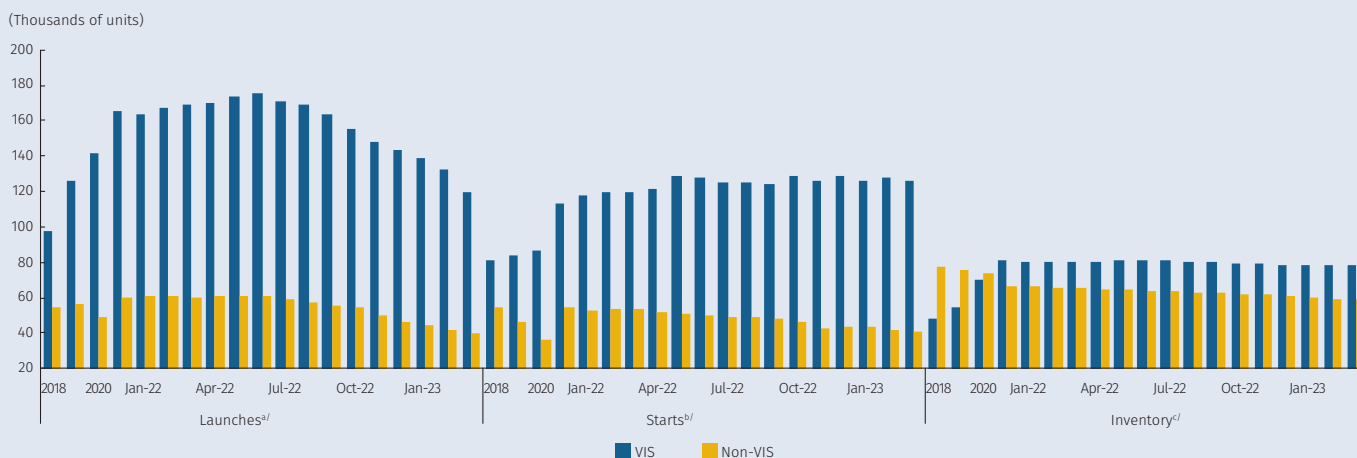
- 8 According to the Ministry of Housing, as of September 2022, 65,000 subsidies were allocated: 41,800 were funded within the current year and 23,000 additional subsidies had to be supported with the 2023 budget. See: <https://minvivienda.gov.co/sala-de-prensa/comunicado-mi-casa-ya>
- 9 Under the new government, the *Mi Casa Ya* program would focus on the most vulnerable households in rural areas of the country. According to Decree 490 of April 4, 2023, those seeking a subsidy for the down payment of up to thirty SMMLV and the interest rate of up to 5 pts, must meet the following requirements: 1) they must not be homeowners in the national territory; 2) they must not have been beneficiaries of any subsidy to acquire housing; and 3) their Sisbén IV classification must be A1 to D20. The above conditions would result in altering the allocation of demand, prioritizing the country's rural areas of the country, which would give rise to a transition period as supply for the new beneficiaries is generated.
- 10 In the second week of April 2023, the MinVivienda enabled the first disbursement of new subsidies for 2023, in contrast with 2022, when close to 19,000 subsidies had already been allocated by March of that year.
- 11 Since September 2021, the Board of Directors of Banco de la República has increased the monetary policy rate from an all-time low of 1.75% to 13.25% by April 2023.
- 12 Borrowing costs have reached 18-year record highs.
- 13 In 2022 and so far in 2023 to March, Colombian investment (both direct and through securities) in foreign assets has increased significantly, while in 2018 and 2019, by contrast, capital inflows were the norm.
- 14 The tax reform reduced the deduction ceiling from 5,040 UVT (tax value units) to 1,210 UVT for interest payments on housing, AFC and AVC contributions and dependents, among others.

delinquency indicator.<sup>15</sup> In addition, the possible influence of the recent emigration phenomenon on housing demand cannot be ruled out.<sup>16</sup>

Along with lower sales of new homes, indicators of future supply are also on the decline. Figures up to March 2023, show that housing launches presented significant annual contractions versus their mid-2022 historical highs. Regarding housing starts, the non-VIS segment registered negative annual variations since mid-2022, which explains the total market decline (Graph R1.4), while the VIS segment has remained stable, registering high levels supported by previous years' sales. This has taken place in a scenario wherein construction costs remain high, with annual increases of close to 14% in recent months according to the residential ICOCED (Graph R1.5, panel A). This could have led some builders to halt construction or postpone delivery dates. In addition, the increase in housing construction interest rates, which reached levels of around 18% in March 2023, would also be curbing the pace of future supply in the sector (Chart R1.5, panel B) within a scenario of falling sales and little room for passing on construction costs to housing prices.

The market contraction has been evident in the longer placement times of the available supply. Both in the VIS and non-VIS segments, the rotation pace exceeds the levels observed throughout 2019, despite a slowdown in the production of new supply at the margin. In the case of VIS, the above is exacerbated by the increase in rescissions,<sup>17</sup> which would be contributing to a buildup of inventories in said segment and could lead to a rethinking of investment plans for future supply production (postponement and/or partial cancellation of projects). In this context of lesser housing demand pressures, marginal supply adjustments and high inflation, annual increases in real new and used housing prices slowed in early 2022 and moved into negative territory by yearend (Graph R1.6). Specifically, in the fourth quarter of 2022, new house prices fell in annual terms by 1.1%<sup>18</sup> and existing house prices by 3.0%.

Graph R1.4  
Home supply launches, starts and inventory by segment



a/ Cumulative twelve-month of project units that began sales in 13 regions.  
 b/ Cumulative twelve-months of project units that began construction in 13 regions.  
 c/ Twelve-month average of project units or stages available on the market to be sold in 13 regions.  
 Sources: Camacol, calculations by the authors.

15 The delinquency quality indicator (DQI) is the percentage of past-due loans (loans more than 30 days past due) in the total loan portfolio, indicative of loan quality.

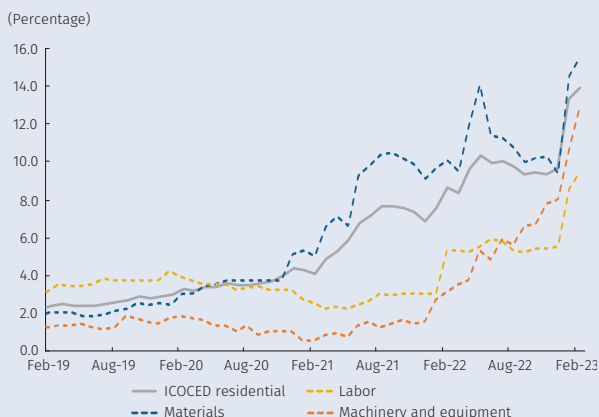
16 In 2022, there was a net population outflow of more than 500,000 Colombians from the national territory.

17 According to figures from La Galería Inmobiliaria, housing rescissions accounted for more than 20% and 25% of gross home sales in 2022 and so far in 2023 through March, respectively. In 2019 and 2020 this indicator measured between 15% and 18%. On the supply side, the rescissions could originate from loan portfolio purging or cost issues and, on the demand side, from difficulties in financial closings due to lack of loan repayment capacity or access to subsidies. Demand factors are more prevalent in recent months.

18 According to DANE's IPVN (Price Index of New Homes), deflated by CPI excluding food.

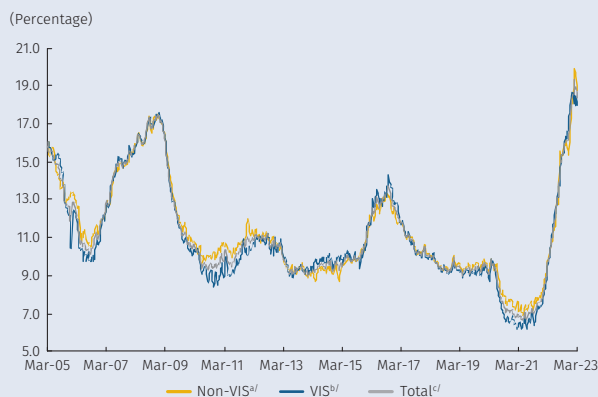
Graph R1.5  
Factors affecting housing supply

A. Residential construction costs index (ICOCED) and select components (annual changes)



Note: The residential ICOCED was spliced with DANE's housing construction cost index (ICCV).  
Source: DANE; calculations by the authors.

