REPORT OF THE **BOARD OF DIRECTORS** TO **CONGRESS**

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Banco de la República
Bogotá, D. C., Colombia

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Bogotá, 31 March 2023

To:
PRESIDENTS AND OTHER MEMBERS
Honorable Chairmen and Members
Standing Constitutional Committees
The Senate of the Republic
The House of Representatives

Dear Sirs:

In compliance with Article 5, Act of Congress 31/1992, the Board of Directors of *Banco de la República* hereby submits to the Congress of the Republic of Colombia their Report to Congress on the macroeconomic results for 2022 and the outlook for 2023 for its consideration. The recent developments in inflation and the decisions made by the Bank's Board of Directors in this context are presented. Furthermore, the changes in the local financial and credit markets, the country's foreign balance, the breakdown of the foreign reserves and their yield, the financial position of the Bank and its forecasts, and *Banco de la República*'s Cultural management are described.

Sincerely,

Leonardo Villar Gómez
Governor

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Introduction

Banco de la República is celebrating its 100th anniversary in 2023. This is a very significant anniversary and one that provides an opportunity to highlight the contribution the Bank has made to the country's development. Its track record as guarantor of monetary stability has established it as the one independent state institution that generates the greatest confidence among Colombians due to its transparency, management capabilities, and effective compliance with the central banking and cultural responsibilities entrusted to it by the Constitution and the Law. On a date as important as this, the Board of Directors of *Banco de la República* (BDBR) pays tribute to the generations of governors and officers whose commitment and dedication have contributed to the growth of this institution.[1]

Banco de la República's mandate was confirmed in the National Constitutional Assembly of 1991 where the citizens had the opportunity to elect the seventy people who would have the task of drafting a new constitution. The leaders of the three political movements with the most votes were elected as chairs to the Assembly, and this tripartite presidency reflected the plurality and the need for consensus among the different political groups to move the reform forward.

Among the issues considered, the National Constitutional Assembly gave special importance to monetary stability. That is why they decided to include central banking and to provide *Banco de la República* with the necessary autonomy to use the instruments for which they are responsible without interference from other authorities. The constituent members understood that ensuring price stability is a state duty and that the entity responsible for this task must be enshrined in the Constitution and have the technical capability and institutional autonomy necessary to adopt the decisions they deem appropriate to achieve this fundamental objective in coordination with the general economic policy. In particular, Article 373 established that "the State, through *Banco de la República*, shall ensure the maintenance of the purchasing power of the currency," a provision that coincided with the central banking system adopted by countries that have been successful in controlling inflation. In 1999, in Ruling 481, the Constitutional Court stated that "the duty to maintain the purchasing power of the currency applies to not only the monetary, credit, and exchange authority, i.e., the Board of *Banco de la República*, but also those who have responsibilities in the formulation and implementation of the general economic policy of the country" and that "the basic constitutional purpose of *Banco de la República* is the protection of a sound currency. However, this authority must take the other economic objectives of state intervention such as full employment into consideration in their decisions since these functions must be coordinated with the general economic policy."

The reforms to *Banco de la República* agreed upon in the Constitutional Assembly of 1991 and in Act 31/1992 can be summarized in the following aspects: i) the Bank was assigned a specific mandate: to maintain the purchasing power of the currency in coordination with the general economic policy; ii) the BDBR was designated

1 This *Report to Congress* includes Box 1, which summarizes the trajectory of *Banco de la República* over the past 100 years. In addition, under the Bank's auspices, several books that delve into various aspects of the history of this institution have been published in recent years. See, for example: *Historia del Banco de la República 1923-2015*; *Tres banqueros centrales*; *Junta Directiva del Banco de la República: grandes episodios en 30 años de historia*; *Banco de la República: 90 años de la banca central en Colombia*.

as the monetary, foreign exchange, and credit authority; iii) the Bank and its Board of Directors were granted a significant degree of independence from the government; iv) the Bank was prohibited from granting credit to the private sector except in the case of the financial sector; v) established that in order to grant credit to the government, the unanimous vote of its Board of Directors was required except in the case of open market transactions; vi) determined that the legislature may, in no case, order credit quotas in favor of the State or individuals; vii) Congress was appointed, on behalf of society, as the main addressee of the Bank's reporting exercise; and viii) the responsibility for inspection, surveillance, and control over *Banco de la República* was delegated to the President of the Republic.

The members of the National Constitutional Assembly clearly understood that the benefits of low and stable inflation extend to the whole of society and contribute to the smooth functioning of the economic system. Among the most important of these is that low inflation promotes the efficient use of productive resources by allowing relative prices to better guide the allocation of resources since this promotes economic growth and increases the welfare of the population. Likewise, low inflation reduces uncertainty about the expected return on investment and future asset prices. This increases the confidence of economic agents, facilitates long-term financing, and stimulates investment. Since the low-income population is unable to protect itself from inflation by diversifying its assets, and a high proportion of its income is concentrated in the purchase of food and other basic goods that are generally the most affected by inflationary shocks, low inflation avoids arbitrary redistribution of income and wealth.[2] Moreover, low inflation facilitates wage negotiations, creates a good labor climate, and reduces the volatility of employment levels. Finally, low inflation helps to make the tax system more transparent and equitable by avoiding the distortions that inflation introduces into the value of assets and income that make up the tax base. From the monetary authority's point of view, one of the most relevant benefits of low inflation is the credibility that economic agents acquire in inflation targeting, which turns it into an effective nominal anchor on price levels.

Upon receiving its mandate, and using its autonomy, *Banco de la República* began to announce specific annual inflation targets as of 1992. Although the proposed inflation targets were not met precisely during this first stage, a downward trend in inflation was achieved that took it from 32.4% in 1990 to 16.7% in 1998. At that time, the exchange rate was kept within a band. This limited the effectiveness of monetary policy, which simultaneously sought to meet an inflation target and an exchange rate target. The Asian crisis spread to emerging economies and significantly affected the Colombian economy. The exchange rate came under strong pressure to depreciate as access to foreign financing was cut off under conditions of a high foreign imbalance. This, together with the lack of exchange rate flexibility, prevented a countercyclical monetary policy and led to a 4.2% contraction in GDP that year. In this context of economic slowdown, annual inflation fell to 9.2% at the end of 1999, thus falling below the 15% target set for that year. This episode fully revealed how costly it could be, in terms of economic activity, to have inflation and exchange rate targets simultaneously.

Towards the end of 1999, *Banco de la República* announced the adoption of a new monetary policy regime called the *Inflation Targeting Plan*. This regime, known internationally as 'Inflation Targeting,' has been gaining increasing acceptance in developed countries, having been adopted in 1991 by New Zealand, Canada, and

2 This is why lower inflation has been reflected in a reduction of income inequality as measured by the Gini coefficient that went from 58.7 in 1998 to 51.3 in the year prior to the pandemic.

England, among others, and has achieved significant advances in the management of inflation without incurring costs in terms of economic activity. In Latin America, Brazil and Chile also adopted it in 1999. In the case of Colombia, the last remaining requirement to be fulfilled in order to adopt said policy was exchange rate flexibility. This was realized around September 1999, when the BDBR decided to abandon the exchange-rate bands to allow the exchange rate to be freely determined in the market.

Consistent with the constitutional mandate, the fundamental objective of this new policy approach was "the achievement of an inflation target that contributes to maintaining output growth around its potential."[3] This potential capacity was understood as the GDP growth that the economy can obtain if it fully utilizes its productive resources. To meet this objective, monetary policy must of necessity play a countercyclical role in the economy. This is because when economic activity is below its potential and there are idle resources, the monetary authority can reduce the interest rate in the absence of inflationary pressure to stimulate the economy and, when output exceeds its potential capacity, raise it. This policy principle, which is immersed in the models for guiding the monetary policy stance, makes the following two objectives fully compatible in the medium term: meeting the inflation target and achieving a level of economic activity that is consistent with its productive capacity.

To achieve this purpose, the inflation targeting system uses the money market interest rate (at which the central bank supplies primary liquidity to commercial banks) as the primary policy instrument. This replaced the quantity of money as an intermediate monetary policy target that *Banco de la República*, like several other central banks, had used for a long time.

In the case of Colombia, the objective of the new monetary policy approach implied, in practical terms, that the recovery of the economy after the 1999 contraction should be achieved while complying with the decreasing inflation targets established by the BDBR. The accomplishment of this purpose was remarkable. In the first half of the first decade of the 2000s, economic activity recovered significantly and reached a growth rate of 6.8% in 2006. Meanwhile, inflation gradually declined in line with inflation targets. That was how the inflation rate went from 9.2% in 1999 to 4.5% in 2006, thus meeting the inflation target established for that year while GDP reached its potential level. After this balance was achieved in 2006, inflation rebounded to 5.7% in 2007, above the 4.0% target for that year due to the fact that the 7.5% GDP growth exceeded the potential capacity of the economy.[4]

After proving the effectiveness of the inflation targeting system in its first years of operation, this policy regime continued to consolidate as the BDBR and the technical staff gained experience in its management and state-of-the-art economic models were incorporated to diagnose the present and future state of the economy and to assess the persistence of inflation deviations and expectations with respect to the inflation target. Beginning in 2010, the BDBR established the long-term 3.0% annual inflation target, which remains in effect today.

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3 See Gómez Javier, Uribe José Darío, Vargas Hernando (2002). "The Implementation of Inflation Targeting in Colombia". *Borradores de Economía*, No. 202, March, available at: https://repositorio.banrep.gov.co/handle/20.500.12134/5220

4 See López-Enciso Enrique A.; Vargas-Herrera Hernando and Rodríguez-Niño Norberto (2016). "The inflation targeting strategy in Colombia. An historical view." *Borradores de Economía*, No. 952. https://repositorio.banrep.gov.co/handle/20.500.12134/6263

Lower inflation has contributed to making the macroeconomic environment more stable, and this has favored sustained economic growth, financial stability, capital market development, and the functioning of payment systems. As a result, reductions in the inflationary risk premia and lower TES and credit interest rates were achieved. At the same time, the duration of public domestic debt increased significantly going from 2.27 years in December 2002 to 5.86 years in December 2022, and financial deepening, measured as the level of the portfolio as a percentage of GDP, went from around 20% in the mid-1990s to values above 45% in recent years in a healthy context for credit institutions.

Having been granted autonomy by the Constitution to fulfill the mandate of preserving the purchasing power of the currency, the tangible achievements made by *Banco de la República* in managing inflation together with the significant benefits derived from the process of bringing inflation to its long-term target, make the BDBR's current challenge to return inflation to the 3.0% target even more demanding and pressing. As is well known, starting in 2021, and especially in 2022, inflation in Colombia once again became a serious economic problem with high welfare costs. The inflationary phenomenon has not been exclusive to Colombia and many other developed and emerging countries have seen their inflation rates move away from the targets proposed by their central banks.[5] The reasons for this phenomenon have been analyzed in recent *Reports to Congress*, and this new edition delves deeper into the subject with updated information.

The solid institutional and technical base that supports the inflation targeting approach under which the monetary policy strategy operates gives the BDBR the necessary elements to face this difficult challenge with confidence. In this regard, the BDBR reiterated its commitment to the 3.0% inflation target in its November 25 communiqué and expects it to be reached by the end of 2024.[6] Monetary policy will continue to focus on meeting this objective while ensuring the sustainability of economic activity, as mandated by the Constitution. Analyst surveys done in March showed a significant increase (from 32.3% in January to 48.5% in March) in the percentage of responses placing inflation expectations two years or more ahead in a range between 3.0% and 4.0%. This is a clear indication of the recovery of credibility in the medium-term inflation target and is consistent with the BDBR's announcement made in November 2022. The moderation of the upward trend in inflation seen in January, and especially in February, will help to reinforce this revision of inflation expectations and will help to meet the proposed targets.

After reaching 5.6% at the end of 2021, inflation maintained an upward trend throughout 2022 due to inflationary pressures from both external sources, associated with the aftermath of the pandemic and the consequences of the war in Ukraine, and domestic sources, resulting from: strengthening of local demand; price indexation processes stimulated by the increase in inflation expectations; the impact on food production caused by the mid-2021 strike; and the pass-through of depreciation to prices. The 10% increase in the minimum wage in 2021 and the 16% increase in 2022, both of which exceeded the actual inflation and the increase in productivity, accentuated the indexation processes by establishing a high nominal adjustment benchmark. Thus, total inflation went to 13.1% by the end of 2022. The annual change in food prices, which went from 17.2% to 27.8% between

5 According to the IMF, the percentage change in consumer prices between 2021 and 2022 went from 3.1% to 7.3% for advanced economies, and from 5.9% to 9.9% for emerging market and developing economies.

6 https://www.banrep.gov.co/es/noticias/junta-directiva-banco-republica-reitera-meta-inflacion-3

those two years, was the most influential factor in the surge in the Consumer Price Index (CPI). Another segment that contributed significantly to price increases was regulated products, which saw the annual change go from 7.1% in December 2021 to 11.8% by the end of 2022. The measure of core inflation excluding food and regulated items, in turn, went from 2.5% to 9.5% between the end of 2021 and the end of 2022. The substantial increase in core inflation shows that inflationary pressure has spread to most of the items in the household basket, which is characteristic of inflationary processes with generalized price indexation as is the case in Colombia.

Monetary policy began to react early to this inflationary pressure. Thus, starting with its September 2021 session, the BDBR began a progressive change in the monetary policy stance moving away from the historical low of a 1.75% policy rate that had intended to stimulate the recovery of the economy. This adjustment process continued without interruption throughout 2022 and into the beginning of 2023 when the monetary policy rate reached 12.75% last January, thus accumulating an increase of 11 percentage points (pp). The public and the markets have been surprised that inflation continued to rise despite significant interest rate increases. However, as the BDBR has explained in its various communiqués, monetary policy works with a lag. Just as in 2022 economic activity recovered to a level above the pre-pandemic level, driven, along with other factors, by the monetary stimulus granted during the pandemic period and subsequent months, so too the effects of the current restrictive monetary policy will gradually take effect. This will allow us to expect the inflation rate to converge to 3.0% by the end of 2024 as is the BDBR's purpose.

Inflation results for January and February of this year showed declining marginal increases (13 bp and 3 bp respectively) compared to the change seen in December (59 bp). This suggests that a turning point in the inflation trend is approaching. In other Latin American countries such as Chile, Brazil, Perú, and Mexico, inflation has peaked and has begun to decline slowly, albeit with some ups and downs. It is to be expected that a similar process will take place in Colombia in the coming months. The expected decline in inflation in 2023 will be due, along with other factors, to lower cost pressure from abroad as a result of the gradual normalization of supply chains, the overcoming of supply shocks caused by the weather, and road blockades in previous years. This will be reflected in lower adjustments in food prices, as has already been seen in the first two months of the year and, of course, the lagged effect of monetary policy. The process of inflation convergence to the target will be gradual and will extend beyond 2023. This process will be facilitated if devaluation pressure is reversed. To this end, it is essential to continue consolidating fiscal sustainability and avoid messages on different public policy fronts that generate uncertainty and distrust.

01/ Executive Summary

International Macroeconomic Environment

The world economy grew 3.4% in 2022 according to IMF estimates and set a slower pace than what was registered in 2021 (6.2%) and below the forecast made by the IMF at the beginning of 2022 (4.4%). The slowdown in global economic activity was due to the consequences of Russia's invasion of Ukraine, the resurgence of COVID-19 in China, and the restrictive monetary policy carried out by most of the world's central banks to contain inflationary pressure. The conflict in Ukraine generated significant limitations on the supply of raw materials, mainly natural gas, crude oil, and fertilizers for the agricultural sector. The resurgence of COVID-19 in China led to new lockdowns in major Chinese cities and ports under a zero-tolerance policy for the disease. This prolonged disruptions in global supply chains. As a result of the above, inflationary pressure intensified at the global level, especially on food and energy. According to World Bank estimates, the average index of international food prices in dollars in 2022 grew 18% annually, while that of fertilizers rose 63%. The international crude oil price under the Brent crude benchmark, in turn, had risen nearly 40% to an average of USD 100 per barrel (bl) by mid-2022. Subsequently, it declined to an average of USD 81 bl in December. These increases exacerbated the rises registered in 2021 and led to price levels well above those observed prior to the pandemic. For countries with currencies that depreciated against the dollar, inflationary pressure turned out to be even greater.

Increases in monetary policy interest rates by central banks in many countries affected global growth, tightened international financial conditions, and strengthened the dollar. The US Federal Reserve (Fed), in particular, began a tightening cycle for its monetary policy in March 2022 starting from a range of 0.00-0.25% and successively raised its interest rate until it was within a range between 4.75% and 5.00% in March 2023. The European Central Bank, in turn, raised its refinancing rate from 0% in June 2022 to 3.75% in March 2023, whereas the Bank of England increased its benchmark rate from 0.1% in November 2021 to 4.25% in March 2023. In the middle of this process, the US dollar appreciated 12.43% on average between 2021 and 2022 for the basket of currencies of advanced countries. Based on the J.P. Morgan Emerging Markets Currency Index, the dollar appreciated 9.07% in the 2022 average for emerging countries.

International entities and market analysts project a further slowdown in the global economy and trade in 2023. Nevertheless, the risks of recession have moderated due to the elimination of the restrictions on travel in China, the resilience of the main European economies, and the trend towards moderation in global inflation, although this is expected to remain above the pre-pandemic level. The slowdown in economic activity, the tightening of monetary policy, lower raw materials prices, and the reduced disruption of global supply chains probably contributed to the moderation of inflation. Despite this, international uncertainty remains high due to the risks associated with the ongoing war in Ukraine and other geopolitical tensions, the outcome of the COVID-19 pandemic in China, and volatility in the performance of international financial markets, etc.

Economic Activity

The 7.5% growth of the Colombian economy in 2022 was considerably higher than the growth of its Latin American peers and was more than double the average global growth rate. Such a vigorous expansion based on a GDP level that had already surpassed its pre-pandemic level since it had already grown 11.0% in 2021 was a remarkable result. This is even more true if the fact that the international environment in 2022 was not the most favorable for the country is considered. Several factors contributed to the strength of the economy including expansionary fiscal policy, the lagged effect of monetary stimulus, an improvement in the terms of trade, and significant increases in workers' remittances and foreign direct investment. The greatest contribution to the strengthening of domestic demand came from household consumption, which grew 9.5% in 2022 and thus sustained the strong trend it had been showing since 2021. The positive performance of consumption was the result, among other factors, of government transfers to households, which improved the real disposable income of families. In addition, there were higher workers' remittances from abroad, improved employment and formality levels, and consumer credit growth that had reached an annual peak of 23% by the end of the third quarter. Gross capital formation, which grew 19.5% in 2022, also contributed to domestic demand. In this group, the growth of investment in machinery and equipment (25.5%), particularly in transportation equipment and housing (4.5%), mainly driven by the LIH segment, stood out.

From the supply side, all sectors, except for agriculture and livestock, registered positive growth in 2022. Among them, the high growth of the arts and entertainment (37.9%), information and communications (14.2%), and trade and transportation (10.7%) sectors stands out. The manufacturing industry also achieved an outstanding result with 9.8% growth for the previous year and thus continued the recovery that began in 2021. At the opposite extreme is the agricultural and livestock sector, which contracted 1.9% due, among other factors, to the negative effects of the cold rainy season that affected coffee and other crops along with mining with barely 0.6% growth given the fact that coal mining and crude oil production remain at levels well below those of the pre-pandemic period.

A significant slowdown in economic growth is expected for 2023, due, in part, to the high statistical basis of comparison as a result of the high level of real GDP reached in 2022. Other factors will probably contribute to the slowdown. Domestic factors include the effects of interest rate increases on the demand for credit, the weakening of consumer confidence, and the lower growth of public consumption envisaged in the government's Financial Plan. On the foreign front, the expected economic slowdown of our trading partners leads us to expect low export growth figures. However, there are positive factors that could ease the expected slowdown of the Colombian economy in 2023. These include a positive performance of non-traditional exports, the positive performance of tourism, the productive recovery of the agricultural sector, and the implementation of the credit inclusion strategy along with others being developed by the national government.