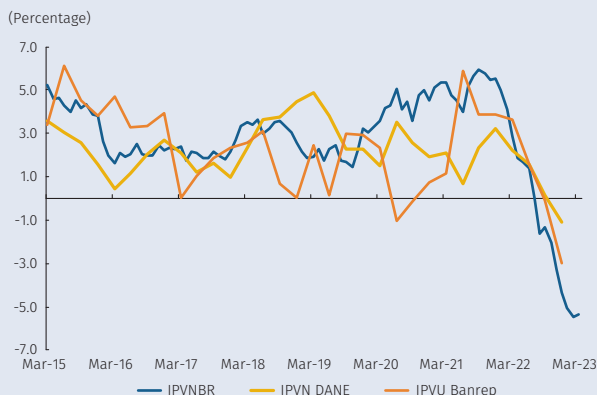
B. Interest rate for housing construction by segment



Note: Information to March 31, 2023  
a/ The weighted average by interest rate value of the disbursements in pesos and in UVR to purchase non-VIS homes. Additionally, the data are smoothed over a 4-week rolling average.  
b/ The weighted average by interest rate value of the disbursements in pesos and in UVR to purchase VIS homes. Additionally, the data are smoothed over a 4-week rolling average.  
c/ The simple average between VIS and non-VIS purchase interest rates.  
Sources: Office of the Financial Superintendent of Colombia, calculations by the authors.

In summary, the sector's recent weakening could be explained by multiple factors, such as lower public incentives and subsidies, higher levels of country risk, low confidence indices, tighter financial conditions, and higher financing and construction costs, among others. Going forward, the recovery in housing sales would be partly determined by the forthcoming definition of housing subsidy policies, particularly the resources allocated to the *Mi Casa Ya* program and their targeting. In addition, future dynamics of inflation and financial conditions for housing acquisition, as well as economic activity and employment, would also play a role. To the extent that inflation diminishes and financial conditions become more favorable for home buyers, demand for this asset would show more promising circumstances to support its recovery. The improvement of the macroeconomic imbalances facing the country (high inflation, excess demand, and high public debt and external deficit) would contribute to reducing the country's risk levels, improve confidence levels, lower long-term credit interest rates and, in general, provide better financing conditions for the construction and purchase of housing.

Graph R1.6  
Real home prices in Colombia  
(Annual changes)



Note: Real prices of new homes are measured through DANE's IPVN (Price Index of New Homes) which covers 53 municipalities and Banco de la República's IPVNBR for Bogotá, Medellín, Cali and the municipalities surrounding Bogotá. Real prices of used housing are measured through the IPVU (Price Index for Used home) of Banco de la República for Bogotá, Medellín, Cali, and municipalities surrounding the first two. All are deflated by CPI excluding food.  
Sources: Banco de la República, DANE, calculations by the authors.

## Box 2

# Assessment of Macroeconomic Forecasting Errors in 2022

Sara Naranjo Saldarriaga  
Nicolás Moreno Arias  
Alexander Guarín López\*

After the Covid-19 pandemic, the Colombian economy in 2022 continued its strong recovery and expanded by 7.5% for the year, in an environment of significant inflation increases and high international and domestic uncertainty.

The economic growth and inflation escalations, particularly the magnitude thereof, were the result of successive shocks throughout the year which *Banco de la República's* technical staff (TS-Banrep) identified and subsequently included when updating its forecasts in the 2022 reports. These shocks were primarily related to problems in the global and local supply of food, raw materials and goods;<sup>1</sup> greater exchange rate pressures stemming, in part, from tighter-than-expected external financial conditions<sup>2</sup> and higher sovereign risk premiums reflecting greater domestic uncertainty; and strong domestic demand dynamics.

In this box we use the 4GM model, one of *Banco de la República's* central forecasting models,<sup>3</sup> to interpret and compare the narratives of the shocks implicit in the forecast errors. These errors are measured as the difference between the observed macroeconomic variable data at yearend 2022, and the corresponding forecasts made by the TS-Banrep in January of the same year. This analysis is similar to the one described in De Castro-Valderrama *et al.* (2021) and is part of *Banco de la República's* annual internal evaluation of its forecasting process. The exercise is presented below for the annual headline inflation, inflation excluding food and regulated items, and for GDP growth.

### 1. Headline Inflation and Inflation Excluding Food and Regulated Items

Forecast errors in headline inflation and inflation excluding food and regulated items (Graph R2.1) during 2022 were high and reflected the unanticipated shocks that affected prices throughout the year.

Forecast errors in the basket excluding food and regulated items are explained mainly by unfavorable supply shocks, which are largely reflected in indexation to higher headline inflation values and a stronger-than-expected increase in the prices of tourism services and food away from home.<sup>4</sup> The latter showed a surprising increase, in line with the rapid escalation in food prices. Likewise, there were also greater demand and exchange rate pressures evinced resulting from persistently worsening external financial conditions than those foreseen by the TS-Banrep in January 2022.

\* The authors are members of Banco de la República's Macroeconomic Modeling Department. The views and opinions expressed herein do not necessarily reflect those of the Bank or its Board of Directors.

1 Fallout from disruptions to global supply chains remained at the forefront in 2022 and exacerbated with Russia's invasion of Ukraine.

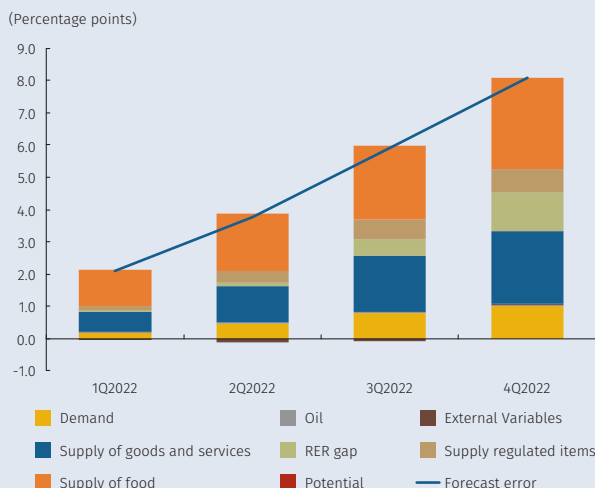
2 These tighter external financial conditions were a byproduct of a tighter monetary policy stance in the United States, increased risk perceptions for emerging markets, global geopolitical conflicts and fears of a global economic slowdown.

3 See <https://repositorio.banrep.gov.co/handle/20.500.12134/9812>

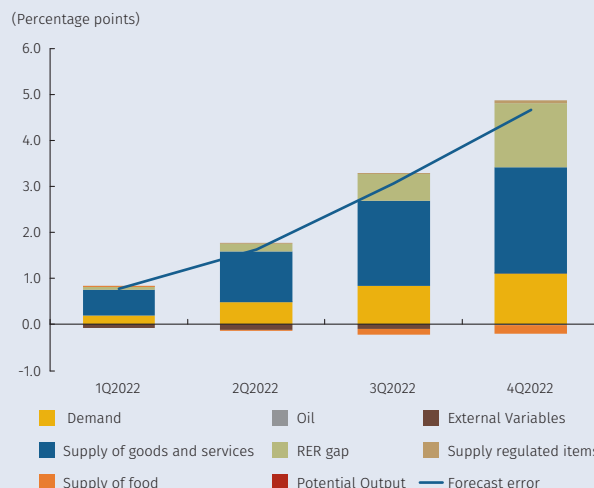
4 Although wages were not among the main drivers of the inflationary surge observed in 2022 (Pulido *et al.*, 2023), a fraction of the supply shocks to goods and services involved higher than expected labor costs.

**Graph R2.1**  
Inflation forecasting error in 2022  
(Percentage points)

**A. Headline inflation (annual end-of-period, percentage)**



**B. Inflation excluding food and regulated items (annual end-of-period, percentage)**



Note: the forecast error is calculated as the difference between the observed value and the forecasts made in January 2022, so that a positive value indicates that the final value observed was higher than the forecast and therefore the variable was underestimated. In each quarter, the bars represent the cumulative shocks that explain the discrepancy between the forecast and the observed data; thus, a bar above the horizontal axis indicates that more shocks materialized than what was initially expected by the technical staff. Total inflation in 1Q2022, for example, was underestimated mainly because shocks to goods, services and food were larger.  
Source: Calculations by the authors.

In addition to the shocks that boosted prices of the basket excluding food and regulated items, headline inflation was affected by negative food-basket-related factors (Graph R2.1, panel A), such as persisting supply chain disruptions and global supply constraints, as well as the increase in international prices due to Russia’s invasion of Ukraine. These factors were accompanied by domestic supply problems, adverse weather conditions in the second half of the year, and higher-than-expected increases in gasoline prices, which affected both the baskets of regulated items and food. The basket of regulated items was also influenced by the unexpected increases in the CPI and PPI because of the indexation to these prices of certain utilities (see Box 1 of the January 2023 Report). It should be noted that, in both headline and core inflation, the shocks affecting the exchange rate and the strength of domestic demand became increasingly more significant as the year progressed, although supply shocks accounted for a larger share of the forecast errors.

**2. GDP Growth**

After the economic recovery in 2021, largely driven by the positive performance of private consumption, TS-Banrep expected demand to moderate in 2022, thereby significantly slowing the growth rate of the economy. This was partly due to the expectation of less favorable external conditions among high global inflation and a monetary policy tightening in the world’s main economies, a very uncertain international environment, elevated energy prices, and the prospect of a global economic slowdown. However, local economic activity continued on an upward trend, reaching high output levels and exceeding its sustainable productive capacity.

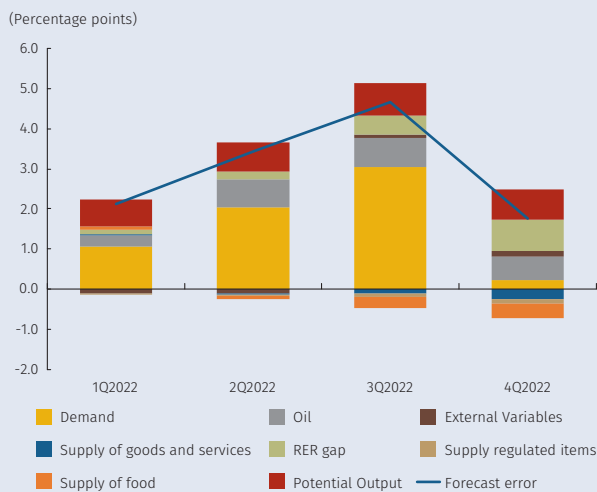
However, local economic activity continued on an upward trend, reaching high output levels and exceeding its sustainable productive capacity.

Graph R2.2 shows the economic growth forecast errors in 2022, both in terms of the annual growth of quarterly GDP and four-quarter accumulated GDP (panels A and B, respectively). The errors in the economic activity forecasts were mostly due to aggregate demand activity surprises, which were gradually included in the forecasts made throughout the year. This dynamic was related to higher-than-expected consumer credit growth, reduced savings, an expansionary fiscal policy and the effects of repressed demand after the pandemic, all this despite a monetary policy tightening instigated by the strong inflationary pressures experienced in 2022.

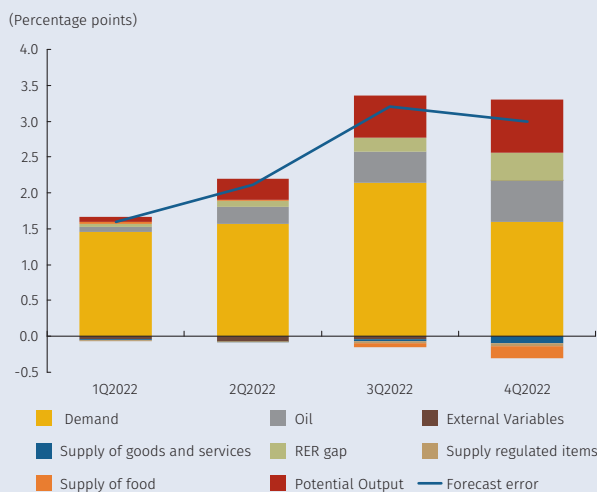
Additionally, the GDP growth forecast errors were due to a greater national income, on account of better oil prices in the first half of 2022, as well as the depreciation of the peso during the second half of the year. The latter had positive effects on the export sector, contributing to improved GDP performance.

Graph R2.2  
Error in GDP growth forecasting in 2022  
(Percentage points)

A. Quarterly GD growth (annual end-of-period, percentage)



B. Annual GDP growth



Note: the forecast error is calculated as the difference between the observed value and the forecasts made in January 2022, so that a positive value indicates that the final value observed was higher than the forecast.  
Source: Calculations by the authors.

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## Annex 1

### Macroeconomic projections from local and foreign analysts<sup>a/, b/</sup>

	Units	Apr-23	Dec-23	Apr-24	Dec-24	Apr-25
Total CPI	Monthly Variation (average)	0.87	n. a.	n. a.	n. a.	n. a.
CPI excluding foods	Monthly Variation (average)	0.85	n. a.	n. a.	n. a.	n. a.
Total CPI	Annual Variation (average), end of period	12.93 <sup>c/</sup>	9.49	7.03	5.19	4.41
CPI excluding foods	Annual Variation (average), end of period	11.35 <sup>c/</sup>	9.19	6.97	4.94	4.12
Nominal exchange rate	Pesos per dollar, end of period	4,530	4,649	4,563	4,550	4,480
Policy rate	Percentage, end of period	13.00	11.25	9.50	7.00	6.25

	Units	I-2023	II-2023	III-2023	IV-2023	2023	I-2024	II-2024	III-2024	IV-2024	2024	I-2025
GDP	Annual variation, original series	2.4	1.0	0.6	1.0	1.3	1.6	2.4	2.6	2.6	2.4	n. a.
Unemployment	Thirteen cities, average for period	10.8	12.2	11.7	11.9	n. a.	11.3	12.1	11.7	11.5	n. d.	n. a.
IBR (90 days)	Effective annual rate, end of period	n. a.	12.7	12.0	10.9	n. a.	9.5	8.8	8.0	7.4	n. d.	6.3
Fiscal Deficit (NCG) <sup>d/</sup>	Percentage of GDP	n. a.	n. a.	n. a.	n. a.	4.3	n. a.	n. a.	n. a.	n. a.	4.0	n. a.
Current Account Deficit <sup>d/</sup>	Percentage of GDP	n. a.	n. a.	n. a.	n. a.	4.4	n. a.	n. a.	n. a.	n. a.	4.1	n. a.

n. a.: Not available.

n. r.: Not relevant given that data is already observed.

a/ Starting with the April 2023 *Banco de la República's* Monthly Survey of Economic Analyst Expectations, the survey excluded the question related to the DTF.

b/ Corresponds to the median response from *Banco de la República's* Monthly Survey of Economic Analyst Expectations, except for the total CPI and CPI excluding foods, which correspond to averages.

c/ Data calculated based on the results of the *Banco de la República's* Monthly Survey of Economic Analyst Expectations (EME).

d/ Positive values represent deficit and negative values represent surplus.

Sources: *Banco de la República* Monthly Survey of Economic Analyst Expectations, conducted in April 2023.