Employment

The employed population at the national level remained stable at around 22.2 million jobs in the last few months of 2022. This level exceeds what had been seen in the two years before the pandemic when it fluctuated around 21.3 million jobs. This stability stems from two opposing employment trends for the urban and rural aggregates, where employment gains in urban areas have been offset by contractions in rural areas. Indeed, between June and December 2022, urban employment grew 0.8%, while in rural areas it fell 1.5%. This uneven performance is reflected in the employment rate which remained stable at the national level and reached 57.3% at the end of 2022 as a result of the upward trend in urban areas offset by contractions in rural areas. The loss of growth in rural employment reflects the poor performance of the agricultural sector which contracted 1.9% in 2022. In line with this trend, the national unemployment rate during the second half of last year remained at relatively stable levels of around 11% and was close to its pre-pandemic level.

Salaried and formal employment grew 11.7% in 2022 and showed significantly greater strength than the non-salaried segment, which grew 0.8%. This trend is confirmed by other sources of information such as the records of pension contributors from the Comprehensive Social Security Contribution Settlement Form (PILA in Spanish) and family compensation fund affiliates. As a result, the informal employment rate showed significant declines during 2022 as it closed the year at 57.7% in the national aggregate and 44.2% in the twenty-three main cities. Based on gender, the improved performance of labor demand for women meant that the unemployment gap between women and men went from 5.9 percentage points (pp) at the end of 2021 to 4.6 pp in December 2022, while women's labor market participation went from 49.8% to 51.9% over the same period. Finally, labor demand indicators such as job openings remained at high levels during 2022, but towards the last quarter of the year they showed a rapid downturn.

Inflation and Monetary Policy

As in other countries, inflation in Colombia continued to rise during 2022 due to a combination of supply and demand shocks that placed it far from the target proposed by the monetary authority. Thus, annual consumer inflation stood at 13.1% at the end of the year and thus was more than double the level registered twelve months earlier (5.6%). Much of the inflationary pressure originated abroad and resulted from increases in the international prices of raw materials and final goods as a consequence of the logistical problems and bottlenecks generated by the pandemic. These were exacerbated by the war in Ukraine, which added upward pressure on fertilizer and fuel prices. These increases mainly affected food prices (which reached an annual change of 27.8% at the end of 2022) as well as regulated prices including energy and fuels, where the annual adjustment came to 11.8% in December. Inflationary pressure from foreign sources was also transmitted to other items in the consumer basket as shown by the measurement of core inflation excluding food and regulated products, that went from 2.5% in 2021 to 9.5% in 2022. Domestically, adverse weather and road blockades in 2021 (the effects of which were long-lasting) also had an impact on food prices. Pressure from abroad coincided with a significant strengthening of domestic demand in response to the monetary stimulus and fiscal expansion during the pandemic and subsequent periods. The depreciation of the peso during 2021 and especially during the second half of 2022 accentuated the pass-through of foreign pressure to domestic prices. Increases in inflation induced upward revisions in inflation expectations for economic agents at all maturities. That encouraged price indexation processes and introduced elements of inflationary inertia, which made the fight against inflation more costly and difficult. In January and February, the rate of increase in inflation began to moderate, and this could be a prelude to the decline in inflation that is forecast for 2023.

The BDBR began the monetary policy tightening process starting at the September 2021 session guided by their objective of keeping inflation around the target and the economy's growth close its potential. The signs of recovery shown by the economy at that time indicated that the monetary stimulus granted during the pandemic period had already achieved its purpose of reactivating economic activity, and that a gradual withdrawal of the stimulus was advisable in view of the inflationary pressure that was beginning to be seen. Thus, the BDBR raised the policy rate from the minimum level of 1.75% it had been at in September to 3.0% at the end of 2021. The surge in the pace of inflation seen towards the end of 2021 and more sharply in the first months of 2022, together with the upward revision of inflation expectations that this induced, required the BDBR to opt for a more rapid tightening of monetary policy and resort to 100 bp increases in the policy rate in its first three decision-making sessions in 2022, 150 bp in its next two sessions, and 100 bp in the last three sessions of the year. Thus, the policy rate went from 3.0% at the end of 2021 to 12.0% at the end of 2022. This meant a 9.0 pp increase in the policy interest rate while the increase in inflation in 2022 was 7.5 pp. This difference reflects the need for increases in the policy interest rate to exceed increases in inflation expectations in order to achieve an increase in the real interest rate that helps to moderate final demand.[7]

The increase in the monetary policy interest rate (nominal and real) has begun to be reflected in a slowdown in the growth rate of domestic demand. The latter grew 4.6% annually in the fourth quarter of 2022 in comparison to annual increases of more than 10.0% in the three preceding quarters. The greater sluggishness of domestic demand in the last few months of the year is largely explained by a smaller expansion of household consumption. Consumer credit growth that had been expanding at rates close to 23% per annum in the third quarter of 2022, in turn, declined to levels below 17.0% at the beginning of this year. This is no coincidence either. Credit acts as a transmission channel for monetary policy and, in the case of the consumer portfolio, the moderation of its growth rate was necessary to reduce the growth of domestic demand and thus enable an easing of inflationary pressure together with a correction of the foreign imbalance in 2023.

Balance of Payments

The current account deficit as a share of the GDP went from 5.7% in 2021 to 6.2% in 2022. In absolute terms, this is equivalent to an increase of USD 3,465 million (m). The widening of this imbalance came from the higher negative balance of factor income, the deficit of which increased USD 8,486 million, mainly due to the higher profits of companies in this country with foreign direct investment (FDI) that rose USD 7,992 million. The profits earned by companies operating in mining and quarrying and crude oil extraction stand out. Profits from the operations of financial establishments and business services, manufacturing industries, and trade also increased. Interest payments on foreign loans contributed to a lesser extent to the factor income deficit, having increased USD 1,252 m during the previous year.

The other components of the current account partially offset the negative factor income balance. For example, the deficit in the balance of trade in goods had declined USD 2,166 m by the end of 2022, thus reducing the existing trade deficit in

7 In the economic literature, this procedure is known as the Taylor Principle which, more precisely, requires that the nominal monetary policy interest rate be adjusted in line with increases in inflation expectations plus a positive percentage of the difference between the actual inflation rate and the inflation target.

2021 by 15.5%. High prices for raw materials and the resulting significant growth in the value of exports, mainly coal and petroleum, favored this result. Imports also increased considerably, driven by the strength of domestic demand. Among them, purchases from abroad of supplies and capital goods for industry, fuel and lubricants, transportation equipment, and consumer goods stood out. However, during the last quarter of 2022, imports dropped significantly. This led to a reduction in the current account deficit from 7.0% to 6.1% of the GDP between the third and fourth quarters of last year.

The services balance also showed a significant improvement in 2022 as its deficit declined 21.3% compared to a year earlier. The increase in services exports came mainly from the travel sector due to the increased arrival of international travelers and higher sales of modern services such as contact centers, information technology, consulting, and business management. Finally, current transfers increased by about USD 1,600 m in 2022. Among these, the most notable was income from workers' remittances, which amounted to USD 9,429 m and was equivalent to 2.7% of the annual GDP and to 10.1% of the current income of the balance of payments.

The financing of the current account deficit in 2022 came mainly from funds received from FDI in the amount of USD 17,048 m (4.9% of the annual GDP) and that was USD 7,666 m (81.7%) higher than what was received a year earlier. These investments were directed towards the majority of economic activities, especially towards the financial and business services sector where a significant portion of the funds were used to acquire shares of domestic companies engaged in food and beverage preparation and non-metallic mineral manufacturing. Investments also arrived for companies operating in the crude oil and mining, transportation, and communications sectors. The financing of the foreign imbalance was supplemented through net income from foreign loans, mainly for the private sector, and funds from foreign portfolio investment.

The technical staff forecasts that the current account deficit will be reduced to 3.9% of the GDP in 2023 in line with the expected moderation of domestic demand and the country's fiscal adjustment outlook. The correction of the foreign imbalance could result from lower imports as has already been suggested by the downward trend during the last quarter of 2022 and that continued into January with a 5.7% reduction in their free on board (FOB) value compared to a year earlier.[8] The expected reduction in imports is associated with the slowdown in Colombian economic activity, declines in the costs of imported products and of international transportation of goods as the global supply chains begin to operate normally again. The above, together with the positive prospects for exports of services associated with international tourism will probably determine the decrease in the country's trade deficit. Moreover, the reduction in the value of coal and crude oil exports due to the expected lower prices for these products is likely to be reflected in a lower remission of profits by companies with foreign investment in these sectors.

Public Finances

It is important for *Banco de la República* to monitor public finances in detail because this facilitates coordination between monetary and fiscal policy. Likewise, understanding the state of public finances is a fundamental requirement for a complete assessment of the country's macroeconomic situation and the risks affecting the economy.

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8 In annual terms, the quantity index declined 7.3% and the price index rose 1.6% last January.

The economic shock caused by the COVID-19 pandemic led to a significant imbalance in the finances of the central national government (CNG). Between 2019 and 2020, the total CNG deficit went from 2.5% to 7.8% of the GDP, and the net debt went from 48.4% to 60.6% of the GDP. The large magnitude of the fiscal imbalance was due to the drop in tax revenues coupled with the strong expansion of spending required to address the health emergency and mitigate its social impact. The recovery of economic activity, which began in 2021 and consolidated in 2022, created conditions conducive to reducing this imbalance. Thus, the total CNG deficit fell to 7.1% of the GDP in 2021 and to 5.5% of the GDP in 2022.[9] CNG's net debt remained almost unchanged in 2021 (60.8% of GDP) but declined two percentage points in 2022 to stand at 58.8% of the GDP. Progress in correcting the fiscal imbalance has been possible thanks, to a large extent, to higher tax revenues resulting from the recovery of economic activity. However, the room for maneuver to adjust spending has been limited due to the persistence of pandemic-related spending pressure (vaccination and subsidies, etc.) and the well-known inflexibility of the budget. In spite of this, the CNG's primary expenditure as a share of the GDP went from 20.0% to 17.7% between 2021 and 2022 while total expenditure went from 23.4% to 22.1% of the GDP.

The government's 2023 Financial Plan anticipates a substantial improvement in public finances. The total CNG deficit will probably go from 5.5% to 3.8% of the GDP between 2022 and 2023 while the net debt is likely to go from 58.8% to 57.5% during the same period. This fiscal scenario yields a primary surplus of 0.6% of the GDP that contrasts with the primary deficit of -1.1% of the GDP registered in 2022 and is consistent with compliance with the fiscal rule. The progress in the fiscal adjustment planned for 2023 reflects the higher revenue collection coming, in part, from the recently approved tax reforms and the increase in financial surpluses from Ecopetrol.

Aware of the short-term restrictions faced by the national government, the BDBR considers it appropriate to emphasize the importance of maintaining the adjustment trajectory of public finances. From the monetary authority's point of view, a balanced adjustment of public finances would widen the scope for a countercyclical monetary policy and achieve greater coordination with fiscal policy.

Foreign Reserves

Net foreign reserves totaled USD 57,269.2 m as of 31 December 2022, indicating a USD 1,310 m decrease during the year. The main factor explaining this decrease is the negative profitability the reserves have had as a result of the devaluation of investments caused by increases in short and medium-term interest rates. The depreciation of other reserve currencies against the U.S. dollar also contributed to the decline in the level of reserves. The return on the foreign reserves during 2022 excluding the foreign exchange component was -1.06% (-USD 613.5 m). This performance is mainly due to the reduction in investment prices due to the sharp increase in the market interest rates in which the foreign reserves are invested. This appreciation effect occurs because there is an inverse relationship between bond prices and interest rates, i.e., the price of bonds declines as interest rates rise. The impact of the decline in the price of investments due to the increase in interest rates is offset over time by the higher interest received by the investments.

9 For the general government, the correction of the deficit between 2021 and 2022 was slightly lower as it went from 7.1% to 6.4% of the GDP. The general government is composed of the CNG, the regional and local administrations, the social security system, and the rest of the central level.

The impact of the exchange rate effect on the valuation of the reserves was the second factor that contributed to the decrease in the level of the foreign reserves.[10]

Despite the reduction in the level of foreign reserves, the different indicators for evaluating them show suitable levels for the country. The IMF proposes the Assessing Reserve Adequacy (ARA) methodology which judges the volume of reserves that covers the main risks for the balance of payments such as a loss of access to foreign financing, a loss of confidence in the local currency, a reversal of capital flows, and a possible collapse of foreign demand as an adequate level. An economy is believed to be maintaining proper levels of reserves if the ratio of the reserves to the appropriate level is between 1.0 and 1.5. Based on figures from December 2022, the appropriate level for the IMF ratio of reserves as calculated for Colombia stands at 1.32. Other indicators used for assessing the foreign reserves could give warning signals regarding the external vulnerability of economies. Included among these are the ratios of foreign reserves to monetary aggregates, short-term foreign debt, and the current account deficit. In the case of Colombia, all these indicators suggest that the level of reserves was at appropriate levels as of February 2023.

Profits of *Banco de la República*

Banco de la República's profits in 2022 came to COP 1,506 billion (b) as a result of COP 4,448 b in income and COP 2,942 b in expenditures. These profits were COP 875 b higher than those earned in 2021.

The positive performance of income, which was COP 2,057 b higher than what was registered in 2021, was mainly due to higher yields on the TES portfolio held by the Bank and higher interest from expansion repo transactions. To these were added income from the face value of the currency issued and corporate income. Note that the return on foreign reserves in 2022 is not comparable to what was registered in 2021 due to the change in the accounting treatment of foreign reserves in accordance with Decree 2443/December 12, 2022. In particular, the total return on foreign reserves was -COP 1,967 b of which -COP 332 b were reported on the income statement and -COP 1,635 b that corresponded to the unrealized returns on the portfolio under the passive management mandate (passive portfolio) of foreign reserves were registered in the OCI account in the Bank's equity.[11]

The amount in expenses was COP 1,182 b higher than what had been registered in 2021, mainly as a result of the increase in interest on government deposits in the Bank due to the higher remuneration interest rate that was partially offset by the lower average volume of its balance. Other corporate expenses include personnel expenses, a retirement plan for transforming six branches into cultural agencies, and other general expenses.

A profit of COP 11,004 b is anticipated for 2023 which is substantially greater than what was earned in 2022. This exceptionally high earnings projection could be the result of a significant increase in monetary income in an international environment of high interest rates.

10 The change caused by the exchange rate effect on the valuation of reserves was -USD 585.7 million.

11 See shaded area 3 "Change in the accounting treatment of foreign reserves," in this *Report to Congress*.

Box 1
Banco de la República's 100th Anniversary

The Bank is celebrating its 100th anniversary since its foundation and the trajectory that has established it as the one independent state institution that generates the greatest confidence among Colombians[1] due to its transparency, management capabilities, and effective compliance with the central banking and cultural responsibilities entrusted to it by the Constitution and the law.

***Banco de la República's* mandate was established in the National Constitutional Assembly of 1991, whose members represented the Colombian people.** Citizens had the opportunity to elect those who would occupy the seventy seats tasked with drafting a new constitution for Colombia. Members of the Liberal Party, followed by those of the M-19 Democratic Alliance (*Alianza Democrática M-19*) (a political party that emerged from the peace negotiations and demobilization of the M-19 guerrilla), and representatives of the National Salvation Movement (*Movimiento de Salvación Nacional*) obtained the highest number of votes. Some representatives of the Conservative Party, the Christian Union, the *Unión Patriótica*, and indigenous movements also occupied seats. The leaders of the three political movements that received the most votes[2] were elected presidents of the Assembly. This tripartite presidency was intended to reflect the plurality and the need for consensus among the different political forces to move the reform forward (taken from: Gonzalez Jacome, 2022: 100-101).

Monetary stability was the reason why the decision was made to include the issue of central banking in the 1991 National Constitutional Assembly and to provide *Banco de la República* with the necessary autonomy to use the instruments for which they are responsible without interference from other authorities. The constituent members understood that ensuring price stability is a duty of the state and that the entity responsible for this task must be enshrined in the Constitution and have the technical capability and institutional independence necessary to adopt the decisions they deem appropriate to achieve this fundamental objective in coordination with the general economic policy. *Banco de la República* would be the autonomous constitutional body in charge of preserving the purchasing power of the currency. This provision coincided with the central banking system adopted by countries that have been successful in controlling inflation.

The Constitutional Court stated in its 1999 Ruling 481 that "the duty to maintain the purchasing power of the currency is not only predicated on the monetary, credit, and exchange authority, i.e., the Board of *Banco de la República*, but also on those who have responsibilities in the formulation and implementation of the general economic policy of the country" and that "the basic constitutional purpose of *Banco de la República* is the protection of a sound currency. However, this authority must consider the other economic objectives of state intervention such as full employment in their decisions since these functions must be coordinated with the general economic policy." All this means that the responsibility that falls on the government and *Banco de la República* in the management of inflation and its effects on growth and employment is mutual, in the sense that the government may not ignore inflation, nor the Bank ignore the impact of its decisions on real economic activity.

1. Historical Perspective

***Banco de la República* was created in 1923 through Act 25, as Colombia's central bank within the parameters defined by the Kemmerer Mission.** This mission consisted of a group of U.S. financial experts hired by President Pedro Nel Ospina to advise the government on the modernization of public finances and the financial system. The monetary disorder that the country experienced at the beginning of the 20th century associated with the go-

1 In November 2022, the Opinion Panel of the *Cifras y Conceptos* company, which consults opinion leaders in Bogotá and different urban areas of the country, revealed that *Banco de la Repblica* was recognized as the institution that inspires the most confidence in the nation. This distinction has been awarded to the Bank for thirteen consecutive years.

2 Horacio Serpa (Liberal Party), Antonio Navarro (Democratic Alliance of the M-19), and Alvaro Gomez (National Salvation) were elected presidents of the Assembly.

vernment's management of issuance made it evident that there was a need for an entity that could separate monetary management from fiscal management. Under the guidelines of the Kemmerer Mission, Act 25/1923 entrusted *Banco de la República* with the exclusive power to issue legal Colombian currency and, in addition, it was established as a bank of banks, lender of last resort, administrator of foreign reserves,[3] and as a bank and fiscal agent of the government.

In the late 1940s, following the suggestions of the Federal Reserve Mission, the Bank was thought to be able to implement a pro-development model by channeling credit to sectors that were considered strategic.[4] During the following decades, the Bank's monetary policy was split between expanding credit for development and controlling money to ensure macroeconomic stability. This debate became clearer in the 1950s when the Bank's Board of Directors was dominated by members of the banking sector who were responsible for monetary regulation and, at the same time, the main beneficiaries of the Bank's primary credit.

The Monetary Board was created in 1963 so that the Colombian State could regain its authority over currency and credit[5]. It was comprised by the main people responsible for the country's macroeconomic policy, i.e., the Minister of the Treasury (who chaired it), the head of National Planning, the Governor of *Banco de la República*, the Director of the Colombian Institute of Foreign Trade, and the Ministers of Development and Agriculture.[6] Thus, the Monetary Board was entrusted with the orientation of monetary, foreign exchange, and credit policies, and *Banco de la República* was in charge of their implementation under the direction and administrative control of the Board of Directors. By the end of the 1980s, it was clear that the existence of various functions that were difficult to harmonize, such as the regulation of monetary circulation, foreign exchange control, and the allocation of development credits through financial funds managed by the Bank made it difficult to implement policies consistent with price stability. It was also clear that this model generated higher inflation, more frequent exchange rate adjustments, and delayed capital market development.