# Annex 2

## Main macroeconomic forecasting variables

		Years										
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>Exogenous variables</b>												
<b>External <sup>a/</sup></b>												
GDP of trading partners <sup>b/</sup>	Percentage, annual var., seasonally adjusted	2.7	2.1	1.6	2.6	2.5	1.4	-6.5	7.1	3.0	<b>1.6</b>	<b>1.9</b>
Oil price (Brent) benchmark	Dollars per barrel, average of the period	99	54	45	55	72	64	43	71	99	<b>86</b>	<b>83</b>
Federal funds effective rate (Fed)	Percentage, average for the period	0.09	0.13	0.39	1.00	1.83	2.16	0.36	0.08	1.68	<b>4.95</b>	<b>4.56</b>
5-year Credit Default Swap for Colombia	Basis points, average for the period	101	184	212	129	114	99	142	142	259	<b>285</b>	<b>275</b>
<b>Internal</b>												
Neutral real interest rate for Colombia	Percentage, average for the period	1.4	1.5	1.6	1.3	1.3	1.2	1.3	1.5	2.0	<b>2.2</b>	<b>2.3</b>
Potential GDP for Colombia (trend)	Percentage, annual change	3.9	3.3	2.7	2.4	2.3	2.5	0.1	4.1	4.0	<b>3.1</b>	<b>2.6</b>
<b>Endogenous variables</b>												
<b>Prices</b>												
Total CPI	Percentage, annual change, end of period	3.66	6.77	5.75	4.09	3.18	3.80	1.61	5.62	13.12	<b>9.46</b>	<b>3.45</b>
CPI excluding food <sup>c/</sup>	Percentage, annual change, end of period	3.28	5.25	5.51	5.03	3.51	3.45	1.03	3.44	9.99	.	.
CPI for goods (excluding food and regulated items)	Percentage, annual change, end of period	1.75	7.27	5.91	3.24	1.40	2.18	0.63	3.31	15.04	.	.
CPI for services (excluding food and regulated items)	Percentage, annual change, end of period	3.34	4.64	5.26	5.38	3.13	3.45	1.29	2.18	7.41	.	.
CPI for regulated items	Percentage, annual change, end of period	4.89	4.43	5.63	6.26	6.65	4.81	0.73	7.10	11.77	<b>14.52</b>	<b>4.53</b>
CPI for food <sup>d/</sup>	Percentage, annual change, end of period	5.24	13.08	6.65	0.48	1.87	5.80	4.80	17.23	27.81	<b>6.39</b>	<b>0.37</b>
CPI for perishable food	Percentage, annual change, end of period	16.74	26.03	-6.63	5.84	8.88	8.66	2.49	24.42	36.44	.	.
Core inflation indicators <sup>e/</sup>	Percentage, annual change, end of period	2.54	9.62	10.74	-0.91	-0.08	5.04	5.43	15.32	25.33	.	.
CPI excluding food	Percentage, annual change, end of period	3.28	5.25	5.51	5.03	3.51	3.45	1.03	3.44	9.99	.	.
Core CPI 15	Percentage, annual change, end of period	3.19	5.59	5.98	4.21	3.22	3.78	1.88	4.42	11.55	.	.
CPI excluding food and regulated items	Percentage, annual change, end of period	2.82	5.50	5.48	4.67	2.57	3.10	1.11	2.49	9.51	<b>8.87</b>	<b>3.87</b>
Average of all core inflation indicators	Percentage, annual change, end of period	3.10	5.44	5.66	4.64	3.10	3.44	1.34	3.45	10.35	.	.
Representative market exchange rate (TMR)	Pesos per dollar, average for the period	2,001	2,746	3,053	2,951	2,957	3,282	3,691	3,747	4,257	.	.
Real exchange rate Inflationary gap of the	Percentage, average for the period	-0.3	9.5	2.5	-1.8	-0.8	3.6	6.0	2.5	6.5	<b>5.4</b>	<b>-0.6</b>
<b>Economic activity</b>												
Gross domestic product (sats)*	Percentage, annual change, sats	4.5	3.0	2.1	1.4	2.6	3.2	-7.3	11.0	7.5	<b>1.0</b>	<b>1.0</b>
Final consumption expense	Percentage, annual change, sats	4.3	3.4	1.6	2.3	4.0	4.3	-4.1	13.6	8.0	.	.
Household final consumption expenditure	Percentage, annual change, sats	4.2	3.1	1.6	2.1	3.2	4.1	-4.9	14.5	9.5	.	.
General government final consumption expenditure	Percentage, annual change, sats	4.7	4.9	1.8	3.6	7.4	5.3	-0.8	9.8	1.4	.	.
Gross capital formation	Percentage, annual change, sats	12.0	-1.2	-0.2	-3.2	1.5	3.0	-2.1	12.6	19.5	.	.
Gross fixed capital formation	Percentage, annual change, sats	9.2	2.8	-2.9	1.9	1.0	2.2	-24.0	17.3	11.8	.	.
Housing	Percentage, annual change, sats	10.4	9.5	-0.2	-1.9	-0.4	-8.9	-32.7	40.2	4.5	.	.
Other buildings and structures	Percentage, annual change, sats	9.6	10.2	0.0	4.6	-3.5	1.1	-31.6	1.0	0.3	.	.
Machinery and equipment	Percentage, annual change, sats	9.2	-9.3	-7.9	1.4	8.6	12.3	-13.3	24.2	25.5	.	.
Cultivated biological resources	Percentage, annual change, sats	-1.3	2.3	13.1	0.3	-3.1	7.9	-1.8	-0.9	-6.8	.	.
Intellectual property products	Percentage, annual change, sats	5.1	1.3	-12.0	1.2	1.5	-0.7	-10.8	6.4	12.6	.	.
Domestic demand	Percentage, annual change, sats	6.0	2.4	1.2	1.1	3.5	4.0	-7.5	13.4	10.0	.	.
Exports	Percentage, annual change, sats	-0.3	1.7	-0.2	2.6	0.6	3.1	-22.7	15.9	14.9	.	.
Imports	Percentage, annual change, sats	7.8	-1.1	-3.5	1.0	5.8	7.3	-19.9	26.7	23.9	.	.
Product gap <sup>f/</sup>	Percentage	1.4	1.0	0.4	-0.6	-0.4	0.3	-7.3	-0.9	2.4	<b>0.3</b>	<b>-1.3</b>
<b>Short-term indicators</b>												
Real production of manufacturing industry	Percentage, var. annual, seasonally adjusted	1.7	2.1	3.5	0.0	2.9	1.3	-8.1	16.1	10.6	.	.
Retail trade sales, excluding fuels or vehicles	Percentage, var. annual, seasonally adjusted	8.4	6.4	2.0	-0.1	5.5	8.1	-1.7	12.0	8.9	.	.
Coffee production	Percentage, var. annual, cum. for period	11.5	16.8	0.4	-0.3	-4.5	8.8	-5.8	-9.5	-11.9	.	.
Oil production	Percentage, annual var., period average	-1.8	1.5	-11.9	-3.6	1.3	2.4	-11.8	-5.8	2.4	.	.
<b>Labor market <sup>g/</sup></b>												
Total national												
Unemployment rate	Percentage, seasonally adjusted, period average	9.4	9.2	9.5	9.7	10.0	10.9	16.5	13.8	11.2	<b>11.0</b>	.
Occupancy Rate	Percentage, seasonally adjusted, period average	61.1	61.3	60.5	60.0	59.1	57.7	50.4	53.1	56.5	.	.
Overall participation rate	Percentage, seasonally adjusted, period average	67.4	67.5	66.9	66.4	65.7	64.8	60.4	61.5	63.6	.	.
Thirteen cities and metropolitan areas												
Unemployment rate	Percentage, seasonally adjusted, period average	10.2	10.1	10.3	11.0	11.1	11.5	18.9	15.2	11.4	<b>11.5</b>	.
Occupancy Rate	Percentage, seasonally adjusted, period average	62.8	62.6	61.7	60.5	59.6	58.8	50.8	53.8	58.1	.	.
Overall participation rate	Percentage, seasonally adjusted, period average	69.9	69.6	68.8	67.9	67.1	66.4	62.7	63.5	65.5	.	.
<b>Balance of payments <sup>h/i/</sup></b>												
Current account (A + B + C)	Millions of dollars	-19,819	-18,702	-12,587	-9,924	-14,041	-14,808	-9,346	-17,981	-21,446	<b>-14,685</b>	.
Percentage of GDP	Percentage, nominal terms	-5.2	-6.3	-4.4	-3.2	-4.2	-4.6	-3.5	-5.7	-6.2	<b>-4.1</b>	.
A. Goods and services	Millions of dollars	-12,332	-19,004	-13,451	-8,762	-10,556	-14,146	-13,090	-20,032	-16,579	<b>-12,653</b>	.
B. Primary income (factor income)	Millions of dollars	-12,108	-5,450	-5,312	-8,046	-11,442	-9,717	-5,044	-8,723	-17,209	<b>-14,360</b>	.
C. Secondary income (current transfers)	Millions of dollars	4,622	5,752	6,177	6,883	7,957	9,055	8,788	10,775	12,342	<b>12,328</b>	.
Financial account (A + B + C + D)	Millions of dollars	-19,292	-18,060	-12,339	-9,625	-12,954	-13,298	-8,161	-16,513	-20,460	.	.
Percentage of GDP	Percentage, nominal terms	-5.1	-6.1	-4.4	-3.1	-3.9	-4.1	-3.0	-5.2	-5.9	.	.
A. Foreign investment (ii - i)	Millions of dollars	-12,270	-7,403	-9,341	-10,011	-6,172	-10,836	-5,772	-6,201	-13,327	.	.
i. Foreign investment in Colombia (FDI)	Millions of dollars	16,169	11,621	13,858	13,701	11,299	13,989	7,459	9,381	17,048	.	.
ii. Colombian abroad	Millions of dollars	3,899	4,218	4,517	3,690	5,126	3,153	1,686	3,181	3,720	.	.
B. Portfolio investment	Millions of dollars	-11,565	-9,091	-4,945	-1,800	862	24	-1,768	-4,595	265	.	.
C. Other investment (loans, other credits and derivatives)	Millions of dollars	106	-1,981	1,781	1,641	-8,831	-5,820	-4,949	-6,371	-7,969	.	.
D. Reserve assets	Millions of dollars	4,437	415	165	545	1,187	3,333	4,328	654	571	.	.
Errors and omissions (E&O)	Millions of dollars	526	642	247	299	1,087	1,509	1,186	1,468	986	.	.
<b>Interest rates</b>												
Policy interest rate <sup>j/</sup>	Percentage, period average	3.88	4.67	7.10	6.10	4.35	4.25	2.87	1.91	7.20	.	.
Policy rate expected by analysts <sup>k/</sup>	Percentage, period average										<b>12.72</b>	<b>9.23</b>
IBR* overnight	Percentage, period average	3.8	4.7	7.1	6.1	4.3	4.3	2.9	1.9	7.2	.	.
Commercial interest rate <sup>l/</sup>	Percentage, period average	8.7	9.4	12.8	11.1	9.3	8.8	7.4	6.2	13.3	.	.
Consumer interest rate <sup>m/</sup>	Percentage, period average	17.3	17.2	19.2	19.4	17.9	16.5	15.0	14.3	21.1	.	.
Mortgage interest rate <sup>n/</sup>	Percentage, period average	11.1	11.0	12.4	11.6	10.6	10.4	10.1	9.1	12.9	.	.

Note: values in bold are forecasts or assumptions.

sats: seasonally adjusted time series, modified to eliminate the effect of seasonal and calendar influences.

a/ Quarterly data in bold are assumptions based on the annual forecast of each variable.

b/ Calculated with the main trading partners (excluding Venezuela) weighted by their share of trade.

c/ Calculations by Banco de la República; excluding the CPI item weight for food and non-alcoholic beverages. Consult González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC y revisión de las medidas de inflación básica en Colombia", Borradores de Economía, No. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

d/ Calculations by Banco de la República; equal to the CPI item weight of Food and non-alcoholic beverages produced by DANE (does not include the subclasses corresponding to meals outside the home). See González, E.; Hernández, R. et al, Ibid.

e/ Calculations by Banco de la República. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC y revisión de las medidas de inflación básica en Colombia", Borradores de Economía, No. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

f/ The historical gap estimate is calculated based on the difference between observed GDP (cumulative 4 quarters) and potential GDP (trend; cumulative 4 quarters) resulting from the 4GM model; in the forecast it is calculated from the difference between the technical staff's estimate of GDP (cumulative 4 quarters) and potential GDP (trend; cumulative 4 quarters) resulting from the 4GM model.

g/ Rates are calculated based on seasonally adjusted annual populations.

h/ The results presented herein follow the recommendations of the sixth balance of payments manual proposed by the International Monetary Fund (IMF). See additional information and methodological changes at: <http://www.banrep.gov.co/balanza-pagos>.

i/ Results for 2021 and 2022 are preliminary.

j/ Corresponds to the average annual monetary policy interest rate calculated with the working days of the series.

k/ These projections are calculated as the average of the interest rate that would be in effect in each year according to the median of the monthly responses to the Monthly Survey of Economic Analyst Expectations (EME) conducted by Banco de la República in April 2023.

l/ Weighted average of interest rates on ordinary, treasury and preferential loans.

m/ Does not include loans granted through credit cards.

n/ Corresponds to the weighted average of interest rate of the disbursements in COP and UVR (real value unit for its Spanish acronym) for the acquisition of NON-VIS housing.