The 1991 Constitution gave greater autonomy and independence to *Banco de la República* and established the preservation of the purchasing power of the currency as its objective. The experience accumulated throughout the 1980s raised serious questions regarding the role played by *Banco de la República* and the Monetary Board. In this context, several countries, including Colombia, embarked on reforms to the central banking regime in order to consolidate its autonomy and independence and move it from a model with multiple objectives to a single one – to maintain the stability of the purchasing power of the currency in coordination with general economic policy.[7]

2. Central Banking Constitutional Regime

The reforms to *Banco de la República* agreed upon in the Constitutional Assembly of 1991 can be summarized in the following aspects: 1) the Bank was assigned a specific mandate: to maintain the purchasing power of the currency in coordination with the general economic policy; 2) the Board of Directors of *Banco de la República* was defined as the country's monetary, foreign exchange, and credit authority; 3) the Bank and its Board of Directors

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3 *Banco de la República* deposited foreign reserves in foreign banks. The management of foreign reserves was explicitly established in Decree 340/1980.

4 Decree 1407/1948, Legislative Decree 756/1951, and subsequent regulations.

5 Act 21/1963 provided for the creation of the Monetary Board and empowered the government to determine its organization and main attributes.

6 Decree Act 2206/1963. Decrees 2976/1968 and 151/1976 determined that the director of the Colombian Institute of Foreign Trade (Incomex) would also be a member.

7 This main function was corroborated by the Constitutional Court in Ruling C-481/1999, where it was concluded that the basic constitutional purpose of *Banco de la República* is the protection of the sound currency. However, this authority must take the other economic objectives of state intervention such as full employment into consideration in their decisions since these functions must be coordinated with the general economic policy.

were granted a significant degree of independence from the government; 4) in matters of financing for the government and individuals, the following was decreed:

"The Bank may not set credit limits, nor grant guarantees in favor of individuals except in the case of intermediation of foreign credit for placement through credit establishments, or temporary liquidity support for them." Financing transactions in favor of the State shall require the unanimous approval of the Board of Directors unless they are open market transactions. In no case may the legislature order credit quotas in favor of the State or individuals;[8]

5) Congress was appointed, on behalf of society, as the main addressee of the Bank's reporting exercise, and 6) the responsibility for inspection, surveillance, and control over *Banco de la República* was delegated to the President of the Republic.

3. The Importance of Low and Stable Inflation

The Board of Directors of *Banco de la República* has established 3.0% as the inflation target. In compliance with the constitutional mandate granted to *Banco de la República* to preserve the purchasing power of the peso and contribute to improving the welfare of the people, the goal of monetary policy in Colombia is to maintain a low and stable inflation rate and to achieve the maximum sustainable level of output and employment. *Banco de la República* follows an inflation targeting regime under a flexible exchange rate regime to achieve their objectives.[9] Under this approach, monetary policy actions are intended to ensure that future inflation is within the target set in the policy horizon (3.0%).[10] There are several reasons why this monetary policy plan, which aims at price stability, is the best contribution the central bank can make to public welfare.

Low inflation promotes the efficient use of productive resources, which ensures greater growth and well-being for the population in general. In contrast, when inflation is high, a portion of individuals' time and the economy's resources are invested in the search for mechanisms to defend against it. For example, companies and households could protect themselves from price growth by buying fixed assets (such as a house or a warehouse), as opposed to postponing a productive investment, which would not be optimal because it reduces the generation of employment and economic growth of the country.

Low and stable inflation reduces uncertainty and stimulates investment. Inflation is an indicator of macroeconomic stability that helps agents make decisions confidently. The most important economic decisions made by individuals and companies are usually long-term: building a factory, starting a business, accessing education, and buying a home. These are crucially dependent on the degree of uncertainty about the future. Price stability reduces the inflationary risk premium in interest rates, thus lowering the level of nominal interest rates and increasing incentives to invest (Gerdesmeier, 2009). Low inflation also reduces uncertainty and provides more certainty about future investment returns. Economies with high inflation have also been found to suffer from more variable inflation (Balls and O'Donnell, 2002; Chowdhury, 1991). Increased uncertainty can negatively affect the expected return on investment and, therefore, long-term growth. This situation could affect companies, for example, by generating high wage cost increases that erode their profits and tend to make wage negotiations between employers and workers more difficult.

Low inflation avoids arbitrary redistribution of income and wealth, especially against the poorest population. Even though high inflation affects the real income of society as a whole, its impact is much more harmful to lower-income families since they are more likely to

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8 Article 373 of the Constitution of Colombia shall read as follows:

9 The inflation targeting approach has been, in general, a successful monetary policy strategy (Villar, 2023). Countries with inflation targeting plans score higher, compared to any other monetary policy regime, on indicators that provide a multidimensional characterization of monetary policy frameworks. These include pillars such as independence and accountability, operational strategy, and communication (Unsal, Papageorgiou and Garbers, 2022).

10 Between 1991 and 2001, the BDBR established specific yearly inflation goals. In November 2001, the BDBR reported that the long-term target for inflation was 3.0% and explained that maintaining this goal would be equivalent to pursuing price stability for the country. Beginning in 2002, it began to announce an acceptable range around the specific target for the following year, the latter being the midpoint of that range. In mid-2009 inflation was around 3.0%, and since 2010, the inflation target has been centered on the long-term target (3%).

have fewer defense mechanisms such as real estate against inflation. In addition, in poor households, consumption is concentrated in essential or basic goods and services and, generally, they run the risk, when inflation is high, of not being able to replace the goods and services that have increased in price with cheaper ones. This is not the case for the high-income population whose consumption pattern can be adjusted in response to increases in the prices of goods or services. Moreover, compared to high-income households, poor and vulnerable households generally spend a higher percentage of their income on indexed items (i.e., tied to actual inflation). For example, the weight of the utilities and rent components is 3.5 and 9.26 percentage points (pp) higher respectively in the consumption basket of poor households compared to high-income households.[11] Thus, a runaway inflation would generate a persistent cycle of unwanted price increases in a significant portion of the basic consumer basket, especially among the poor and vulnerable population. For all of the above reasons, inflation is described as a regressive "tax" that affects lower-income people more without forgetting that the real income of the entire population is affected. Likewise, high inflation rates correlate with political instability because people, particularly those most affected by rising inflation, feel cheated and hold the government in office responsible for the economic performance of the country (Gerdesmeier, 2009; Paldam, 1987).

The constitutional mandate to maintain the purchasing power of the currency has contributed to a more stable macroeconomic environment. This has favored sustained economic growth and ensured financial stability, the development of the capital market, and the proper functioning of the payment systems. In this environment, inflation decreased significantly after persistently hovering in double-digit figures prior to the 1990s. The inflation targeting regime implemented as of 2000 was fundamental to this process of inflation reduction. Thus, in spite of the fact that in the last twenty years several shocks have impacted the Colombian economy such as the international financial crisis in 2008, the El Niño phenomenon in 2016, and the COVID-19 pandemic, inflation has stayed around the target most of the time. Lower inflation has contributed to reductions in the inflation risk premium[12] (Graph B1.1, panel B), lower TES interest rates (Graph B1.1, panel C), and loans (Graph B1.1, panel D). At the same time, the duration of public domestic debt rose significantly as it went from 2.27 years in December 2002 to 5.86 years in December 2022 (Graph B1.1, panel E), and financial deepening, measured as the level of the portfolio as a percentage of the GDP went from around 20% in the mid-1990s to values above 45% in recent years (Graph B1.1, panel F). As suggested by the stress indicator for banking establishments, all of the above has occurred in a healthy environment for credit institutions (Graph B1.1, panel G). In this context, there was a reduction of income inequality as measured by the Gini coefficient which went from 58.7 in 1998 to 51.3 in the year prior to the pandemic (Graph B1.1, panel H).

Consolidating the inflation targeting regime has made it possible to implement countercyclical monetary policies. After the 1999 economic crisis, *Banco de la República* implemented several measures to consolidate the inflation targeting system. First of all, they abandoned the exchange band system and adopted a free-floating exchange rate system. They also established 3.0% as the long-term inflation target and used the monetary policy interest rate as the main monetary policy instrument, thus leaving behind the monetary brokers who had lost their explanatory power over inflation. They also strengthened the country's statistical system by constructing new indicators to measure the changes in important macroeconomic variables.[13] They also built economic models to diagnose the present and future state of the economy, and thus evaluate the persistence of inflation deviations and expectations for it with respect to the 3.0% target. The implementation of this entire rigorous inflation targeting regime helped the country to face strong shocks with the lowest possible costs in terms of output and employment such as the international financial crisis of 2008 and the economic crisis that was caused by the COVID-19 pandemic in 2020. In the case of the international financial crisis and its effects on global confidence, the macro-prudential measures implemented in this country at the beginning of the first decade of the 21st century that were intended to strengthen the health of the financial system as well as the credibility of monetary policy in its task of defending purchasing power were fundamental to dealing with this shock. Given the exceptional nature of the shock produced by the COVID-19 pandemic, in turn, the Bank first ensured the liquidity of the economy, the stability of the payment

11 Information on CPI weighting can be found at https://www.dane.gov.co/index.php/estadisticas-por-tema/precios-y-costos/indice-de-precios-al-consumidor-ipc/ipc-actualizacion-metodologica-2019/ipc-ponderadores

12 Derived from the breakdown of breakeven inflation expectations (BEI).

13 Such as, for example, housing prices, inflation expectations, consumer confidence, exchange rate mismatches, liquidity, and financial system risks, etc.

Graph B1.1
Historical Performance of some Macroeconomic Variables in Colombia (annual change)

A. Consumer Price Index (CPI)

Source: DANE.

B. Inflation Risk Premium from the Break-even Inflation Breakdown[a/]

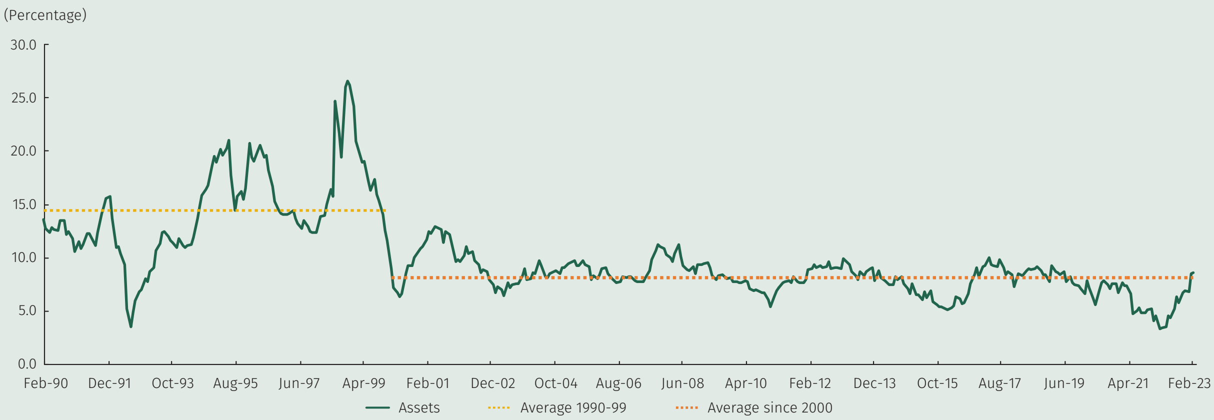
a/ According to Abrahams *et al.* (2015) "Decomposing real and nominal yield curves" and Espinosa *et al.* (2015) "Inflation expectations, inflation risk premium and liquidity premium: a break-even inflation breakdown for Colombian government bonds," inflation expectations net of premia are calculated as the spread between nominal and real risk-free rates extracted from local government bond markets at different maturities. In this respect, the so-called "inflationary risk premium" arises from subtracting the term premium of the TES curve in UVR from the term premium of the TES curve in pesos. Spreads in these forward premiums may be reflecting uncertainty about future inflation. However, they may also be influenced by frictions particular to each market such as the preferences of some agents to invest in certain types of securities.
Sources: Precia; calculations by *Banco de la República*.

C. TES rates

Sources: SEN (electronic trading system) and MEC (Colombian electronic market), Calculations by *Banco de la República*.

Graph B1.1 (continued)
Historical Performance of some Macroeconomic Variables in Colombia

D. Real lending interest rate[b/]

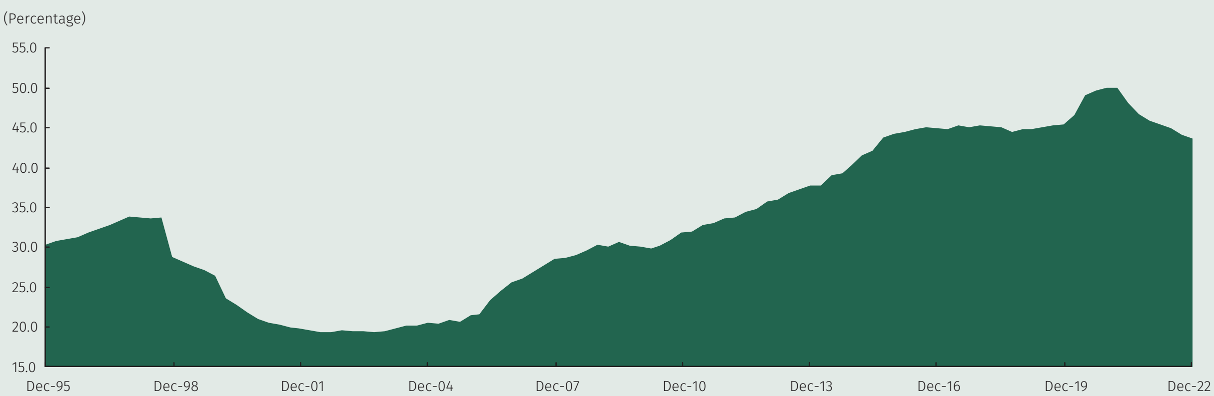


b/ Deflator: Total CPI.
Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

E. Duration of domestic debt

Source: Ministry of the Treasury and Public Credit.

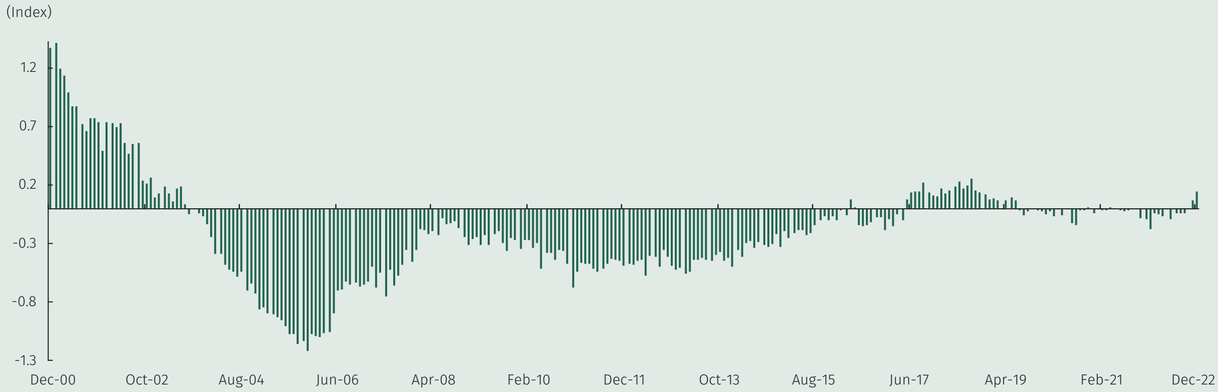
F. Portfolio balance in national currency as a percentage of GDP



Source: Office of the Financial Superintendent of Colombia, DANE; calculations by *Banco de la República*.

Graph B1.1 (continued)
Historical Performance of some Macroeconomic Variables in Colombia

G. Financial stress indicator for credit institutions[c/]



c/ This indicator is obtained by weighting the following variables using the equal variance method: ROA, ROE, ICM (non-performing/gross portfolio), non-performing/gross portfolio, ex-post margin, liquid liabilities/liquid assets, interbank funds/liquid assets and the ratio of unhedged liabilities (RPNC). Negative values indicate periods of greater financial stability.
Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

H. Colombia's Gini Coefficient

Source: World Bank.

system, and the money and exchange market, and then pursued an expansionary monetary policy that was a crucial element for the country's economic recovery.

During its 100 years, *Banco de la República* has become one of the most credible institutions in the country as it ensures the macroeconomic stability of the nation and the purchasing power of the currency. In spite of the different economic crises the country has faced, the Colombian peso has maintained its credibility throughout the years and has positioned itself as the only means of payment accepted throughout the Colombian territory. Going forward and recognizing the role of technological advances in the digital transformation of economies and the redefinition of the way agents interact and transact, *Banco de la República* has included the decision to foster a new immediate payment system as part of its agenda of future projects along with other initiatives. This initiative seeks to move towards a system for immediate, secure, and efficient transfers that is fully interoperable and contributes to market competitiveness, financial inclusion, and the country's development.

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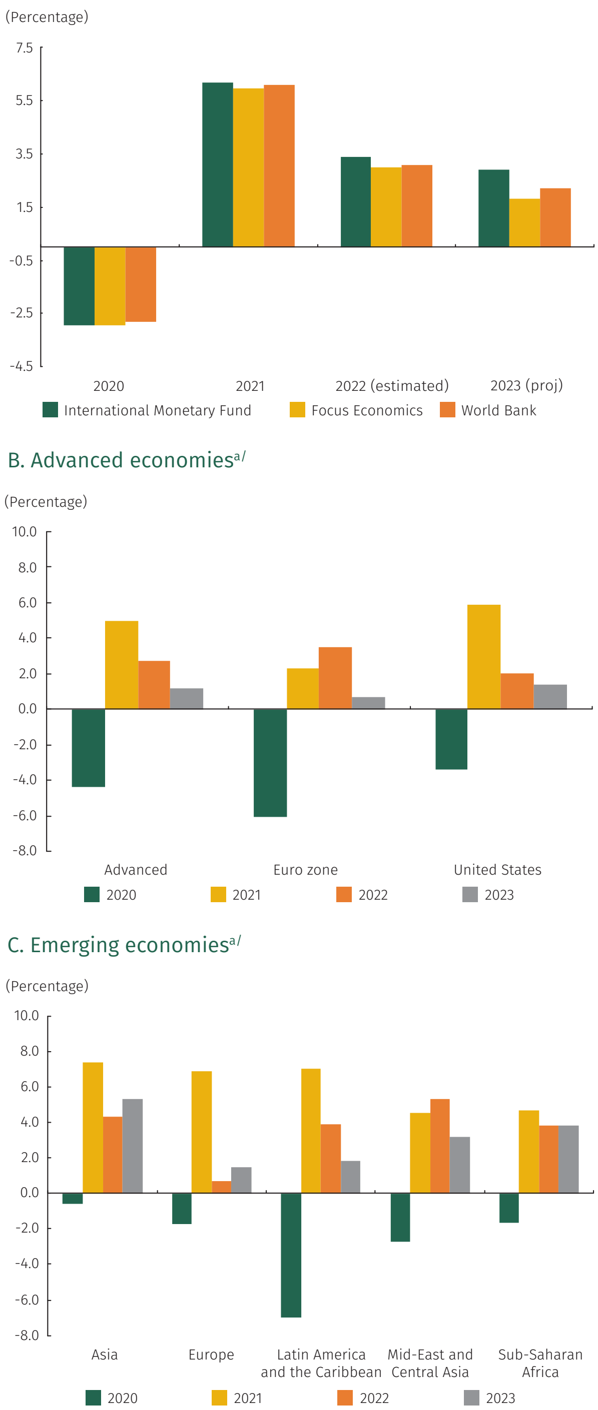
02/ Macroeconomic Environment

Graph 2.1
Economic Growth
(annual change)

A. The World Total



(proj): projected.
a/ Corresponds to the forecasts made by the IMF in their January 2023 report.
Sources: International Monetary Fund, World Bank, and Focus Economics.

2.1 Change in and Outlook for the International Macroeconomic Environment

In 2022, the recovery of the global economy was constrained by Russia's invasion of Ukraine, measures to control the resurgence of COVID-19 in China, and high global inflation. The International Monetary Fund (IMF) and the World Bank, respectively, estimate that global economic growth for 2022 was 3.4% and 3.1% (Graph 2.1). Thus, the level of economic activity was below the trend level that had been expected prior to the pandemic. Moreover, this growth rate was lower than the forecasts for the beginning of that year (4.4%) and for 2021 (close to 6.0%). Russia's invasion of Ukraine led to increased global uncertainty and generated supply constraints on raw materials and strong inflationary pressure worldwide, particularly in the food, energy and fuel components.[12] In addition, China maintained its zero-tolerance measures against COVID-19 until the beginning of December, and this was reflected in a greater persistence of disruptions in global supply chains that, together with the deterioration of its real estate sector, led to a relatively low growth of 3.0%. In this context, the IMF estimated that world inflation had amounted to 9.2% for the fourth quarter of 2022 and reached levels not seen over the course of this century. Given this strong inflationary pressure, most central banks have significantly increased their monetary policy interest rates (see Box 2). Notably, the sharp and rapid increase in the U.S. Federal Reserve's benchmark interest rate in the midst of rising inflation and a tight labor market. This negatively affected the outlook for that economy, strengthened the dollar, and led to a tightening of international financial conditions. International organizations and market analysts project a further slowdown in the global economy[13] and trade for 2023. In contrast, note the sudden elimination of travel restrictions in China, the resilience of the main European economies, and the trend towards moderation in global inflation. In general, international uncertainty remains high due to the risks associated with the ongoing war in Ukraine and other geopolitical tensions, the outcome of the COVID-19 pandemic in China, and the performance of the international financial markets, etc.

12 See Box 1 in the March 2022 *Report to Congress*.

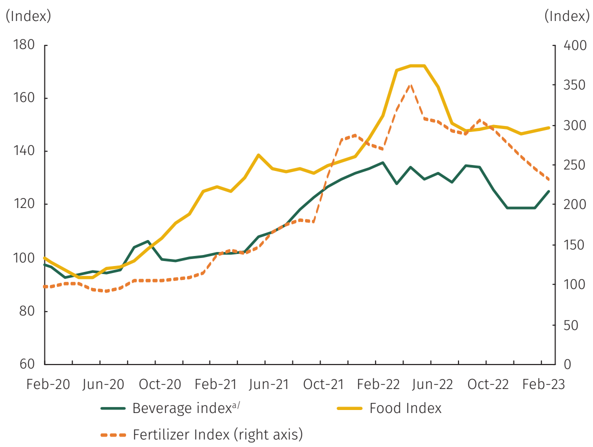
13 According to the IMF, the advanced economies registered 2.7% growth and the emerging and developing economies 3.9% in 2022. Of these, those in Latin America and the Caribbean grew 3.9%. A slowdown in the world economy and, in particular, in the advanced economies (1.2%) is expected for 2023 in contrast to a significant surge in economic activity in China (5.2%). Latin America and the Caribbean will probably experience low growth that year (1.8%). Last of all, in their January 2023 Monetary Policy Report, the technical staff estimated a variation of 3.0% in 2022, and of 1.2% in 2023 in the average real GDP (weighted by non-traditional trade) of our trading partners.

The international prices of mining and energy products and foodstuffs increased significantly in 2022 compared to the previous year. In particular, the international crude oil price for the Brent Crude benchmark rose nearly 40% compared to 2021 and averaged around USD 100 per barrel (bl). This price reached its maximum level around mid-2022 and from then on began to decrease until it averaged around USD 81 bl in December (Graph 2.2, panel B). The high international price for crude oil largely resulted from the sanctions imposed on Russia for the invasion of Ukraine and generated an energy crisis in Europe. In addition to the above, there is also the persistence of the production cuts by the Organization of the Petroleum Exporting Countries and their allies (OPEC+) and the difficulty of several of their members to reach the agreed upon production quotas. In addition, world economic activity continued to rebound after the crisis caused by the COVID-19 pandemic, and commercial crude oil inventories in the countries belonging to the Organization for Economic Cooperation and Development (OECD) stood at relatively low levels. Among the factors that have contributed to lower prices since the second half of 2022, in turn, are the zero-tolerance measures to contain the resurgence of COVID-19 in China, the redirection of Russian crude oil exports to Asian markets in the face of the sanctions it has received, and the release of strategic reserves by the United States. Additional factors include a relatively strong dollar, the prospect of a slowdown in the global economy, and further increases in world crude oil production. On average, between January and February 2023, this price was close to USD 83 bl. The U.S. Energy Information Administration has forecast a price close to USD 83 bl for 2023 as a whole in its March report in an environment of high uncertainty. Moreover, according to the World Bank, the average index of international food prices in dollars grew 18% in 2022 while the index of fertilizers rose 63%. These increases were added to those already seen a year earlier and thus brought prices to levels well above those seen before the pandemic. In addition, the prices of these products showed higher local increases when expressed in the currencies that depreciated against the U.S. dollar in 2022. It should be noted that, since the second half of 2022, international food and fertilizer prices have shown a downward correction from the highs reached in previous months. However, as of February 2023, these prices were still high. This price correction occurred in the context of the United Nations (UN)-mediated grain export agreement between Russia and Ukraine, increased natural gas storage in Europe, and prospects of slower global growth. Overall, high international food, crude oil, coal, and natural gas prices in Europe in 2022 (Graph 2.2, panel C) were reflected in strong inflationary pressure. For OECD countries, annual inflation was 15.6% for food and 18.2% for energy as of December 2022.

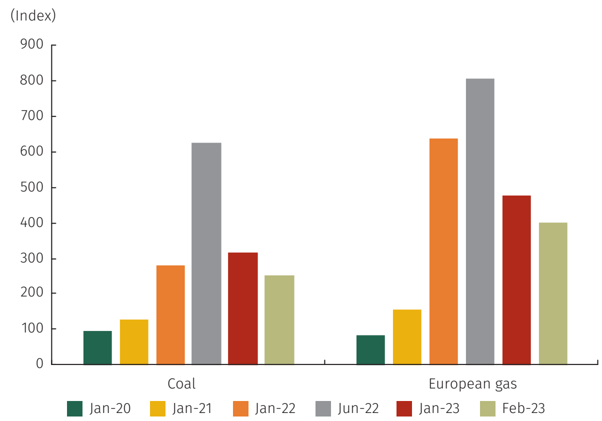
According to international entities, global inflation in 2023 is likely to be lower than it was the previous year but will probably remain above the levels seen before the pandemic. The economic slowdown, tighter monetary policy, lower raw material prices and reduced disruptions in global supply chains are likely to contribute to the moderation of inflation (Graph 2.3). By the end of 2022 and for the second consecutive year, inflation in the G7 countries stood above their target of 2.0%. The highest inflation rates were observed in Italy (12.3%), the United Kingdom (10.5%), Germany (9.6%), and the United States (6.5%) (Graph 2.4, panel A). For the OECD countries, in turn, total inflation was 9.4% and core inflation (excluding energy, fuel, and food) was 7.2%. For developing countries and emerging markets as a whole, in turn, the IMF estimates that their annual inflation reached 10.4% in the fourth quarter of 2022. Within this group, high annual inflation in December 2022 was notable in large economies such as Argentina (94.8%) and Turkey (64.3%). In Latin America, this indicator exceeded the targets set by various central banks and went to 12.8% in Chile, 8.5% in Peru, 7.8% in Mexico, and 5.8% in Brazil (Graph 2.4, panel B). International organizations expect a reduction in global inflation in

Graph 2.2
International Prices of Some Raw Materials
(December 2019 = 100)

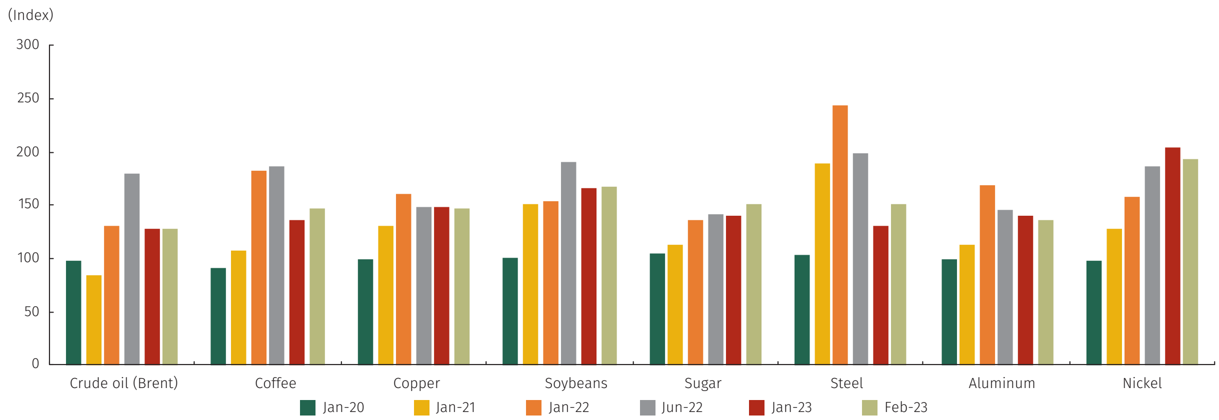
A. Price index of agricultural goods



C. European coal and gas prices

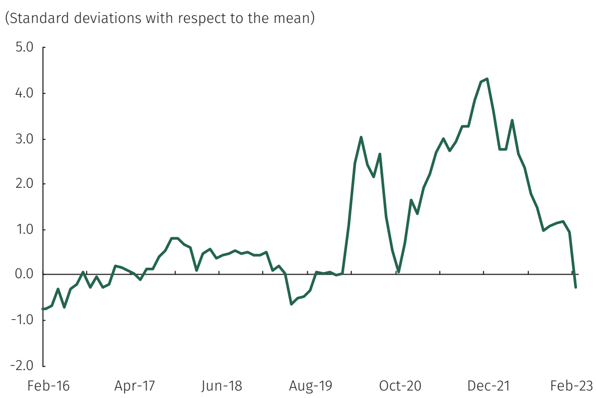


B. Prices of some commodities



a/ Includes coffee, cocoa, and tea.
Sources: World Bank, Bloomberg, and Datastream.

Graph 2.3
Index of Pressure on Global Supply Chains



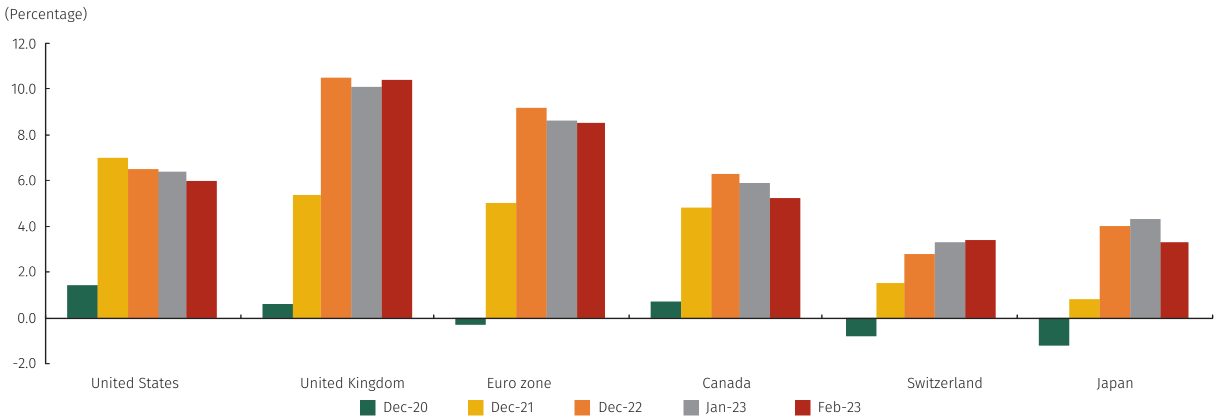
Note: To construct them, the authors used indicators of international transportation costs (Baltic Dry index, Harpex index, etc.) and some of the components of the survey of business conditions (PMI) for the euro zone, China, Japan, South Korea, Taiwan, the United Kingdom, and the United States.
Source: 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.

2023 although it is likely to remain relatively high and above the target in several countries. In some cases, including the United States and the euro zone, inflation has been moderating for some months now. However, uncertainty is high and factors such as a further indexation based on high levels of past inflation, tight labor markets (particularly in the United States), a stronger impact on raw material prices from China's reopening, and a possible escalation of the conflict in Ukraine could affect the convergence of inflation to the central banks' targets.

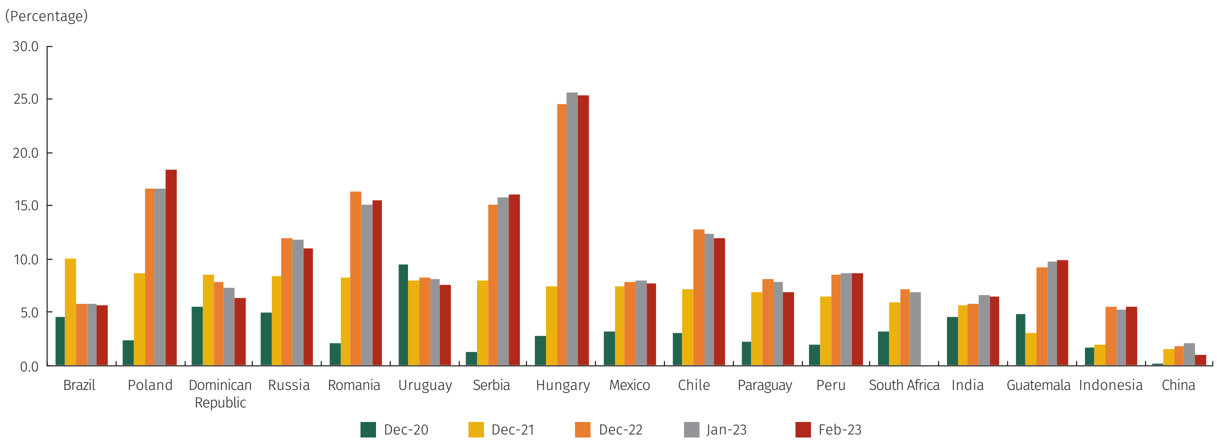
A synchronized cycle of significant monetary policy tightening in the majority of countries was registered in 2022 (see Box 2). At its March 2022 meeting, the U.S. Federal Reserve (Fed) began its policy rate hike that was ramped up significantly in the second part of the year and included four consecutive 75 bp increases between June and November 2022. Subsequently, increases continued at a slower pace, and, in February 2023, the interest rate was within a range between 4.5% and 4.75%. Compared to recent history, these increases were relatively

Graph 2.4
Total Consumer Inflation

A. Some Advanced Economies



B. Some of the Main Emerging Economies and in the Region



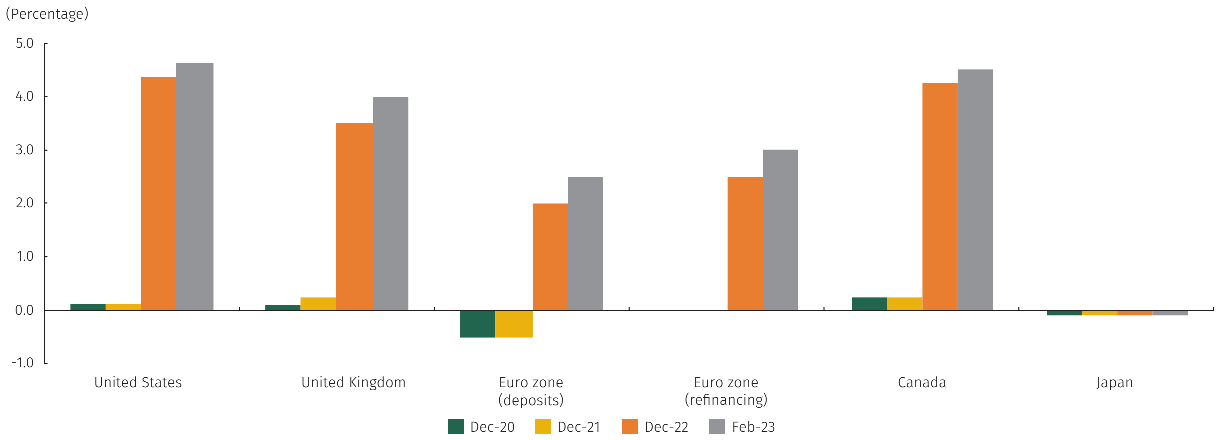
Source: Bloomberg.

high and sharp and turned out to be greater than what the market outlook had been months earlier. Going forward, futures markets and the Federal Reserve's outlook indicate that these interest rates are likely to remain at relatively high levels in 2023. At the same time, this central bank has continued to reduce its balance sheet, a process that began at the end of 2021. Other central banks in leading advanced economies also raised their policy interest rates during 2022 (Graph 2.5, panel A). Thus, these interest rates were 425 bp higher in Canada, 375 bp greater in the United Kingdom, and 300 bp higher in the euro area in February 2023 than those seen in December 2021, and market surveys point to further increases. The majority of the main emerging countries, in turn, continued to tighten their monetary policy, a process that began in 2021 and has been carried out at different rates and to different extents in different countries (Graph 2.5, panel B). In particular, the monetary policy rates in countries in this region went from 38% to 75% in Argentina, from 2.0% to 13.75% in Brazil, from 0.5% to 11.25% in Chile, from 0.25% to 7.75% in Peru, and from 4.25% to 11% in Mexico between December 2020 and February 2023. Market surveys indicate that these rates are likely to remain relatively high for the remainder of 2023.

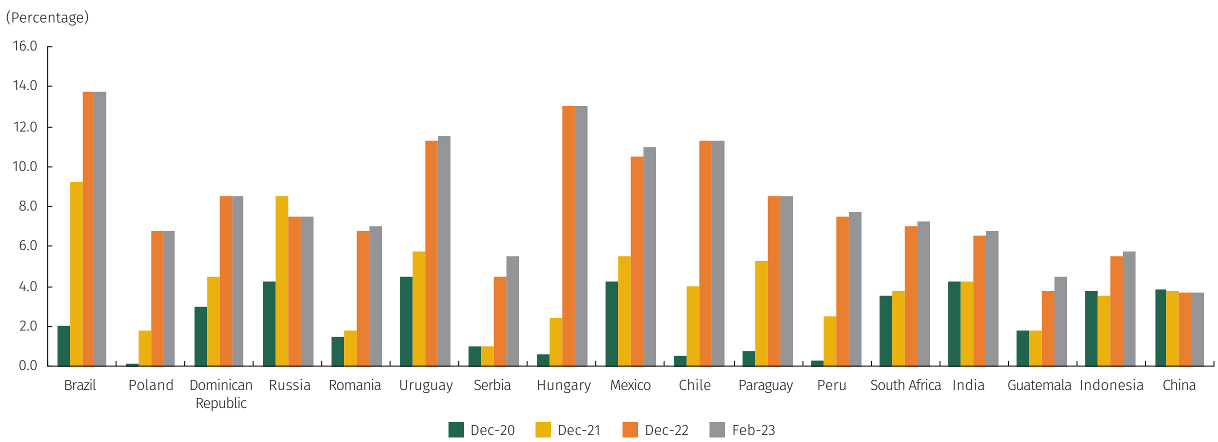
In contrast to the generalized tightening of monetary policy, fiscal tightening has been varied around the world. While some countries have not shown any improvement in their fiscal accounts, others have reduced their fiscal deficits and debt

Graph 2.5
Monetary Policy Interest Rates in Some Economies

A. Some Advanced Economies



B. Some Emerging Economies and in the Region



Note: in China, this corresponds to the one-year prime lending rate.
Source: Bloomberg.

levels. This has depended on a number of factors including the effectiveness of the measures implemented to minimize the effects of the pandemic on businesses and households, the speed and strength of the economic recovery, and the ability of governments to manage their budgets and debt levels, etc. Indeed, while for developed and emerging economies (excluding China), the fiscal deficit is likely to have declined by about 7 and 4 pp of the GDP between 2020 and 2022 respectively, for China and low-income developing countries, it is more probable that this measure will have remained almost unchanged.[14] Moreover, while about 86% of the countries probably increased their deficit levels in 2020 compared to 2019, 37% of the countries raised their deficit levels compared to 2021.[15] This reflects the fact that fiscal pressure still persists in different countries and is indicative of the differences in fiscal adjustment across economies.