## Annex 2 (continued)

# Main macroeconomic forecasting variables

	2018				2019			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Exogenous variables</b>								
<b>External <sup>a/</sup></b>								
GDP of trading partners <sup>b/</sup>	Percentage, annual quarter variation, seasonally adjusted							
Oil price (Brent benchmark)	2.2	3.4	1.1	11	0.7	3.2	1.5	-1.7
Federal funds effective rate (Fed)	6.7	7.5	7.6	69	64	68	62	62
5-year Credit Default Swap for Colombia	1.45	1.74	1.92	2.22	2.40	2.40	2.20	1.65
	99	113	110	132	121	104	90	83
<b>Internal</b>								
Neutral real interest rate for Colombia	Percentage, average for the period							
Potential GDP for Colombia (trend)	Percentage, annual change							
<b>Endogenous variables</b>								
<b>Prices</b>								
Total CPI	Percentage, annual change, end of period							
CPI excluding food <sup>c/</sup>	3.14	3.20	3.23	3.18	3.21	3.43	3.82	3.80
CPI for goods (excluding food and regulated items)	3.97	3.73	3.67	3.51	3.27	3.22	3.37	3.45
CPI for services (excluding food and regulated items)	1.67	1.39	1.39	1.40	1.09	1.60	1.83	2.18
CPI for regulated items	4.09	3.79	3.60	3.13	3.01	3.10	3.37	3.45
CPI for food <sup>d/</sup>	6.28	6.21	6.35	6.65	6.33	5.24	5.03	4.81
CPI for perishable food	-0.06	1.11	1.47	1.87	3.24	4.96	6.49	5.80
CPI for processed food	7.13	8.47	9.51	8.88	9.98	15.46	17.50	8.66
Core inflation indicators <sup>e/</sup>	-2.01	-0.91	-0.72	-0.08	1.43	2.18	3.57	5.04
CPI excluding food	Percentage, annual change, end of period							
Core CPI 15	3.97	3.73	3.67	3.51	3.27	3.22	3.37	3.45
CPI excluding food and regulated items	3.45	3.24	3.19	3.22	3.24	3.34	3.66	3.78
Average of all core inflation indicators	3.28	2.99	2.87	2.57	2.41	2.65	2.92	3.10
Representative market exchange rate (TMR)	3.57	3.32	3.24	3.10	2.97	3.07	3.32	3.44
Real exchange rate Inflationary gap	2,860	2,839	2,961	3,160	3,135	3,242	3,337	3,413
	-3.3	-3.8	-0.4	4.5	2.3	3.2	4.0	4.8
<b>Economic activity</b>								
Gross domestic product (sats) <sup>*</sup>	Percentage, annual change, sats							
Final consumption expense	2.2	2.2	2.8	3.0	3.1	3.4	3.0	3.2
Household final consumption expenditure	3.8	4.0	4.0	4.1	3.3	4.2	4.7	5.0
General government final consumption expenditure	3.3	3.5	3.2	2.9	2.9	3.6	4.4	5.4
Gross capital formation	6.6	7.0	7.8	7.9	6.5	5.6	4.8	4.3
Gross fixed capital formation	-6.2	1.7	1.4	9.9	8.4	2.5	5.3	-3.9
Housing	-2.0	2.8	1.4	1.8	7.4	4.1	2.1	-4.2
Other buildings and structures	-9.0	0.3	5.7	2.7	-6.2	-7.6	-8.4	-13.4
Machinery and equipment	-6.6	-1.2	-4.9	-1.4	13.1	-1.0	0.7	-6.6
Cultivated biological resources	9.0	13.3	6.9	5.7	15.2	19.4	11.2	3.6
Intellectual property products	-10.8	-6.6	3.7	2.3	5.5	9.8	14.8	1.9
Domestic demand	2.7	2.6	0.5	0.4	0.0	-1.3	-1.5	0.1
Exports	1.6	3.6	3.7	5.0	4.5	4.0	4.7	3.0
Imports	0.2	-2.1	1.5	2.9	5.0	8.8	2.0	-3.2
Product gap <sup>f/</sup>	-1.6	4.7	5.2	15.2	11.6	8.8	10.8	-1.0
Short-term indicators	-0.6	-0.6	-0.5	-0.4	-0.2	0.0	0.2	0.3
Real production of manufacturing industry	Percentage, var. annual, seasonally adjusted							
Retail trade sales, excluding fuels or vehicles	2.4	2.7	3.8	2.8	1.1	2.4	0.7	0.9
Coffee production	4.7	6.3	4.8	6.0	6.3	7.2	9.5	9.3
Oil production	-5.8	13.1	-13.8	-6.6	-1.9	6.6	4.9	24.1
	0.4	1.0	1.1	2.6	5.4	3.2	1.4	-0.2
<b>Labor market <sup>g/</sup></b>								
Total national	Percentage, seasonally adjusted, period average							
Unemployment rate	9.7	9.9	9.7	10.5	10.8	10.6	11.1	11.0
Occupancy rate	59.2	59.5	59.5	58.4	58.3	57.7	57.3	57.5
Overall participation rate	65.6	66.0	65.9	65.2	65.4	64.6	64.5	64.5
Thirteen cities and metropolitan areas	Percentage, seasonally adjusted, period average							
Unemployment rate	11.1	11.0	10.8	11.6	11.7	11.4	11.4	11.6
Occupancy rate	59.7	59.9	60.0	58.9	58.7	58.8	58.7	58.7
Overall participation rate	67.1	67.3	67.4	66.6	66.6	66.4	66.3	66.4
<b>Balance of payments <sup>h/i/</sup></b>								
Current account (A + B + C)	Millions of dollars							
Percentage of GDP	-3,023	-3,471	-3,406	-4,141	-3,821	-3,218	-4,302	-3,466
A. Goods and services	-3.7	-4.1	-4.0	-5.0	-4.8	-4.1	-5.3	-4.2
B. Primary income (factor income)	-1,840	-2,557	-2,672	-3,487	-3,137	-2,997	-4,405	-3,606
C. Secondary income (current transfers)	-2,922	-2,784	-2,769	-2,967	-2,616	-2,502	-2,301	-2,298
Financial account (A + B + C + D)	Millions of dollars							
Percentage of GDP	1,739	1,870	2,035	2,313	1,932	2,281	2,404	2,438
A. Foreign investment (ii - i)	-2,876	-2,719	-3,487	-3,872	-3,520	-3,333	-3,740	-2,706
i. Foreign Investment in Colombia (FDI)	-3.5	-3.3	-4.1	-4.7	-4.4	-4.2	-4.6	-3.3
ii. Colombian abroad	-910	-2,273	-2,375	-615	-2,652	-3,626	-1,678	-2,880
B. Portfolio investment	1,982	3,773	2,704	2,839	3,394	4,090	3,163	3,342
C. Other investment (loans, other credits and derivatives)	1,072	1,500	330	2,224	741	465	1,485	462
D. Reserve assets	1,715	350	482	-1,684	-1,382	-282	137	1,551
Errors and omissions (E&O)	-3,817	-945	-1,763	-2,305	-1,836	48	-2,453	-1,579
	137	150	169	732	2,351	526	254	202
	146	752	-81	270	301	-115	562	760
<b>Interest rates</b>								
Policy interest rate <sup>j/</sup>	Percentage, period average							
Policy rate expected by analysts <sup>k/</sup>	4.58	4.33	4.25	4.25	4.25	4.25	4.25	4.25
IBR* overnight	Percentage, period average							
Commercial interest rate <sup>l/</sup>	4.6	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Consumer interest rate <sup>m/</sup>	9.4	9.4	9.3	9.0	9.1	9.0	8.9	8.5
Mortgage interest rate <sup>n/</sup>	18.7	17.9	18.0	17.3	18.0	17.2	16.0	15.5
	10.8	10.6	10.5	10.4	10.4	10.5	10.4	10.4

Note: values in bold are forecasts or assumptions.

sats: seasonally adjusted time series, modified to eliminate the effect of seasonal and calendar influences.

a/ Quarterly data in bold are assumptions based on the annual forecast of each variable.

b/ Calculated with the main trading partners (excluding Venezuela) weighted by their share of trade.

c/ Calculations by Banco de la República, excluding the CPI item weight for food and non-alcoholic beverages. Consult González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC y revisión de las medidas de inflación básica en Colombia", Borradores de Economía, No. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

d/ Calculations by Banco de la República; equal to the CPI item weight of Food and non-alcoholic beverages produced by DANE (does not include the subclasses corresponding to meals outside the home). See González, E.; Hernández, R. et al., Ibid.

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l/ Weighted average of interest rates on ordinary, treasury and preferential loans.

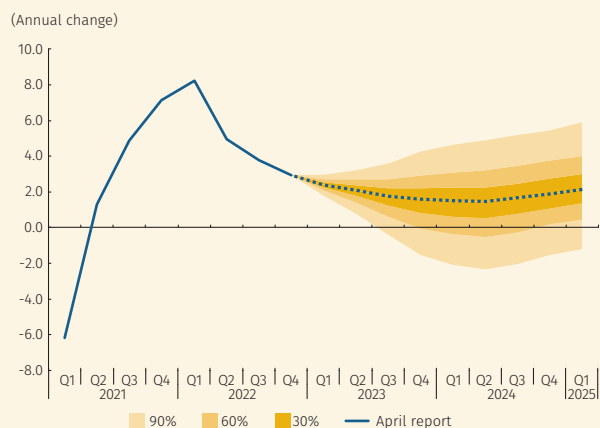
m/ Does not include loans granted through credit cards.

n/ Corresponds to the weighted average of interest rate of the disbursements in COP and UVR (real value unit for its Spanish acronym) for the acquisition of NON-VIS housing.