Persistent inflationary pressure and fears of a possible global recession led to a deterioration in most international financial markets (debt and stock markets)

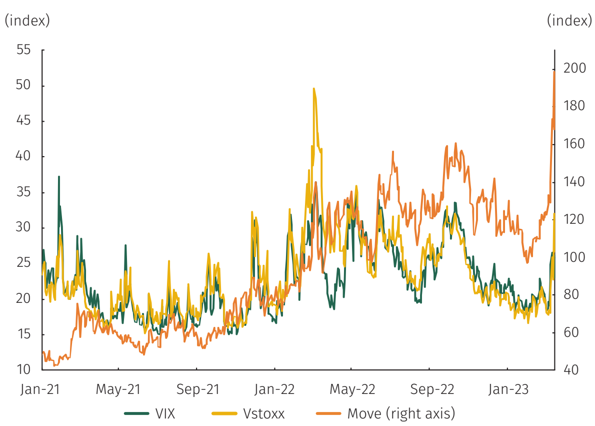
14 IMF (2022). *Fiscal Monitor*, October, Washington, D. C.

15 Calculations done by *Banco de la República* based on information from IMF (2022). *World Economic Outlook*) October.

during 2022. Inflationary pressure has had an impact on expectations of a more contractionary monetary policy than had been anticipated at the beginning of the year and an increase in the probability of a recession in the main economies. This, together with the lockdown measures adopted by the Chinese government to control a resurgence of COVID-19 and the persistence of Russia's invasion of Ukraine, led to a lower demand for risky assets and a strengthening of the US dollar against most currencies in developed and emerging economies. Thus, international risk perception indicators such as the Vix,[16] the Vstoxx,[17] and the Move[18] rose amidst high volatility while the risk premia as measured by the five-year credit default swap (CDS) of the countries in the region (Brazil, Mexico, Chile, and Peru) rose 43 bp, on average, compared to the end of 2021, whereas the average CDS of a broad sample of emerging countries[19] rose 51 bp (Graph 2.6).

Financial markets have been volatile so far in 2023 in line with the uncertainty surrounding the future of inflation and global monetary policy. On the one hand, the downward trend in inflation in several developed economies, the increased likelihood that these economies will experience a recession during 2023, and recent developments in the financial sector in the United States and Europe have put downward pressure on market expectations regarding monetary policy rates. On the other hand, the strength of the U.S., European, and Chinese economies has partially offset these expectations. In this context, the dollar has been volatile, risk perception indices have risen globally, while stock market indices have become more robust in the leading developed economies.

Graph 2.6
Indicators of Risk Perception in International Financial Markets



Sources: Bloomberg and Data License.

Along 2022, interest rates on government bonds rose worldwide. However, in 2023 these rates have declined. The U.S. Treasury curve inverted during 2022 as a consequence of increases of approximately 360 bp in the rates for short-term debt securities on top of rises of about 230 bp in long-term debt securities' rates.[20] The deterioration in the performance of short-term securities was due to the inflationary pressure that became evident during the year, in addition to the ma-

16 The VIX is the implied volatility of 30-day options on the S&P 500 stock index.

17 Vstoxx is the implied volatility of 30-day options on the EuroStoxx 50 stock index.

18 The Move is the implied volatility of 30-day options on US Treasury bonds.

19 According to Markit's CDX EM index, which is made up of eighteen sovereign issuers in Latin America, EMEA, and Asia.

20 A yield curve is considered inverted when short-term interest rates are higher than long-term interest rates. Based on Andrew Ang et al. (2006) —Ang, A.; Piazzesi, M.; Wei, M. (2006). "What Does the Yield Curve Tell Us about GDP Growth?", *Journal of Econometrics*, pp. 359-403—, an inverted curve in the United States usually reflects an increase in the probability of recession at a horizon of twelve to twenty-four months ahead. In particular, seven of the last eight recessions have been preceded by an inversion of the yield curve.

terialization of a contractionary monetary policy path by the Fed. In the case of long-term treasuries, the deterioration in their prices was partly contained by expectations that the economy could enter a recession and that this could lead the Fed to slow down or even reverse its monetary normalization cycle in the medium term. In this context, Brazil's, Mexico's, Chile's, and Peru's short-term securities also devaluated more than long-term securities,[21] thus suggesting that there are expectations of a slowdown in these economies. Most of these securities have risen in value during 2023, initially in response to expectations of an early end to the interest rate hike cycle and, subsequently, due to the pursuit of safe-haven assets following the crisis of some banks in the United States and Europe.

In response to an increase in risk perception regarding emerging economies, foreign portfolio investment flows reached the lowest annual net inflows since 2010. Based on preliminary figures published by the Institute of International Finance (IIF), there were USD 49.7 billion (b) in net inflows of foreign portfolio investment in emerging markets due to inflows of USD 43.4 b to the debt market and USD 6.4 b to the stock market during 2022.[22] According to the IIF, the growing risk of a global recession has been a weight on the flows to emerging markets over the past year against a backdrop of geopolitical and inflationary uncertainty. Moreover, a constant throughout the year was the weakness of flows to China, which experienced net outflows of approximately USD 75.3 b, having seen USD 189.8 b in inflows in 2021. This change may have been driven by closures in the country due to the increase in cases of COVID-19 and the greater perceived risk of investing in countries with strained relations with the West. However, emerging economies have seen net inflows of USD 88.9 b in January and February 2023 (Graph 2.7).

Latin America had the second largest net portfolio inflows in 2022 after emerging Asia (excluding China), although they were lower than those seen in the last three years. Latin America had inflows totaling USD 59.9 b in 2022, of which USD 34.0 b and USD 25.9 b went to the debt and stock markets, respectively. According to some analysts, the conflict in Ukraine may have favored inflows to Latin America given the geographic and commercial distance from the region.

The U.S. dollar strengthened against most of the currencies in the developed world and some emerging market currencies during 2022 in line with a more contractionary monetary policy than previously expected by the Fed. The dollar has been volatile so far in 2023 (as of March 16). The strengthening of the dollar during 2022 was associated with an increased demand for safe-haven assets, the expectations and subsequent materialization of a tighter monetary policy by the Fed (in response to inflationary pressure) and fears of a possible global economic recession. In this context, the DXY[23] rose 8.5% and reached its highest level

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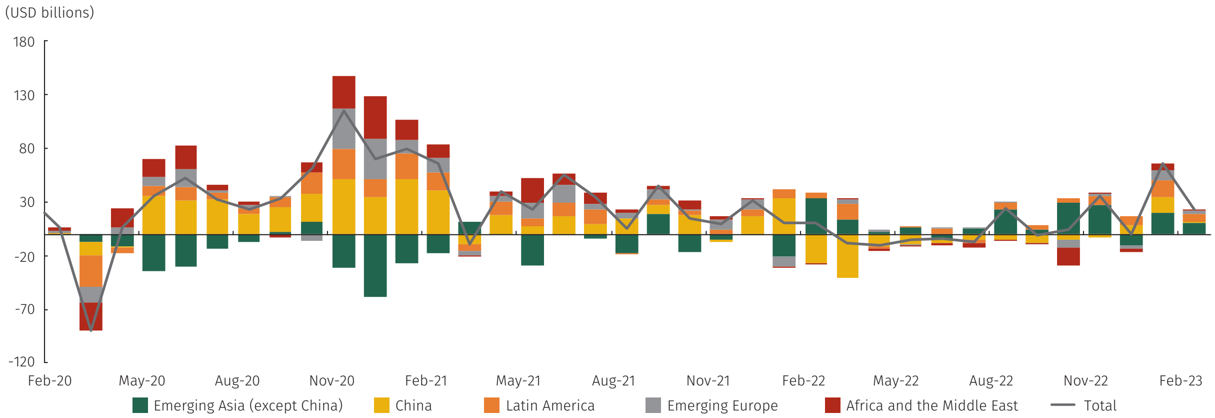
21 While short-term debt securities have devalued by an average of 300 bp (in foreign currency) and 200 bp (in local currency), long-term securities have devalued 225 bp (in foreign currency) and 105 bp (in local currency) on average.

22 Net inflows of foreign portfolio investment to emerging markets during 2021 amounted to USD 396.3 b due to inflows of USD 339.1 b and USD 57.3 b to the debt securities market and the stock market, respectively.

23 Index that compares the U.S. currency with six major currencies. The euro (EUR) weights 57.6%; Japanese yen (JPY), 13.6%; British pound (GBP), 11.9%; Canadian dollar (CAD), 9.1%; Swedish krona (SEK), 4.2% and the Swiss franc (CHF), 3.6%.

Graph 2.7
Portfolio Flows to Emerging Economies from Non-residents



Source: Institute of International Finance (IIF).

in twenty years in September. Some emerging market currencies,[24] including the Colombian peso, depreciated, affected also by volatility in commodity prices and idiosyncratic factors. The main factors favoring the U.S. dollar during 2023 have been economic data showing a strong U.S. economy and the recent pursuit of safe-haven assets in the wake of the banking crisis. However, the main factors that have weakened it have been associated with a downward trend in inflation in the United States that has led the market to discount an early end to the cycle of rate hikes in this country.

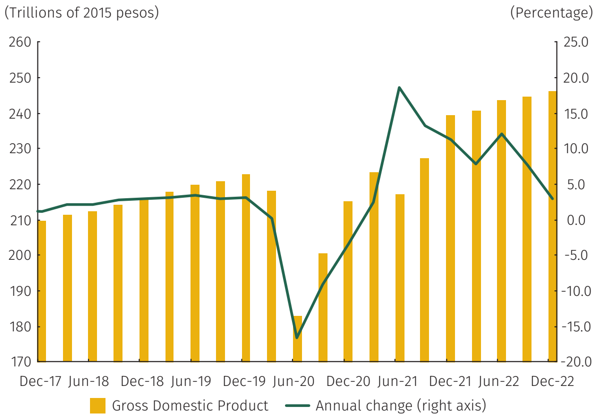
2.2 Change in and Outlook for the Economy and Labor Market

2.2.1 Economic Activity

The Colombian economy grew at a remarkable annual rate during 2022 that was higher than expected at the beginning of the year albeit with a slowing trend as of the middle of the year. The economy expanded 7.5% in 2022 after having grown 11.0% in 2021 (Graph 2.8). This growth may have been one of the highest among Latin American economies and the second highest among OECD countries. Annual quarterly growth slowed as the year progressed and as the figures were compared to growing levels seen in the second half of 2021. Among the main factors that boosted economic activity the most notable are the relatively generous financing conditions even with an increase in interest rates, an expansionary fiscal policy, and an improvement in the terms of trade, remittances from workers abroad, and foreign direct investment. All the above is against the backdrop of an economic slowdown for our main trading partners. In terms of major branches of productive activity, the performance in 2022 of secondary and tertiary activities that grew 8.9% and 8.6% respectively, compared to their levels in 2021, is notable. The former were driven by manufacturing which grew 9.8% for the full year and achieved value-added levels 13.3% higher than those registered in 2019. In the case of tertiary activities, the arts and entertainment sector continued to show solid

24 According to MSCI's *emerging markets currency index*, which tracks the performance of certain emerging market currencies against the U.S. dollar, emerging market currencies had depreciated 4.3% as of 31 December 2022 compared to the end of 2021. The index includes the following countries, and the depreciation of their respective currencies during the period analyzed is shown in parentheses: Brazil (-5.1%), Chile (-0.1%), China (8.5%), Colombia (20.9%), the Czech Republic (3.1%), Egypt (57.5%), Hungary (15.1%), India (11.3%), Indonesia (9.2%), Korea (5.9%), Malaysia (5.7%), Mexico (-5.0%), Peru (-4.8%), Philippines (9.3%), Poland (8.4%), Qatar (-0.1%), Russia (-1.3%), Saudi Arabia (0.1%), South Africa (6.9%), Taiwan (11.0%), Thailand (4.2%), Turkey (40.6%), Pakistan (4.4%), United Arab Emirates (-0.01%), and Kuwait (1.2%).

Graph 2.8
Gross Domestic Product (GDP)[a/]
(quarterly and annual change)



a/ seasonally adjusted series and corrected for calendar effects.
Source: DANE, calculations by *Banco de la República*.

annual growth (37.9%) driven mainly by the boom in online gaming and betting on sports. Information and communications, together with commerce, repair, transportation, and accommodation, also registered high rates of annual expansion: 14.2% and 10.7% respectively. However, in the second case, this growth was lower than what was seen throughout 2021 (Table 2.1). Primary economic activities, in turn, registered a decline in levels (-0.9% y-o-y) due, among other factors, to the negative effects of the heavy rainy season that affected coffee and other crops, and coal and oil extraction that remained at levels much lower than those of the pre-pandemic period.

Domestic demand accounted for the high GDP growth in 2022 because of a significant fiscal impulse that partly leveraged the growth of private consumption and fixed capital investment. The total domestic expenditure grew at a rate of 10.0% in 2022 (Table 2.2) and was higher than that of the GDP. This aggregate registered significant quarterly expansions during the first three quarters of the year and only declined in the last quarter of the year. Government transfers to households through various programs, together with fuel price subsidies, had a positive impact on real disposable family income and contributed to the growth of private consumption. This was

Table 2.1
Real Annual GDP Growth by Branches of Economic Activity
(seasonally adjusted series and corrected for calendar effects, base year: 2015)

	2021	2022				2022
	Full year	Q1	Q2	Q3	Q4	Full year
Agri-business, Forestry, Hunting, and Fishing	3.1	-2.6	0.8	-1.4	-4.3	-1.9
Mining and Quarrying	0.0	1.2	0.0	2.9	-1.6	0.6
Manufacturing Industry	14.7	9.5	21.5	7.1	2.8	9.8
Electricity, Gas, and Water	5.4	4.9	7.5	2.8	1.5	4.1
Construction	5.7	5.1	9.2	13.7	-1.6	6.4
Buildings	13.9	10.1	11.7	21.5	4.6	11.8
Public works	-6.4	-6.1	3.1	0.8	-11.9	-3.7
Specialized Construction Work	5.5	7.0	9.5	14.0	-1.1	7.2
Commerce, Repairs, Transportation, & Accommodations	21.7	11.5	21.3	11.0	0.8	10.7
Information and Communications	11.8	19.9	17.7	14.1	6.3	14.2
Financial and Insurance Business	3.7	-3.2	11.3	9.3	8.4	6.5
Real estate	2.8	2.0	2.0	2.1	2.0	2.0
Professional, Scientific, and Technical Work	9.4	9.4	11.8	8.2	4.0	8.3
Public Administration and Defense, Education, Health	8.5	6.7	8.7	3.1	1.5	4.9
Artistic, Entertainment, and Recreational Activities	33.7	36.5	35.3	39.2	40.2	37.9
Subtotal value added	10.6	7.5	12.1	7.2	2.5	7.2
Taxes minus subsidies	15.7	10.2	12.9	11.6	6.3	10.1
GDP	11.0	7.8	12.1	7.7	2.9	7.5

Source: DANE, calculations by *Banco de la República*.

coupled with an increase in remittances during 2022 (10% in USD and 24.1% in COP), improved labor indicators, especially employment levels and formality, and favorable credit conditions at least during the first half of the year. As a result, private consumption grew 9.5% during the year and made the largest contribution to the increase in domestic demand. Although public consumption, in turn, grew at a much more modest rate (1.4%), it reached historically high levels in the first quarter though these were corrected in the second and third quarters. Gross capital formation (particularly investment in machinery and equipment and transportation), in turn, registered the highest growth within the components of domestic demand (19.5%) and surpassed the levels prevailing prior to the pandemic since the beginning of the year. Investment in machinery and equipment, which was 25.5% higher in 2022 than it was in 2021, and investment in housing, which registered a substantial increase in the second half of the year, mainly driven by the non-low-income segment (non-VIS), contributed to this expansion.

The growth in domestic demand was reflected in an increase in imports that exceeded that of exports and led to an increase in the trade deficit. In 2022, imports expanded at an annual rate of 23.9% and rose as a share of the GDP as they went from 22.6% in 2021 to 26.1% in 2022, although this declined towards the end of the year. Meanwhile, exports registered significant, but substantially lower growth (14.9%) compared to imports as they went from 13.2% of the GDP in 2021 to 14.1% in 2022. Imports were mainly reflected in purchases of capital goods among which transportation equipment was most notable. In the case of exports, the main con-

Table 2.2
Real Annual GDP Growth by Type of Expenditure
(seasonally adjusted series and corrected for calendar effects, base year: 2015)

	2021	2022				2022
	Full year	Q1	Q2	Q3	Q4	Full year
Final spending on consumption	13.6	10.8	11.6	8.1	2.0	8.0
Final spending on household consumption	14.5	11.3	13.4	9.5	4.6	9.5
Non-durable Goods	6.8	4.2	6.7	2.9	1.6	3.8
Semi-durable Goods	29.0	31.2	26.5	8.5	-0.6	15.0
Durable Goods	22.0	11.4	21.6	2.6	-8.4	6.2
Services	16.2	13.3	15.9	14.9	8.7	13.1
Final spending on general government consumption	9.8	7.5	3.0	0.1	-4.8	1.4
Gross Capital Formation	12.6	18.1	20.8	23.0	16.2	19.5
Gross Fixed Capital Formation	17.3	8.2	12.5	16.0	10.6	11.8
Housing	40.2	-2.4	3.2	14.0	3.6	4.5
Other buildings and structures	1.0	-3.7	4.0	11.5	-8.3	0.3
Machinery and Equipment	24.2	25.6	22.1	23.0	31.3	25.5
Cultivated biological resources	-0.9	-11.0	-10.7	-5.3	0.3	-6.8
Intellectual property products	6.4	16.4	16.6	14.7	3.1	12.6
Domestic demand	13.4	12.3	13.4	10.2	4.6	10.0
Exports	15.9	18.6	27.6	14.9	1.6	14.9
Imports	26.7	38.6	26.0	24.2	10.1	23.9
GDP	11.0	7.8	12.1	7.7	2.9	7.5

Source: DANE, calculations by *Banco de la República*.

tribution to the increase in exports came from sales abroad of non-traditional goods and services, especially non-resident tourism. In contrast, the mining and agricultural sectors showed modest growth. With all of the above, foreign deficit in constant pesos reached a historic level of -12.0% of the GDP in 2022,[25] and was considerably higher than the deficit in 2021 (-9.4% of the GDP) and the deficit registered before the pandemic.

Given the high levels reached by the GDP in 2022, the adjustments made in monetary policy, the government's *Financial Plan*, and the increased sluggishness of our trading partners, lower growth is expected in 2023. A substantial moderation in consumption performance, mainly from the private sector is expected this year. Factors such as the high levels reached in 2022, tighter domestic financial conditions and lower consumer confidence in an environment of high inflation should lead to a moderation in the growth of this aggregate without ruling out some decline in its levels. Public consumption, in turn, is expected to be slightly higher than in 2022 and consistent with the stipulations of the updated Financial Plan of February 20, 2023.[26] In contrast, investment is also expected to be more sluggish, especially in machinery and equipment and transportation equipment given the very high levels reached in 2022 and the higher cost of both domestic and foreign financing that companies will face. The public works sector should offset, in part, the lower performance of the rest of the investment as the expected implementation of projects being carried out by local and regional governments ramps up. On the foreign front, the expected economic slowdown of our trading partners portends low growth in exports. With all of the above, the technical staff estimates a growth in output that will be close to 0.8% for 2023. It should be noted that these estimates are still surrounded by a high degree of uncertainty due to domestic and foreign risks that may affect the underlying fundamentals implicit in this forecast. However, there are positive factors that could ease the expected slowdown of the Colombian economy in 2023.

The expected growth in economic performance in 2023 will likely be compatible with more sustainable output levels in the medium term and with a reduction in inflationary pressure. After the shock of the COVID-19 pandemic, Colombia registered a significant recovery in its economy with substantial growth in the last two years (11% in 2021 and 7.5% in 2022). This drove real GDP to a high value that substantially exceeded the productive capacity of the Colombian economy and generated extensive excess demand. An economy that operates above its capacity (positive output gap) is not only unsustainable but also puts pressure on the use of installed capacity and generates higher increases in production costs which then translates into inflationary pressure. In this respect, although the estimated growth of the economy in 2023 is low, it contributes to reducing excess demand and is likely to bring output to levels that are more compatible with the country's long-term productive capacity and thus reduce inflationary pressure.

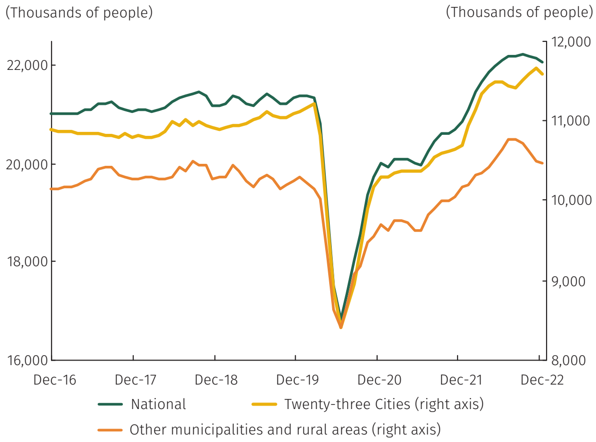
2.2.2. Labor Market

The recovery of employment and its rise to levels higher than pre-pandemic levels was consolidated during 2022. Employment stabilized in the second half of

25 Based on quarters, the change in the trade deficit in constant pesos as a percentage of GDP was: -12.3% in the first quarter, -11.2% in the second quarter, -12.9% in the third quarter, and -11.5% in the fourth quarter.

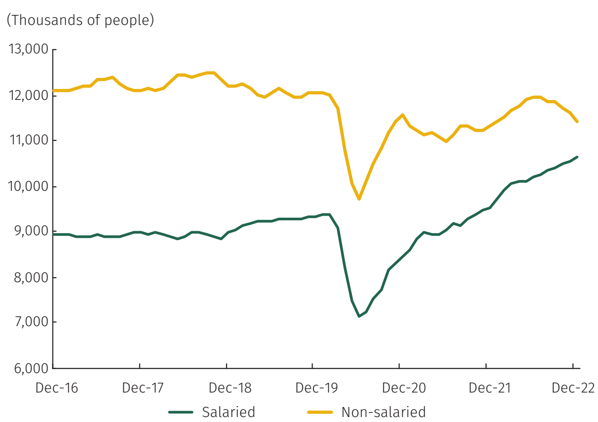
26 Total central national government (CNG) spending is estimated at 24.4% of the GDP for 2023 compared to 22.1% of the GDP in 2022, in accordance with the update of the *Financial Plan* issued on 20 February 2023.

Graph 2.9
Employed Population by Geographical Domain



Note: data on a quarterly moving average and seasonally adjusted.
Source: DANE (GEIH), calculations by *Banco de la República*.

Graph 2.10
Employment by Occupation (national aggregate)



Note: data on a quarterly moving average and seasonally adjusted.
Source: DANE (GEIH), calculations by *Banco de la República*.

the year with a mixed dynamic between the urban and rural domains. According to the figures in the quarterly moving average from the *General Integrated Household Survey* (GEIH), employment saw an annual change of 5.8% in December 2022 which corresponded to the creation of 1.2 million jobs. Thus, the level of employment in the national aggregate closed the year at around 22 million, a figure that is higher than the average seen in 2019 (21.3 million) before the pandemic. Nevertheless, it should be noted that when the trend at the margin is analyzed, employment showed mixed performance between urban and rural areas during the second half of 2022. This meant that employment tended to stabilize in the national aggregate. In particular, urban employment grew by 0.8% between June and December 2022 while in rural areas there was a contraction of 1.5% (Graph 2.9). The trend in employment is reflected in the changes in the employment rate (ER). Between December 2021 and 2022, this figure grew 2.4 pp in the national aggregate and closed the year at 56.4%, a level close to what was registered in 2019 (57.7%).

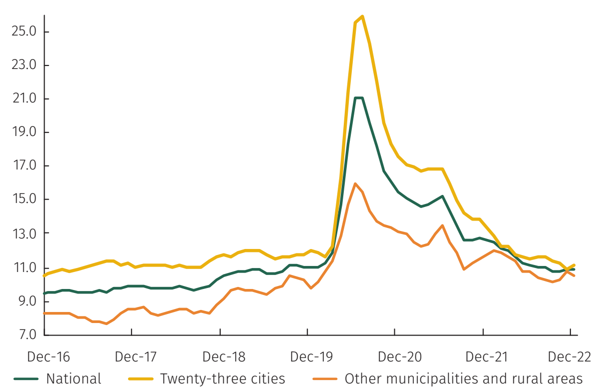
Salaried and formal employment was the strongest segment and this implied decreases in the informality rate. The salaried segment exhibited a rising trend throughout the year while the non-salaried segment contracted during the second half of 2022. As a result of this trend, the annual growth rates of salaried employment were significantly higher than those of non-salaried employment: between December 2021 and 2022, the salaried segment grew 11.7% compared to 0.8% for the non-salaried segment (Graph 2.10). This salaried employment trend is confirmed by other sources of information such as the records of pension contributors in the Integrated Record of Contributions to Social Security (PILA in Spanish) and members of family compensation funds that show increases in formal employment and higher levels than those observed prior to the pandemic. As a result, the informality rate showed setbacks during 2022 and closed the year at 57.7% and 44.2% in the national aggregate and the twenty-three cities respectively.

Labor participation grew although less than employment, and this led to reductions in the unemployment rate (UR). These contractions occurred mainly during the first half of 2022 since, starting in the second half of the year, UR stabilized at around 11% for the national aggregate. Labor participation, measured through the labor force participation rate (LFPR) rose 1.5 pp annually in December 2022 and was a smaller variation than what was seen for ER (2.4 pp). Much of the growth in the LFPR occurred in the first quarter of the year and was driven mainly by women in urban areas. This may have been linked to the full normalization of the operation of educational institutions and care services. Lower increases in LFPR relative to those of employment led to reductions in UR, especially during the first half of the year. However, in the national aggregate, the fall in UR moderated during the second half of the year and stabilized at around 11%. The stability of the national UR was due to a different performance between the urban and rural domains in line with what happened with employment. In the urban area, UR continued to decline, and, in December, it stood at 11.2%. Meanwhile, in the other municipal headlands and rural areas, this indicator registered slight increases and closed the year at 10.6% (Graph 2.11). By gender, the better performance of labor demand for women implied that the UR gap between women and men had gone through successive corrections during 2022. The value of this gap stood at 4.8 pp as of December.

Demand indicators such as job openings remained at high levels during 2022 although they showed a rapid slowdown in the last quarter of the year. As for real labor income, there were mixed performances between the salaried and non-salaried segments. Job openings calculated from classified ads, Public Employment Service (PES) data, and those estimated from GEIH and PILA hiring remained at high levels during 2022. This, together with the observed reductions in urban UR, indicated a certain degree of tightness in the labor market. However, in the last few months of 2022, job openings showed a rapid downward correction and were down 10% on average on a quarterly basis as of December (Graph 2.12). This correction will probably point to a gradual fading of inflationary pressure stemming from the dynamics of the labor market. Therefore, the greatest inflationary risks would likely be those derived from the regulatory front such as those related to the indexation mechanisms for minimum wage increases (see Box 3). Labor income, in real terms, registered a mixed performance, and depended on the degree of flexibility of nominal income that adjusted to the inflationary pressure. In the salaried segment, which is the one with the most rigid income, real wages showed an annual variation of -1.8% as of December. The real labor income of non-salaried workers, in turn, grew 6.6% annually and was associated with the greater flexibility of this segment to adjust their income. Finally, the labor market is expected to remain relatively stable in 2023 with a UR registering slight increases during the first two quarters of this year after which it will probably stabilize.

Graph 2.11
Unemployment Rate by Geographical Domain

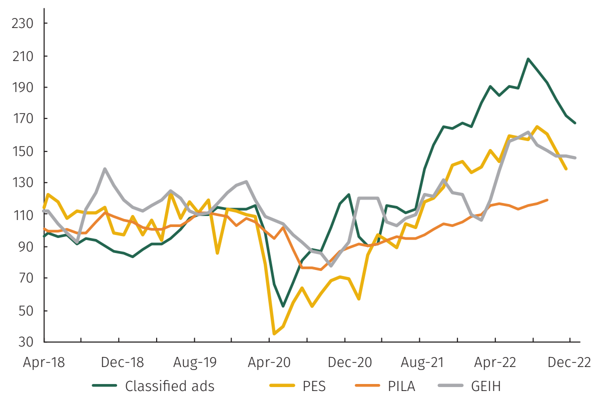
(Percentage)



Note: data on a quarterly moving average and seasonally adjusted.
Source: DANE (GEIH), calculations by *Banco de la República*.

Graph 2.12
Index of Job Openings from Different Sources

(Index)



Note: base 100 = 2018. PILA data is available up to September 2022 and PES data is available up to November. Monthly and seasonally adjusted data. Sources: Arango (2013), Public Employment Service (SPE), and Morales and Lobo (2021); calculations by *Banco de la República*.

2.3 Change in the Fiscal Situation and Outlook

After the deterioration of the fiscal accounts generated by the COVID-19 pandemic, the general government (GG) fiscal deficit could have started to decrease in 2022.[27] After registering a deficit of 2.6% of the GDP and a net debt of 37.7% of the GDP in 2019, the GG's fiscal accounts were affected substantially in 2020, mainly as a result of the effect of the COVID-19 pandemic on the CNG's tax collection and public spending. Indeed, while

27 Remember that the GG consists of the CNG, regional and local governments, the social security sector (pensions and health), and the rest of the central level entities, which include the Fuel Price Stabilization Fund (*Fondo de Estabilización de los Precios de los Combustibles* - FEPC).

the GG's deficit reached 7.2% of the GDP, debt increased and reached 49.7% of the GDP. The widening of the FEPC deficit[28] in 2021 and 2022 that resulted from the higher difference between the international parity price and the producer's income caused that the improvements observed in the CNG's fiscal accounts during that period were not reflected in a significant correction of the GG's fiscal deficit, which stood at 7.1% and 6.4% of the GDP in 2021 and 2022.[29]

The CNG public finances registered a significant correction in 2021 and 2022. It was higher than the one seen in the GG and supported to a large extent by the effect of the recovery in economic activity on tax collection. Starting from already high levels of indebtedness in 2019, the COVID-19 pandemic resulted in a drop in tax collection and an expansion of government spending that led to a deterioration of the CNG's fiscal deficit and debt. The CNG fiscal deficit was 7.8% of the GDP at the end of 2020 (versus 2.5% in 2019) while the net debt reached 60.6% of the GDP (versus 48.4% in 2019), thus reflecting the magnitude of the shock faced by the Colombian economy and its effect on the deterioration of the fiscal accounts. A process of recovery in economic activity began in 2021 supported by a countercyclical monetary and fiscal policy. The positive performance of productive activity, which continued in 2022, favored tax collection and allowed for a decrease in the CNG fiscal deficit. This, according to figures from the most recent *Financial Plan*, represented 5.5% of the GDP at the end of 2022 and was equivalent to a correction of 1.6 pp compared to the deficit of 2021 (7.1% of the GDP).

CNG's fiscal adjustment could continue in 2023 and reach a primary surplus of 0.6% of the GDP. Favorable crude oil prices, the tax reforms approved at the end of 2021 and 2022, and the positive performance seen in non-oil tax collection makes it possible to anticipate an improvement in the fiscal accounts in 2023. Based on the *Financial Plan*, the CNG's fiscal deficit and net debt will probably reach 3.8% and 57.5% of the GDP respectively in 2023, thus showing a decrease and emphasizing the 1.7 pp correction of the fiscal deficit of the GDP compared to 2022. However, these percentages are still well above historical averages. According to the *Financial Plan*, the CNG accounts could register a 0.6% primary surplus of the GDP. This contrasts with the primary deficit seen between 2020 and 2022 and also shows an improvement compared to the primary surplus of 0.4% of GDP registered in 2019. The *Financial Plan*, in turn, forecasts that total CNG spending will reach 24.4% of the GDP in 2023 and will be higher than what was observed in 2019 (18.7%) as well as in 2020 (23.1%) and 2021 (23.4%). In the expenditure for 2023, the interest payment (4.4% of the GDP for 2023)[30] and the payments made by the nation to cover the net position of the FEPC (1.7% of the GDP) are noteworthy as is the possible effect of inflation on operating expenses and the government's new projects as set forth in the recent *National Development Plan*. This pressure was what led to the

28 "The Fuel Price Stabilization Fund was created in 2007 in order to mitigate the impact of fluctuations in international prices of liquid fuel (LF) on the domestic market. Operationally, the Fund prevents the producer's income (benchmark price) from experiencing substantial fluctuations if there are sudden and drastic movements in international LF prices (parity price). The difference between the two prices multiplied by the amount of fuel sold during the period determines the net position of the fund. Thus, when the reference price is higher than the parity price, a participation differential (FEPC income) is generated while when this difference is negative, a compensation differential (expenditure) is generated" (Medium-Term Fiscal Framework, 2022, pg. 68).

29 The most recent figures from DANE's institutional economic accounts as of the third quarter of 2022 reveal a GG deficit that, in its twelve-month figures, is estimated to have reached 5.6% of the GDP, which is a lower result than the 7.8% estimated for 2021.

30 As a percentage of the nation's current revenue, interest expense is estimated at around 24% for 2023 and is higher than the 20% seen in 2018-2019.

fact that public spending did not decrease after the end of the COVID-19 pandemic but, on the contrary, increased.

The fiscal deficit adjustment projected for 2023 will probably be accompanied by a declining level of net debt to GDP. Nevertheless, the convergence towards its anchor level of 55% of the GDP is likely to be slower than projected in the 2022 MFMP. Although a declining level of public debt to GDP is projected, it would still be above the pre-pandemic level as well as its historical average and the anchor level of the fiscal policy. Indeed, based on the figures in the *Financial Plan*, the CNG is projected to have a net debt of 57.5% of the GDP for 2023, and one that is higher than the 48.4% of 2019 and the anchor level of 55% of the fiscal rule. Note that the net debt levels presented in the *Financial Plan* for the 2023-2026 period will probably be higher than what was foreseen in the 2022 *Medium Term Fiscal Framework* when it was projected to reach 55% in 2024.

The fiscal consolidation process over the next four years will be largely supported by a significant increase in tax revenue and a primary expenditure that is mainly being reduced by lower FEPC payments. The forecasts presented in the *Financial Plan* indicate that tax revenue is expected to come to around 20% of the GDP between 2023 and 2026. This is higher than the 15.6% of the 2010-2019 period and the 16% seen between 2020 and 2022. Of this increase in revenue collection that is close to 4 pp of GDP, around one third is likely to come from the greater revenue resulting from the tax reform approved in 2022, and the remainder will probably come from other sources such as the 2021 tax reform (Social Investment Act), the revenue generated by the petroleum sector, and the management of the National Revenue and Customs Bureau, etc. At the same time, primary spending is expected to decline gradually starting in 2024, mainly due to the nation's lower payments associated with the FEPC.[31] This is based on a gradual convergence between the domestic and international price of liquid fuel until the fund reaches equilibrium in 2026 at which point any deviation from this assumption could translate into greater spending needs for the nation.

The *Financial Plan* presented by the national government for the 2023-2026 period would comply with the deficit targets of the fiscal rule. The forecasts of the fiscal deficit described above are consistent with compliance with the fiscal rule and its transition period, and this is fundamental to ensuring the country's macroeconomic stability. Nevertheless, the fiscal space for 2024 and 2025 is reduced as strict compliance with the rule's targets is projected for those years.

Given the interaction with monetary policy, the decisions and credibility of fiscal policy play an essential role in preventing the macroeconomic adjustment from putting too much of the burden on interest rates. Fiscal sustainability is fundamental to establishing continued access to financing and its conditions for not only the public sector but also the private sector. As has been stated, fiscal results have improved, but risk premia for Colombia remain high and distant from those of other emerging countries with similar characteristics. In this scenario, the increase in interest rates that the government must pay and in risk premia are derived from increases in the real interest rate that the entire economy must pay and depreciation pressure that limits the actions of monetary policy. Therefore, in order to reverse this trend, it is essential to ensure fiscal sustainability.

31 The national government has proposed a payment schedule such that the PGN of each fiscal year would include the deficit incurred in the previous fiscal year. As an example of this, figures from the *Financial Plan* project a deficit of about 1.7% and 0.5% of the GDP caused by the FEPC for 2023 and 2024, which would be transferred as payments from the nation for 2024 and 2025, respectively.

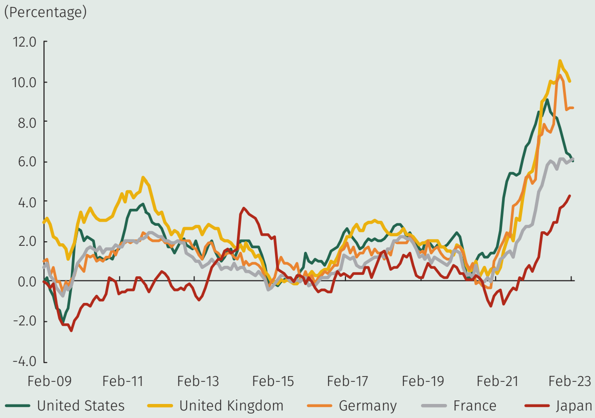
The debt and fiscal deficit levels suggest the need for an orderly adjustment as proposed by the government in the *Financial Plan* in which the fiscal accounts continue to be brought to more prudent levels in order to contribute to macroeconomic stability. In terms of fiscal policy, the goals set by the national government are timely and comply with the fiscal rule. However, under a scenario where there are less favorable macroeconomic conditions or where greater spending pressure materializes, it is likely that a situation that would require greater fiscal efforts to continue reducing the deficit and debt would probably be created. Thus, it is essential to comply with the adjustment trajectory presented by the government in the most recent *Financial Plan*.

Box 2
Inflation and Global Monetary Policy

Over the last year and a half, the world has faced a major setback in the low and stable inflation behavior that had been observed for several years. The price increases that have occurred since 2021 have taken place in a context of increases in aggregate demand resulting from the economic reactivation that emerged after the pandemic, the weakening of productive apparatuses around the world, disruptions in global supply chains, and price increases in the energy sectors, among other factors.

Since the last quarter of 2022, global inflation has started to show signs of a slowdown and, in a significant number of countries it seems to have reached a peak due to the restrictive monetary policy stance, lower prices of raw materials, and the dilution of supply shocks. The fiscal consolidation that has taken place in several economies after withdrawing the stimuli implemented during the pandemic has also allowed for a reduction in inflation, as aggregate demand has contracted (Graph B.1.1). Core inflation, which excludes food and energy prices, has moderated, although it is not yet on a downward path in most economies. The persistence of this inflation indicator may be a response to the fact that there is still excess demand and labor markets continue to be tight.

Graph B2.1
Annual Consumer Inflation



Source: Central banks and statistics offices.

Despite recent corrections in the global inflation trend, both the level of inflation and inflation expectations remain well above pre-pandemic levels and monetary authorities' targets. Although most central banks raised their monetary policy rates in 2022, inflation is expected to persist and convergence to their respective targets is expected to take longer than anticipated months ago. According to the projections made by the International Monetary Fund (IMF), global inflation will probably stand at 6.6% at the end of 2023, reaching 4.6% in advanced economies and 8.1% in emerging economies. Against this backdrop, the contractionary global monetary policy stance is likely to remain the same in order to continue reducing inflation and converging to the various targets. This reduction would also be supported by decreases in the international price of crude oil and other commodities.