2020				2021				2022				2023				2024				2025
1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
-7.3	-43.8	49.5	12.8	5.6	5.6	5.7	4.4	1.0	1.4	3.5	1.9	<b>0.8</b>	<b>1.4</b>	<b>1.2</b>	<b>1.8</b>	<b>1.8</b>	<b>2.4</b>	<b>2.4</b>	<b>2.4</b>	<b>2.4</b>
51	32	43	45	161	69	73	80	98	112	98	89	<b>82</b>	<b>86</b>	<b>87</b>	<b>87</b>	<b>84</b>	<b>83</b>	<b>82</b>	<b>82</b>	<b>82</b>
1.23	0.06	0.09	0.09	0.08	0.07	0.09	0.08	0.12	0.76	2.20	3.65	4.52	<b>5.04</b>	<b>5.13</b>	<b>5.13</b>	<b>5.11</b>	<b>4.68</b>	<b>4.35</b>	<b>4.08</b>	<b>3.85</b>
125	206	132	104	110	131	143	185	209	238	275	314	283	<b>287</b>	<b>287</b>	<b>284</b>	<b>281</b>	<b>277</b>	<b>273</b>	<b>269</b>	<b>266</b>
3.86	2.19	1.97	1.61	1.51	3.63	4.51	5.62	8.53	9.67	11.44	13.12	13.34	<b>12.69</b>	<b>11.39</b>	<b>9.46</b>	<b>7.47</b>	<b>5.90</b>	<b>4.45</b>	<b>3.45</b>	<b>2.91</b>
3.26	1.40	1.57	1.03	1.06	2.70	3.03	3.44	5.31	6.84	8.33	9.99	11.42	.	.	.	.	.	.	.	.
2.41	0.73	1.15	0.63	1.05	2.57	2.97	3.31	6.41	8.30	11.57	15.04	15.08	.	.	.	.	.	.	.	.
3.22	2.00	1.86	1.29	0.89	1.61	2.01	2.18	3.79	5.21	5.93	7.41	8.73	.	.	.	.	.	.	.	.
4.27	0.44	1.19	0.73	1.52	5.93	5.94	7.10	8.32	9.80	11.46	11.77	14.72	<b>15.29</b>	<b>15.02</b>	<b>14.52</b>	<b>11.10</b>	<b>8.40</b>	<b>6.01</b>	<b>4.53</b>	<b>3.69</b>
7.19	6.55	4.13	4.80	3.92	8.52	12.40	17.23	25.37	23.65	26.62	27.81	21.81	<b>15.67</b>	<b>11.71</b>	<b>6.39</b>	<b>4.17</b>	<b>4.32</b>	<b>1.59</b>	<b>0.37</b>	<b>-0.09</b>
9.79	2.52	-3.42	2.49	1.58	8.69	14.82	24.42	41.87	31.21	35.50	36.44	19.66	.	.	.	.	.	.	.	.
6.46	7.75	6.40	5.43	4.60	8.47	11.74	15.32	20.69	21.50	24.14	25.33	22.53	.	.	.	.	.	.	.	.
3.26	1.40	1.57	1.03	1.06	2.70	3.03	3.44	5.31	6.84	8.33	9.99	11.42	.	.	.	.	.	.	.	.
3.64	2.17	2.33	1.88	1.67	3.36	3.79	4.42	6.93	8.41	10.04	11.55	12.41	.	.	.	.	.	.	.	.
2.99	1.65	1.67	1.11	0.94	1.87	2.28	2.49	4.51	6.06	7.49	9.51	10.51	<b>11.08</b>	<b>10.17</b>	<b>8.87</b>	<b>7.22</b>	<b>5.54</b>	<b>4.70</b>	<b>3.87</b>	<b>3.39</b>
3.30	1.74	1.86	1.34	1.22	2.64	3.03	3.45	5.58	7.10	8.62	10.35	11.45	.	.	.	.	.	.	.	.
3,532	3,850	3,731	3,661	3,556	3,696	3,847	3,880	3,913	3,916	4,382	4,805	4,759	.	.	.	.	.	.	.	.
5.1	10.7	5.8	2.6	-0.7	2.6	4.2	3.8	2.7	1.2	7.8	14.3	10.8	<b>5.7</b>	<b>3.8</b>	<b>1.4</b>	<b>0.3</b>	<b>-1.2</b>	<b>-0.6</b>	<b>-0.9</b>	<b>-0.4</b>
0.1	-16.6	-9.1	-3.4	2.4	18.6	13.3	11.2	7.8	12.1	7.7	2.9	<b>3.0</b>	<b>1.3</b>	<b>0.4</b>	<b>-0.8</b>	<b>-0.9</b>	<b>0.4</b>	<b>1.6</b>	<b>3.0</b>	<b>3.4</b>
3.8	-13.9	-7.0	0.8	3.2	23.1	18.5	11.4	10.8	11.6	8.1	2.0	<b>1.5</b>	.	.	.	.	.	.	.	.
4.6	-16.8	-8.3	1.1	3.0	25.6	19.3	12.8	11.3	13.4	9.5	4.2	<b>3.3</b>	.	.	.	.	.	.	.	.
-0.3	-1.8	-2.1	1.1	7.0	11.6	12.7	8.1	7.5	3.0	0.1	-4.8	<b>-5.2</b>	.	.	.	.	.	.	.	.
-11.9	-33.4	-21.6	-17.5	-4.3	31.4	11.4	17.0	18.1	20.8	23.0	16.2	<b>3.0</b>	.	.	.	.	.	.	.	.
-11.3	-42.5	-26.1	-15.3	0.4	45.9	16.9	15.4	8.2	12.5	16.0	10.6	<b>6.9</b>	.	.	.	.	.	.	.	.
-24.9	-48.1	-30.7	-25.6	24.8	64.2	32.0	46.2	-2.4	3.2	14.0	3.6	<b>13.3</b>	.	.	.	.	.	.	.	.
-10.4	-50.4	-39.2	-25.4	-16.4	31.3	-1.5	3.5	-3.7	4.0	11.5	-8.3	<b>-2.6</b>	.	.	.	.	.	.	.	.
-5.2	-35.7	-10.8	0.5	8.4	56.3	26.2	15.2	25.6	22.1	23.0	31.3	<b>9.4</b>	.	.	.	.	.	.	.	.
2.5	1.9	-7.9	-3.1	4.5	0.1	-4.0	-4.5	-11.0	-10.7	-5.3	0.3	<b>1.8</b>	.	.	.	.	.	.	.	.
0.2	-17.7	-13.7	-12.0	-5.5	10.4	12.9	10.1	16.4	16.6	14.7	3.1	<b>-9.9</b>	.	.	.	.	.	.	.	.
0.7	-17.8	-9.9	-3.0	1.6	24.8	16.6	12.8	12.3	13.4	10.2	4.6	<b>2.0</b>	.	.	.	.	.	.	.	.
-7.2	-31.8	-28.4	-23.1	-10.0	15.8	27.1	37.9	18.6	27.6	14.9	1.6	<b>5.0</b>	.	.	.	.	.	.	.	.
-5.3	-33.4	-25.4	-15.2	-4.2	45.4	39.4	34.9	38.6	26.0	24.2	10.1	<b>-2.9</b>	.	.	.	.	.	.	.	.
-0.4	-3.9	-6.2	-7.3	-7.1	-4.5	-2.7	-0.9	0.0	1.5	2.6	2.4	<b>2.3</b>	<b>1.9</b>	<b>1.2</b>	<b>0.3</b>	<b>-0.5</b>	<b>-1.1</b>	<b>-1.3</b>	<b>-1.3</b>	<b>-1.2</b>
-1.5	-23.6	-7.3	0.0	6.7	27.6	20.1	12.9	12.0	21.2	7.0	3.7	.	.	.	.	.	.	.	.	.
6.2	-14.7	-3.2	5.1	4.8	19.0	15.2	10.4	11.3	21.5	5.8	-1.0	.	.	.	.	.	.	.	.	.
-13.8	-1.9	-3.6	-4.6	13.3	-24.7	-1.9	-18.8	-16.3	9.7	-18.2	-17.0	-0.7	.	.	.	.	.	.	.	.
-2.1	-15.7	-15.4	-14.1	-14.6	-5.1	-0.1	-1.7	-0.1	5.1	1.3	3.6	.	.	.	.	.	.	.	.	.
11.9	21.1	18.2	15.5	14.7	15.3	12.6	12.6	12.0	11.2	10.8	10.9	<b>10.7</b>	<b>10.9</b>	<b>11.1</b>	<b>11.3</b>	.	.	.	.	.
55.6	44.5	49.1	52.6	52.7	52.0	53.6	54.0	55.9	56.7	57.0	56.4	.	.	.	.	.	.	.	.	.
63.1	56.4	60.0	62.2	61.7	61.3	61.3	61.8	63.5	63.8	63.9	63.3	.	.	.	.	.	.	.	.	.
11.8	25.2	21.8	17.3	16.7	16.7	14.1	13.2	12.1	11.3	11.1	10.9	<b>11.2</b>	<b>11.4</b>	<b>11.6</b>	<b>11.8</b>	.	.	.	.	.
56.9	44.1	49.0	53.3	53.4	53.1	54.4	54.4	57.4	57.9	58.4	58.4	.	.	.	.	.	.	.	.	.
64.5	59.0	62.7	64.5	64.1	63.8	63.3	62.7	65.3	65.3	65.7	65.6	.	.	.	.	.	.	.	.	.
-2,324	-1,984	-2,033	-3,005	-3,113	-4,052	-4,844	-5,972	-5,443	-4,925	-6,091	-4,987	.	.	.	.	.	.	.	.	.
-3.1	-3.6	-3.1	-4.0	-4.0	-5.5	-6.0	-6.9	-6.4	-5.4	-7.0	-6.1	.	.	.	.	.	.	.	.	.
-3,098	-2,651	-3,262	-4,079	-3,696	-5,026	-5,268	-6,042	-5,012	-3,150	-4,546	-3,871	.	.	.	.	.	.	.	.	.
-1,398	-1,051	-1,193	-1,402	-1,867	-1,652	-2,339	-2,865	-3,608	-4,606	-4,650	-4,344	.	.	.	.	.	.	.	.	.
2,173	1,718	2,422	2,475	2,450	2,627	2,763	2,935	3,177	2,830	3,106	3,228	.	.	.	.	.	.	.	.	.
-1,750	-1,949	-1,868	-2,594	-2,609	-3,761	-4,504	-5,640	-4,827	-4,901	-5,638	-5,094	.	.	.	.	.	.	.	.	.
-2.4	-3.5	-2.8	-3.5	-3.4	-5.1	-5.6	-6.5	-5.7	-5.4	-6.5	-6.2	.	.	.	.	.	.	.	.	.
-1,939	-1,736	-269	-1,829	-1,258	-1,013	-2,528	-1,402	-3,516	-3,599	-2,920	-3,292	.	.	.	.	.	.	.	.	.
3,175	1,371	844	2,069	2,127	1,997	2,707	2,550	4,897	5,078	3,164	3,909	.	.	.	.	.	.	.	.	.
1,236	-365	575	240	869	984	179	1,149	1,381	1,479	243	617	.	.	.	.	.	.	.	.	.
-168	-3,429	323	1,506	1,319	-6,089	851	-675	1,919	-761	-171	-121	.	.	.	.	.	.	.	.	.
528	627	-2,127	-3,976	-2,860	3,167	-2,981	-3,697	-3,356	-615	-2,706	-1,291	.	.	.	.	.	.	.	.	.
-171	2,590	205	1,705	190	174	154	135	127	74	159	210	.	.	.	.	.	.	.	.	.
574	35	165	411	504	291	340	332	617	25	452	-107	.	.	.	.	.	.	.	.	.
4.23	3.26	2.24	1.75	1.75	1.75	1.75	2.40	3.69	5.68	8.56	10.85	12.53	.	.	.	.	.	.	.	.
4.2	3.2	2.2	1.7	1.7	1.7	1.8	2.4	3.7	5.7	8.6	10.9	12.5	<b>13.00</b>	<b>13.00</b>	<b>12.33</b>	<b>11.04</b>	<b>9.67</b>	<b>8.54</b>	<b>7.67</b>	<b>6.83</b>
8.4	8.3	7.0	6.2	6.0	5.7	6.0	6.9	8.6	10.8	14.2	17.8	19.9	.	.	.	.	.	.	.	.
15.8	15.5	14.8	14.2	14.0	13.7	14.3	14.8	16.7	19.1	22.9	27.2	30.1	.	.	.	.	.	.	.	.
10.4	10.4	10.2	9.6	9.2	8.9	9.0	9.3	9.9	11.5	13.4	16.4	18.2	.	.	.	.	.	.	.	.