1. Background and Factors Explaining the Increase in Global Inflation

The current inflation dynamics are attributable to several factors, mainly related to the effects of the pandemic and the measures adopted to deal with it as well as the economic and geopolitical situation of the last few years. This has been characterized by both supply and demand shocks in a period of high volatility in international markets.

The COVID-19 pandemic resulted in difficulties on the economic front for all countries. The economic effects of mobility restrictions and the paralysis of economic activity necessary to cope with the health emergency had a significant impact on household and business economies, with effects on wages, employment, and value chains. In this context, the priority of strengthening health care plans and mitigating the effect of the pandemic on households and businesses resulted in significant fiscal stimulus and more expansionary monetary policy stances in those countries that had the means to do so.

As economies opened up and travel restrictions eased in late 2020 and early 2021, the effects of the pandemic on inflation began to materialize, explained by both demand and supply factors. For one thing, the reactivation of the economies and the continuation of fiscal and monetary policy stimuli that were intended to boost the economic recovery generated significant pressure on prices from increases in demand. This pressure was driven particularly by the recovery of the labor market and the increase in consumption as a result of the stimuli, pent-up savings, and a greater flow of credit to households. The strength of aggregate demand helped close the negative output gaps widened during the pandemic generated a positive trend in core inflation through growth of both public and private consumption.

In the same vein, supply-side inflationary pressure materialized and contributed to inflation dynamics. First, disruptions to companies and the global production chains of goods and services during 2021 had a slower recovery than aggregate demand. Although the reopening and stimuli favored the reactivation of companies, losses in global value chains did not allow the pace of recovery of supply to match that of demand and thus contributed to pressure on. Second, wage increases and changes in labor markets in some countries were passed on in the form of higher costs for companies, thus contributing to pressure on the prices of goods and services.

In line with the aforementioned shocks, Russia's invasion of Ukraine in early 2022 led to even greater supply-side inflationary pressure. In particular, trade restrictions and economic war measures contributed to significant increases in energy prices in Europe in the context of a harsher-than-expected winter as well as in the prices of intermediate goods (such as fertilizers), which had impact on food prices with a particular effect on emerging economies. In the same respect, the geopolitical context and its effects on the global economy as well as idiosyncratic events throughout 2022 affected risk perceptions of emerging economy assets to a greater extent and, together with a more restrictive monetary stance in the United States, led to a generalized strengthening of the dollar, mainly in the second half of 2022. This depreciation of global exchange rates in the context of greater aggregate demand also contributed to additional inflationary pressure on both goods and services, which was particularly strong in import-intensive developing countries.

Although this pressure has been substantially corrected in the last few months and fuel and other raw material prices have moderated facilitating a reduction in headline inflation, emerging economies have continued to experience significant inflationary pressure. The presence of price spirals in Latin American economies and some European countries appears to contribute to inflation, as they transmit minimum wage increases to prices via indexation and affect inflation expectations. Finally, the dismantling of subsidies on food prices or energy services in some countries has caused additional inflationary pressures.

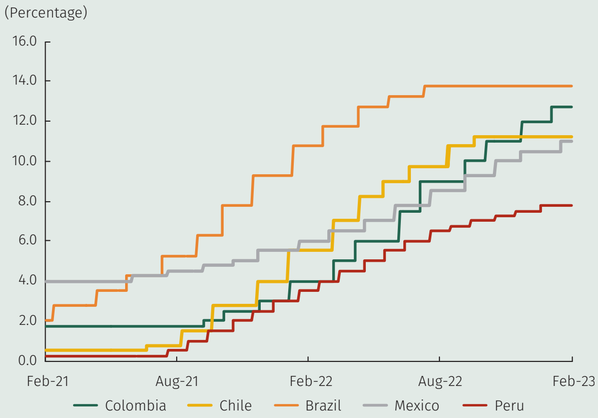
2. Central Banks' Response to Inflationary Pressure

Central banks have responded to rising inflation with significant increases in monetary policy rates in both advanced and emerging economies. The current monetary tightening process stands out for its speed and for being a simultaneous global tightening cycle that seeks to reduce inflation and inflation expectations. However, there are differences between advanced and emerging economies as well as by region.

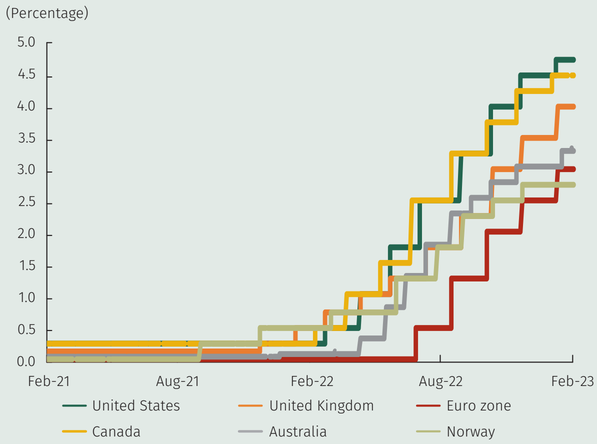
In Latin America, Brazil, Colombia, Chile, and Peru interest rates have risen 1,175 bp, 1,100 bp, 1,075 bp, and 750 bp, respectively. Monetary normalization in the region began in the second half of 2021 except for Brazil, where the central bank made the first interest rate increase in March 2021 (Graph B2.2, panel A). Among the emerging European economies, the adjustment in Hungary (where interest rates have been raised 1,240 bp since June 2021) is notable. Poland, in turn, has made 665 bp increases since October 2021. Asia's emerging economies, which are more open internationally than other emerging economies, have not had such high inflationary pressures, so their interest rate increases have been lower com-

Graph B2.2
Monetary Policy Interest Rate

A. Emerging economies



B. Advanced economies



Source: central banks.

pared to other regions. Since 2021, interest rates in Malaysia, India, and the Philippines have increased 100 bp, 250 bp, and 400 bp, respectively.

In advanced economies, monetary policy rate increases exceeded 300 bp compared to the levels reached during the pandemic. The Federal Reserve of the United States (Fed), the European Central Bank (ECB), the Bank of England, and the Bank of Canada have increased their interest rates by 450 bp, 300 bp, 390 bp, and 425 bp respectively. These central banks began their cycles of increases in the first half of 2022 with the exception of the ECB, which raised its interest rate in July of that year. In Japan, no changes have been made to the monetary policy interest rate due to the limited inflationary pressure facing the country's economy. Faced with a 4.0% annual inflation rate, the Central Bank of Japan has kept its interest rate constant since before the pandemic. The Reserve Bank of Australia, in turn, raised its benchmark policy rate by 330 bp as of the fourth quarter of 2021. In addition to monetary policy increases, countries that adopted quantitative easing measures[1] during the pandemic have begun to reduce the level of assets on their balance sheets, thereby reducing the money supply in the economy to moderate economic activity and control inflation (Graph B2.2, panel B).

The tightening of monetary policy by central banks has implications for growth and inflation. Moderating aggregate demand, smoothing credit growth, and anchoring inflation expectations are objectives that central banks pursue through tighter policy. The increase in monetary policy interest rates in most countries has resulted in less favorable global financial conditions, an adjustment that has moderated the growth rate of economic activity and contributed to the slowdown in inflation. In addition to these effects, tighter financial conditions, caused by monetary normalization in advanced economies, have resulted in lower portfolio flows to emerging economies, lower external demand for their exports, and pressure on exchange rates.

Although the global monetary contraction already seems to be influencing economic activity and inflation, it may have taken too long. In 2021, both monetary authorities and analysts agreed that the increase in inflation was caused by transitory supply shocks, and a gradual normalization of monetary policy was expected after the stimulus implemented in the pandemic. This diagnosis, which in retrospect turned out to be wrong, caused interest rates, particularly in advanced economies, to not rise so soon in anticipation of inflation. Although monetary authorities could not determine the duration of the supply shocks that began to materialize in 2021, nor was it possible for them to anticipate the invasion of Ukraine, the delay in monetary policy actions could explain the persistence of inflation and part of the rise in inflation expectations since this damaged the credibility of central banks with respect to their price control mandate. While it is difficult to assess a counterfactual scenario, the delay in monetary normalization could also have detracted from the effectiveness of monetary policy, since it may have caused recent interest rate increases to be higher compared to a tightening cycle that had started earlier.

1 Quantitative easing is a monetary policy tool that consists of the purchase of financial assets by central banks to increase the money supply and stimulate economic activity.

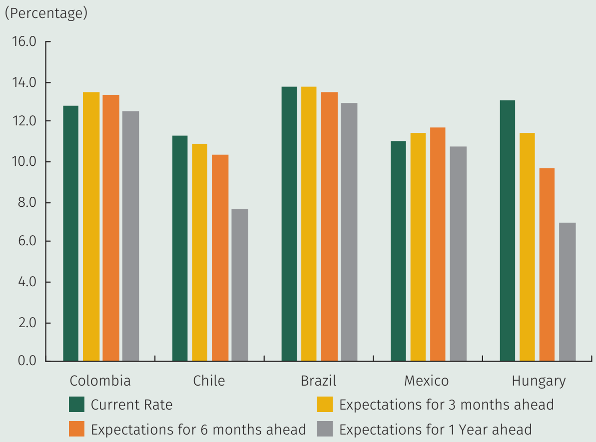
Although monetary tightening has been widespread, the speed and size of interest rate increases, as well as their terminal level and the duration of the tightening stance will continue to depend on idiosyncratic factors in each economy and the persistence of the shocks described in the previous section. An example of local factors are levels of public spending that continue to stimulate domestic demand, or the presence of domestic supply shocks. Countries with these situations will face additional inflationary pressure and will probably require a more contractionary monetary policy. Likewise, the speed of inflation convergence to their respective targets will depend on the persistence of inflation resulting from the different shocks faced by each country, the behavior of labor markets, the degree of indexation in each economy, and the speed with which demand adjusts to tighter financial conditions.

Looking ahead, there is still a high level of uncertainty about the duration of this upward interest rate cycle as well as about how long central banks will keep rates at elevated levels and their subsequent reduction (Graph B2.3). Unexpected inflation, growth or employment figures may change expectations about the future of global monetary policy. For example, higher growth forecasts for this year could give central banks more room to keep interest rates in contractionary territory while inflation returns to target. Also, a more-persistent-than-expected inflation will imply that central banks will maintain their contractionary policy for a longer period or at higher levels than currently expected.

In line with the above, despite the slowdown in inflation in certain economies, monetary authorities should be cautious about initiating a cycle of cuts, precisely because of the uncertainty regarding the slowdown in inflation, whether it is permanent or not. Otherwise, new increases could occur in the future as is expected for some economies in the region (Graph B2.3, panel A). Faced with this scenario, central banks have stressed the importance of a normalization process based on new information as it emerges, especially in a context of high global uncertainty. The actions and communication of the monetary authorities will be focused on ensuring the convergence of inflation and its expectations to the target at the lowest possible cost in terms of economic activity and employment.

Graph B2.3
Monetary Policy Interest Rates Implied in the Financial Markets

A. Emerging economies



B. Advanced economies

Source: Bloomberg.

Box 3
Effects of the Minimum Wage on Prices and Inflation

The minimum wage (MW) is one of the most widely used public policies in almost all the countries. Included among its objectives are the protection of workers against unduly low wages and to contribute to the reduction of poverty and inequality. However, there has been evidence of the adverse effects of its implementation on the labor market that has cast doubt on its ability to increase the welfare of the labor force and allow the labor market to function well (Neumark and Wascher, 2008).

In Colombia, the concept of the MW was legally established in the mid-twentieth century through Act 6/1945 and became effective in 1949. In its implementation process, a wide range of minimum wages was introduced. Thus, for example, Decree 236/1963 (which regulated Law 1/1963) established minimum daily wages by department and company size; Decree 240 from the same year readjusted the MW for the agricultural sector and for workers under sixteen years of age and fixed the hourly minimum wage.

Starting in 1964, the MW was determined by economic sector (commerce, manufacturing, services, transportation, construction, etc.), company size and geographical area (urban and rural), but in 1983, by means of Decree 3506, it was unified throughout the country. Among the arguments justifying this measure was "the elimination of unjust discrimination against workers in the rural sector. The adjustment process culminated on July 1, starting from which date there was a MW for all Colombian workers who were placed at this level of remuneration."[1]

Today, the establishment of the MW in Colombia is governed by Act 278/1996, Act 990/2005 and Constitutional Court Ruling C-815/9912. The regulations create the Standing Committee for the Coordination of Wage and Labor Policies that is made up of representatives of the national government, employers, workers, pensioners, and the unemployed. Among the variables that determine the annual increase in the MW are: inflation at the end of the year and the inflation target for the following year –set by the Board of Directors of *Banco de la República*– the productivity agreed upon by the Tripartite Productivity Committee, the contribution of wages to national income, and the increase in gross domestic product (GDP).

The way in which the MW has been implemented in Colombia, including its annual increase, has resulted in it representing close to 90% of the mean salary[2] while, on average, in the countries of the Organization for Economic Cooperation and Development (OECD) (where the labor market functions more fluidly based on many of its indicators), this ratio is close to 50%. A ratio of the magnitude seen in Colombia suggests a very high MW compared to other wages in the economy or, in other words, it means a much higher MW than the mean productivity of workers.

With this ratio in mind, numerous technical studies have shown how increases in MW contribute to the prevalence of labor informality, job destruction, and structural unemployment. Similarly, evidence has been found of its effects on other areas of the economy such as the distribution of wages and labor income and the prices of some goods and services, particularly eating out.[3]

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1 For more details, see Arango, Herrera, and Posada (2008) and Arango et al. (2022).

2 The relationship between the MW and the mean wage is known as the Kaitz index. The mean wage is the one in which half of the employed obtain a wage lower than this value and, consequently, the other half of the employed obtain a higher wage.

3 Details of this evidence can be found in Mondragón, Peña, and Wills (2010), Arango and Flórez (2020a), Arango, Flórez, and Guerrero (2020), Bell (1997), Arango and Rivera (2022), Arango and Flórez (2020b), Maloney and Núñez (2004), Arango and Pachón (2007), Mondragón, Peña, and Wills (2013), Pérez (2020), and Arango, Gómez, and Ardila (2011). Arango et al. (2022a) gather and analyze this evidence.

The increases in the MW also affect government revenue and expenditures in both the short and long term. The effects were recently estimated[4] by analyzing the average premium regime of the pension system, the financing of the health system, the mechanisms for the protection of the elderly –including the periodic economic benefits program, and the payroll of public servants. In general, the effects are reflected in a deterioration of the fiscal accounts.

The results of the increases in the minimum wage with respect to distribution presented in a recent volume of the journal Essays on Economic Policy (*Ensayos sobre Política Económica* - ESPE)[5], entitled "Macroeconomic Effects of the Minimum Wage in Colombia", do not seem to benefit families at the bottom of the distribution or other vulnerable groups such as self-employed workers without higher education and self-employed workers who do not contribute to social security. In terms of household monetary poverty and inequality reduction, the MW does not produce the expected results either since it increases the probability of being below the monetary poverty line and increases household inequality.

An aspect of the MW changes that is less explored and also possibly less expected, by both policy designers and implementers as well as by workers, is the effects on inflation. The pass-through of the MW to prices can occur through different channels. Among these are the increase in the labor costs of companies, the stimulus to aggregate demand due to a higher MW, the increase in the price of some services indexed to the annual increase, etc. Recently, in the same ESPE magazine, evidence was presented suggesting that, in Colombia, increases in the MW affect the prices of individual goods and services as well as core and total inflation. The results correspond to prices at monthly frequency and inflation at quarterly and annual frequency. To do this, they used four different methodologies that rely on different databases.

The first methodology allows us to estimate the response (elasticity) of the prices of individual goods and services in the family basket without some regulated items (CPI-SAIR) to changes in the minimum wage. Using data between January 2009 and December 2018, a period in which there were nine increases in the minimum wage that ranged from 3.64% to 7.0%, it was found that, indeed, the prices of the selected items reacted albeit with a high degree of variability to increases in the nominal MW. For example, in the months of January the majority of the elasticities were between -0.3 and 0.6. However, more than 50% of the CPI-SAIR had positive coefficients, which is consistent with a direct relationship between the increase in the MW and the aggregate inflation of the CPI-SAIR set. This, however, turned out to be low since the mean coefficient is only 0.056.[6] This means that the mean inflation would increase by only 0.056% as a result of the 1.0% increase in the nominal MW. In aggregate terms, an increase of this magnitude is associated with arise in the cumulative mean monthly inflation between January and May of the CPI-SAIR of 0.16% after which the responses dissipate.

Between January and May, the mean accumulated increase in the price variations of the individual items that make up the different sub-baskets is mixed. In terms of tradability, the price response of non-tradable goods and services (0.185%) is higher than the response of tradable goods and services (0.115%). The price changes of items produced by companies with market power (0.239%) show a greater transmission to prices than the price changes of items produced by companies exposed to greater competition (0.104%). Two sub-baskets such as food (0.347%) and eating away from home (0.508%), show cumulative transmissions of significant magnitude.

With the second methodology, based on time series, the response of the annual change in the CPI excluding food and regulated items to 1.0% changes in the nominal MW is estimated. This is the main core inflation indicator used by *Banco de la República* which is supposed to be the most affected by both the changes in the MW and monetary policy. Complementary price aggregations such as food and regulated price inflation would probably respond primarily to supply factors and national regulations respectively. The results of this exercise suggest that a 1.0% increase in nominal MW causes a 0.14% increase in quarterly core inflation, which translates into a 0.095% rise in total inflation. Since there is no evidence that changes in the price of food and regulated goods are not associated with rises in the

4 See Arango *et al.* (2022b).

5 Corresponding to Arango *et al.* (2022a).

6 This is the mean response of prices to changes in the nominal MW in the month of January. Below this number are half of the elasticities and the other half of the responses are above this number.

MW, this coefficient can be interpreted as a lower limit to the pass-through of MW changes to total inflation. This approach makes it possible to show that, in part, since the inflation at the end of the year is an essential input for the increase in the MW, it contributes to the persistence that characterizes the inflationary process in Colombia: past inflation determines the increase in the MW and this, again, contributes to the current year's inflation.

The Input-Output Matrix (IOM) approach assumes that the pass-through of the MW adjustments to the prices of goods occurs through the labor market, since this increase leads to higher costs for those workers whose remuneration corresponds to the MW or is indexed to it. In other words, this methodology considers the impact of such changes on the distribution of labor income. According to the aforementioned ESPE magazine, all quintiles of the distribution of wages and labor income of workers are impacted by increases in the MW. Thus, higher labor costs, through linkages between sectors, end up affecting consumer prices. According to this methodology, the average adjustment that the nominal MW had between 2010 and 2019 (5.25% per year) implied an average 0.758% increase in consumer prices per annum, i.e., for every 1.0% increase in the nominal MW, the CPI rose 0.144%. In other words, the average increase in the nominal MW over the past decade absorbed slightly more than a quarter of the specific long-term inflation target at the end of the year (0.758% / 3.0%), a result that should be taken into account.

The latest approach used by Arango *et al.* (2022a) relied on a general equilibrium model in which the multiple effects triggered by a surprise 1.0% increase in the MW above the rule used in Colombia based on the inflation of the year that ended and changes in productivity are explained and quantified. This increase identifies the exogenous component of the change in the MW. Quantitative results suggest that an unexpected 1.0% increase in the MW generates a slight increase in inflationary pressure, close to 0.08% in the first quarter; however, it slowly disappears over the next two years with the help of a slight increase (close to 5 basis points (bp)) in the policy interest rate. Again, this inflation response adds to the usual increase associated with past inflation and the change in productivity.