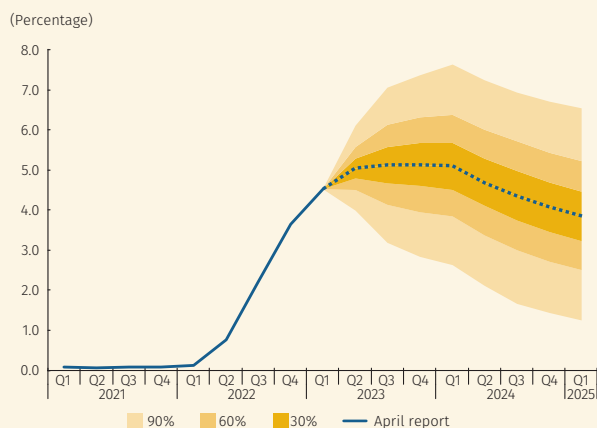
## Annex 3 Predictive densities for other relevant macroeconomic forecasting variables

**Graph A3.1**  
Quarterly assumptions of 12-month growth of trading partners based on annual projections, predictive density <sup>a/</sup>



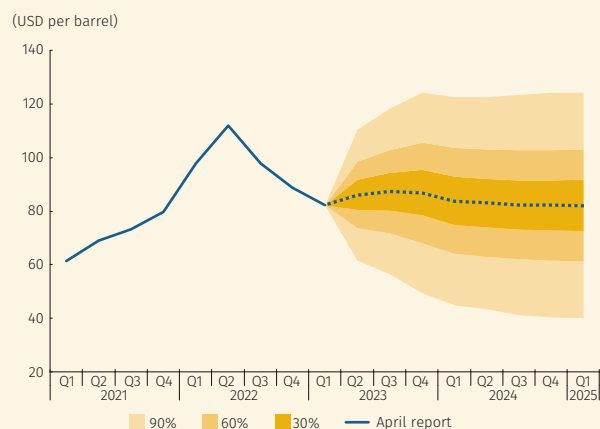
a/ The graph displays the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode).  
Sources: Bloomberg, statistics bureaus, central banks; calculations and projections by Banco de la República.

**Graph A3.3**  
U.S. Federal Reserve quarterly interest rate assumption, predictive density <sup>a/</sup>



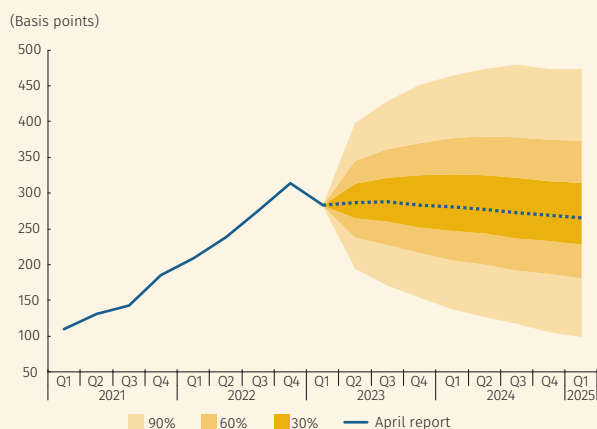
a/ The graph displays the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode).  
Source: Federal Reserve Bank of Louis, calculations and projections by Banco de la República.

**Graph A3.2**  
Quarterly oil price assumption, predictive density <sup>a/</sup>



a/ The graph displays the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode).  
Source: Bloomberg, calculations and projections by Banco de la República.

**Graph A3.4**  
Colombia's quarterly risk premium (CDS) assumption, predictive density <sup>a/,b/</sup>

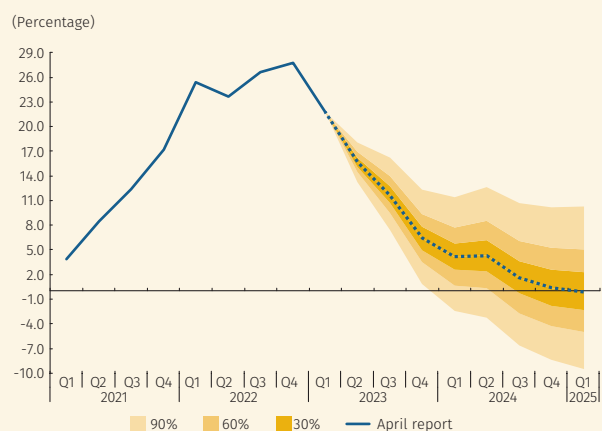


a/ Five-year credit default swaps  
b/ The graph displays the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the Patacon and 4GM models.  
Source: Bloomberg, calculations and projections by Banco de la República.

## Annex 3 (continued)

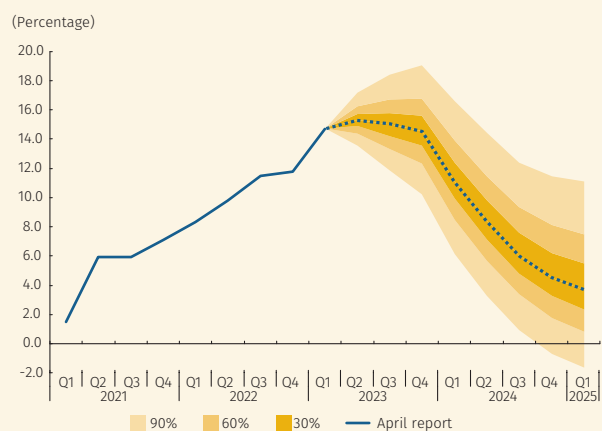
### Predictive densities for other relevant macroeconomic forecasting variables

Graph A3.5  
CPI for foods, predictive density <sup>a/</sup>  
(Annual change, end-of-period)



a/ The graph displays the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the *Patacon* and 4GM models.  
Source: *Banco de la República*.

Graph A3.6  
CPI for regulated items, predictive density <sup>a/</sup>  
(Annual change, end-of-period)



a/ The graph displays the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the *Patacon* and 4GM models.  
Source: *Banco de la República*.



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