In short, the different approaches suggest a pass-through of the MW increases to inflation which, in turn, feeds into next year's MW increase. This pass-through can absorb about 25% of the long-term inflation target. The MW increases over and above past inflation and productivity are intended to have redistributive effects. However, based on the evidence presented in the ESPE document, such effects have not been achieved. Rather, increases such as these generate pass-through from the minimum wage to inflation that are even greater and affect the most vulnerable, who usually have fewer instruments to protect themselves from inflation, as has been explained in the main body of this Report to the Congress of the Republic.

It is important to remember that, in a high inflation environment such as the current one, increases in the MW will be even higher. This will introduce more persistence—possibly higher pass-through—to the changes in the general price level. The situation could be more difficult considering two facts derived from the current labor reform project. First, what if not only the MW but also the other formal sector salaries that are lower than two minimum wages are indexed to past inflation? Second, what if the higher labor costs that, in general, represent many of the items that have become known from this proposal are passed on to prices by companies?

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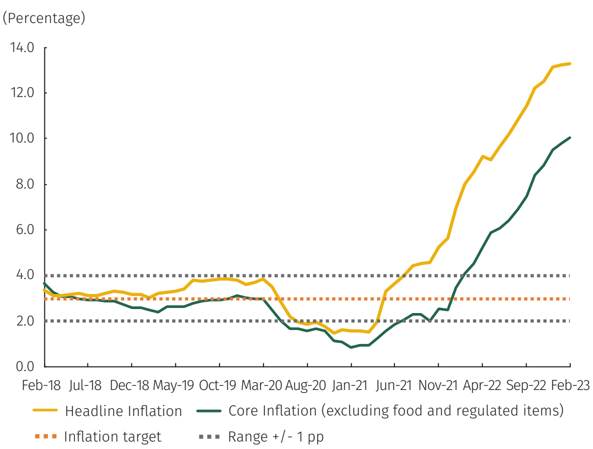
03/ Inflation and Monetary Policy Decisions

3.1 Change in and Outlook for Inflation

Inflation remained on an upward trend in 2022, driven by supply and demand shocks with a persistence and at magnitudes that were difficult to anticipate. As was the case in many other economies around the world (see Box 2), inflation in Colombia was high and significantly above the monetary authority's target during 2022. Annual consumer inflation stood at 13.12% in December and was well above the figure registered twelve months earlier (5.62%) (Graph 3.1). The price increase was generalized and also included producer prices. The annual change for these at the end of the year was 20.35% and was also higher than what had been registered at the end of 2021. Several factors converged to explain these increases most of which were of foreign origin and affected the economy's supply. Among them were the increases in the international prices of raw materials and finished products that were the result of the logistical problems and bottlenecks generated by the pandemic, and which were significantly exacerbated by the war in Ukraine. These increases were passed on to prices in Colombia through various channels and mostly affected foodstuffs, but they also affected the prices of other goods and services. Domestically, moreover, the long-term after-effects of the 2021 road blockades and adverse weather also impacted food prices. Along with these foreign and supply pressures, the economy faced a boom in demand, stimulated, in part, by an expansionary fiscal policy that, together with exchange rate pressure, especially in the second half of the year, accentuated the pass-through of this foreign pressure to domestic prices. Furthermore, in the previous context, indexation based on higher inflation rates further extended and prolonged price increases in the services segment. Although monetary policy responded appropriately to these circumstances by adjusting the policy interest rate upward, the bulk of the effects of these actions will not begin to be felt until 2023 and 2024 as discussed below.

Graph 3.1
Consumer Price Index (CPI)
(annual change)



Source: DANE, calculations by *Banco de la República*.

Core inflation also increased significantly in 2022. The Bank's benchmark indicator to measure core inflation[32] (CPI excluding food and regulated items) stood at 9.5% in December compared to only 2.5% registered a year earlier. Other core inflation indicators (core 15 and CPI excluding food) also registered a marked upward trend with values higher than the reference indicator. Core inflation, which had fallen to very

32 The measurements of core inflation are intended to eliminate the effects of temporary price shocks. To do this, those items with highly volatile prices or which are outside the control of the monetary policy are excluded from the CPI basket. For example, food prices and some regulated prices (fuel, utilities, transportation). These measurements provide information on the long-term price trends, and this is the inflation that is directly affected by monetary policy decisions.

low levels and below the monetary authority's target (3.0%) in 2020 and 2021 on account of the collapse in demand during the pandemic and various tax and price relief measures to counteract it, showed a sharp break in 2022 as these shocks were fully dissipated and replaced by foreign and domestic upward pressure throughout the year.

Factors such as indexation and exchange rate depreciation in a context of very strong domestic demand became more important in the price setting for both goods and services. The closing of the 2021 total consumer inflation above the target with inflation expectations that also exceeded this figure and the adjustment of the minimum wage that year (10.0%) had an impact on the increase in the prices of goods, but especially of services. These second-round effects were added to the pressure from high international prices and the sharp depreciation of the peso against the dollar in the second half of the year. Both effects were facilitated by a domestic demand that remained at high levels throughout 2022. This reduced the economy's excess productive capacity and brought the output gap into positive territory for the first time in several years. As a consequence of all of the above and the reversal of some tax relief, the annual change in the CPI for goods rose considerably over the course of the year as it went from 3.31% in December 2021 to 15.04% by the end of 2022. The annual change in the CPI for services, in turn, went from 2.18% in 2021 to 7.41% in December 2022. The main contributor to the latter was the performance of eating out where the prices were, in turn, affected by the sharp rise in food prices and the increase in the labor costs of these establishments (the most noteworthy). An important segment of services underwent adjustments at rates above 6.0% largely due to indexing at the 2021 inflation rate, which had also exceeded the target. The notable exception was the trend in rentals which, although it showed a year-on-year increase, closed the year at 3.64%. It should be noted that this item has the highest weight in the CPI basket (25.16%).

Against expectations, food prices continued to be affected by pressure from abroad and domestic supply shocks which were reinforced by the depreciation of the exchange rate. Over the course of 2022, food prices surged sharply as they went from an annual change of 17.2% in December 2021 to 27.8% at the end of 2022. This upswing was seen for both the perishable and processed food components which registered annual changes in December 2022 of 36.4% and 25.3% respectively (compared to 24.4% for perishables and 15.3% for processed food in December 2021). What was seen during 2022 were widespread and large increases in all food items, the prices of which were successively pushed up by both local and foreign shocks. In addition to the accumulated depreciation of the peso against the dollar, domestic shocks that included the excess rainfall caused by *La Niña* that affected some crops, the increase in exports of some products, and the delayed effect of the road blockades in mid-2021 were also noteworthy.[33] Among the various foreign shocks, in turn, the lasting upward impact of the war in Ukraine on international prices of fertilizers and other key supplies for food production stands out. These prices and costs showed some reductions towards the end of the year but were not transmitted to domestic prices due, along with other reasons, to the surge in the exchange rate depreciation. In addition, global food trade has been restricted by food sovereignty policies and extreme droughts in some countries relevant to world production.

33 See Box 1 "Food price inflation: a comparison with other countries" in the October 2022 Monetary Policy Report. https://repositorio.banrep.gov.co/bitstream/handle/20.500.12134/10504/informe-politica-monetaria-octubre-2022-recuadro1.pdf?sequence=2&isAllowed=y

The prices of regulated goods and services also continued to exert upward pressures on inflation due to the adjustments made in energy and fuel given the tariff lags that were generated during the pandemic. The annual change in the CPI of regulated products in December (11.77%) was considerably higher than the one a year ago (7.1%) although in the last few months of the year there was a decline. The most significant increase was in electricity fees (22.4% per year in December 2022) as a result of the implementation of the adjustments that were not applied during the pandemic.[34] In addition, these tariffs were affected to some extent by high fuel prices, investment and loss recovery expenses, and PPI indexation. Another important increase occurred in the CPI for fuel that closed the year with an annual variation of 10.70%. This increase was due to the need to begin closing the existing gap between domestic and international gasoline prices that had generated a high deficit in the Fuel Price Stabilization Fund (*Fondo de Estabilización de Precios de los Combustibles*, FEPC). Gas rates also increased throughout the year as they reflected higher international fuel prices and the cumulative depreciation of the exchange rate. Finally, water rates were also adjusted at rates close to 10% and reflected increases in line with current inflation levels. The rest of the regulated sectors (education and others) presented smaller increases over the course of the year.

The expected dissolution of some supply shocks, together with monetary policy actions, will probably contribute to the convergence of inflation to its 3.0% target. During the first two months of 2023, annual consumer inflation remained at levels above 13% that were sustained by increasing adjustments in core inflation, particularly in services, in spite of a slowdown in the rate of adjustment in prices of food and other goods. For the remainder of the year, inflation is expected to decline hand in hand with increasingly smaller adjustments in food prices and to the extent that foreign cost pressure fades and the supply shocks from weather and road blockades of previous years are overcome as well as the recently observed deceleration of the PPI. The cumulative adjustment of the policy interest rate, which in 2023 should be at the level required to moderate domestic demand to levels in line with the economy's productive capacity and curb the increase in inflation expectations, will contribute to lower inflation. However, the process of inflation reduction will be gradual and its convergence to the target will extend beyond 2023. Factors such as indexation and the accumulated depreciation of the exchange rate will continue to exert upward pressures for several quarters on different segments of the CPI such as services and regulated items while the transmission of monetary policy to economic activity and prices will operate with its usual lag.

3.2 Monetary Policy Decisions

The majority of the central banks raised their monetary policy interest rates in 2022 in response to high inflation[35] (see Box 2). In 2021, expansionary monetary and fiscal policies boosted economic recovery, but also led to the accumulation of macroeconomic imbalances that resulted in considerable risks for emerging economies. The recovery of global demand was confronted with a logistical and productive apparatus weakened by the pandemic, and excess demand has arisen since the end of 2021 and ended up generating an increase in global inflation. In

34 See Resolution CREG 701-101/September 13, 2002.

35 Most OECD countries have raised their short-term interest rates in response to inflationary pressure. The only exceptions have been Japan, due to the limited inflationary pressure it has faced, and Turkey, where inflation at the end of 2022 stood at 64.3%.

2022, the rise in inflation and its expectations became more persistent due to the effects of Russia's invasion of Ukraine and because of the health restrictions in China to curb the COVID-19 outbreaks. Given this macroeconomic environment, and starting from a broadly expansionary stance, the central banks of several emerging economies had begun to normalize their monetary policy as of the end of 2021, a process that also began at the beginning of 2022 in developed countries. While inflation has already started to ease in some of these economies, inflation expectations and projections still exceed their respective central banks' targets and, as a result, the global monetary policy stance is expected to continue to move into contractionary territory in 2023 and generate in tighter financing conditions.

In Colombia, *Banco de la República* has a constitutional mandate "to ensure that the purchasing power of the peso is maintained in coordination with general economic policy." In order to comply with the above, the BDBR implemented an inflation targeting regime in 1999 with a floating exchange rate system in which monetary policy moves are focused on keeping inflation at the 3.0% target and reaching the *highest sustainable* level of output and employment. This policy framework has the virtue, along with others, of facilitating countercyclical monetary policy. In this plan, the monetary policy decisions are made on the basis of an analysis of the current situation and the economic outlook and on an evaluation of the inflation forecast with respect to the targets. For example, if this analysis suggests that inflation may persistently deviate from 3.0% due to excess or shortfalls in spending or in the productive capacity of the economy, the monetary policy rate (MPR) is modified to bring inflation back toward 3.0%. If the deviations are due to transitory factors (e.g., a climatic condition that affects food prices or temporary supply shocks) and inflation expectations remain anchored to the target, the MPR remains unchanged. In contrast, if the deviations become persistent to the point where they could generate undesirable price indexation processes, the MPR is modified to anchor expectations and help inflation return to the target. All these processes are faster and smoother if monetary policy is credible.

The cumulative effects of monetary policy on output performance **and prices are not immediate. They involve a certain degree of uncertainty and, therefore, their contribution to the convergence of inflation to the target requires time.**[36] The mechanisms through which monetary policy actions affect inflation are called *monetary policy transmission channels* (*e.g.*: interest rate channel, credit channel, exchange rate channel, expectations channel, etc.).[37] In general terms, these channels operate because movements in the MPR affect market interest rates at different maturities and the prices of assets in the economy, and thus, influence the expectations of agents and their decisions regarding expenditures and investment. All

36 The lag with which monetary policy operates on output and prices differs across countries since it depends on multiple factors. Several authors such as López et al. (2016), Meyer (2002), Rebeco (2007), and Coletti et al. (2006) mention that monetary policy transmission may take anywhere from six to eight quarters. However, other authors report different lags between countries. For example, Havranek and Rusnak (2012) found longer lags in developed countries (twenty-five to fifty months), than in developing economies (ten to twenty months). Ehrmann (2000) studied thirteen European Union countries and found a relatively fast transmission to prices (two to eight quarters) in several of them, and only a few cases, such as France and Italy, with a lag of more than twelve quarters. According to the Bank of England, this lag may be close to nine quarters in the case of England.

37 For example, *the interest rate channel* indicates that changes in the MPR (short term) are transmitted to interest rates with longer terms for various deposits or financial instruments. This contributes to changes in consumption and investment decisions and alters price dynamics. This can be reinforced by the *bank credit channel*. The latter operates when bank loans are an important source of financing for agents and when, for banks, the portfolio and investments are not perfect substitutes. Thus, changes in the MPR can be transmitted to savings and credit interest rates thus affecting the supply and demand for loans and, in so doing, impacting aggregate demand and prices.

of this generates changes in the economy's aggregate supply and demand and directly affects price trends. However, the importance of each of these channels and the speed with which they operate depend on factors such as the size and persistence of the foreign and domestic shocks the economy is facing, the performance of the fiscal policy, price rigidities, regulatory changes, inflation expectations, and the credibility of monetary policy, etc. In this context, the appropriate monetary policy for inflation control involves a high degree of uncertainty since it depends on the interaction and present and future developments of the aforementioned factors. That is why the BDBR is permanently analyzing these dynamics to evaluate the adjustment required in the MPR to drive inflation to the 3.0% target.

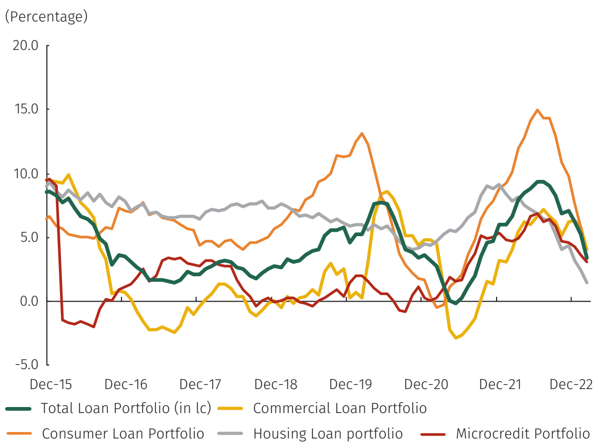
The BDBR has been raising the MPR since September 2021 thus reaffirming their commitment to the convergence of inflation to the 3.0% target. Since the end of 2021, inflation has increased and begun to move away from the target due to the fact that it has been affected by the road blockades of May 2021 and their negative effects on production chains, by the withdrawal of some relief given during the pandemic, and by the strong foreign cost shocks already mentioned. Subsequently, in the first half of 2022, the national economic recovery was consolidated and domestic demand registered strong growth, especially due to the trend in private consumption, a significant percentage of which was financed with credit. As a result, starting in the second half of the year, the level of demand exceeded the productive capacity of the economy. This fact was reflected in a widening of the country's current account deficit. The labor market also recovered and reached employment levels above pre-pandemic registries while the increase in the minimum wage, well above the inflation target, put labor cost pressure on prices and affected various prices and tariffs through indexation. The upswing in inflation was reinforced by the accumulated depreciation of the peso and its pass-through to domestic prices as well as an indexation of prices to higher inflation rates. In this environment, inflation, its forecast, and expectations rose and moved away from 3.0% during 2022, and the risk of a generalized indexation process became more pronounced and further distanced inflation from the target. For all of the above reasons, the BDBR continued the monetary policy tightening process during 2022 and up to this point in 2023 and increased the MPR on several occasions: from 3.0% in December 2021 to 12.75% in January 2023. These actions helped to moderate the high levels of demand that exceeded the economy's productive capacity and exerted upward pressure on prices. Thus, this stance reaffirms the BDBR's commitment to the inflation target as well as to the stabilization of economic activity at its maximum sustainable level, given that lowering inflation is indispensable to return to low long-term interest rates that stimulate investment and increase growth in the medium and long term. Likewise, the Board reiterated that, in the context of high uncertainty, further decisions will critically depend on the new information available.

04/ Change in the Financial and Loan Markets and Outlook

4.1 Credit Institutions' Financial Intermediation

Throughout 2022, the loan portfolio of credit institutions (CIs) consistently held real growth rates that were higher than the ones observed in the last five years.[38] There was a growth trend in the first half of the year, particularly in the consumer segment while the slowdown in the same portfolio in the second half of the year led to moderation in the overall growth of the total portfolio. During the first half of the year, the total loan portfolio increased and continued performing as registered since mid-2021. Particularly, the consumer loan portfolio showed the largest annual increases in the last ten years. In the case of the commercial loan portfolio, its ramp-up in growth was partly due to the increase in loans to large companies for which demand had been relatively low in the second half of 2020 and in 2021. Thus, the loan portfolio contributed to the strong domestic demand registered in the first half of the year. In the second half of 2022, the consumer loan portfolio became sluggish and there was a decrease in disbursements in line with the announcement made by the Office of the Financial Superintendent of Colombia (SFC) during the 56th Banking Convention in August and the subsequent issuance of higher loan-loss provisioning requirements[39] in order to mitigate the associated credit risks. In addition, growth of the commercial loan portfolio moderated, the growth rates of the housing loan portfolio declined, and the microcredit portfolio stabilized (Graph 4.1).

Graph 4.1
Annual Real Growth of the Gross Loan Portfolio by Category[a/]



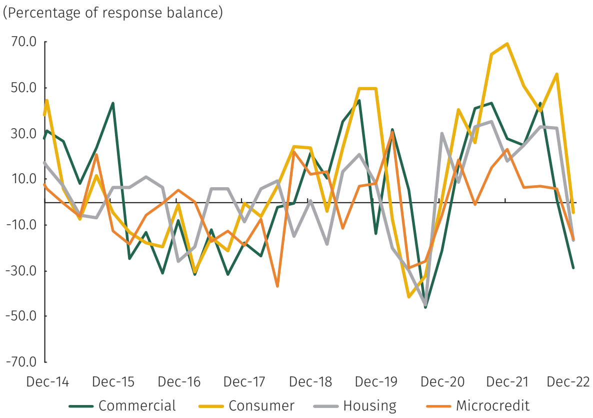
lc: local currency.
a/ Deflated with CPI excluding food. Monthly information with weekly data corresponding to the Friday closest to the end of the month. The housing loan portfolio includes adjustments for securitization, and the commercial loan portfolio includes adjustments for operational leasing and portfolio sales for management through fiduciary rights. Does not include loans to employees.
Source: Office of the Financial Superintendent of Colombia (format 281), calculations by *Banco de la República*. The information from format 281 is preliminary in nature and may differ from the monthly financial statements.

The strong growth dynamics of the loan portfolio in the first part of 2022 occurred along with a recovery in the perception of credit supply and demand. Nevertheless, a marked reduction in the perception of demand and higher requirements for

38 The real annual growth of the credit institutions' gross loan portfolio in legal currency was 7.6% on average in 2022 (6.2% at the end of the year). This value corresponds to the average of weekly data calculated by *Banco de la República* based on form 281 of the Office of the Financial Superintendent of Colombia (SFC) and adjustments for mortgage portfolio securitization. This format is preliminary in nature and may differ from the monthly financial statements. The CPI excluding food was used a deflator. By type of entity, the loan portfolio of commercial finance companies grew more than the portfolio of the system as a whole.

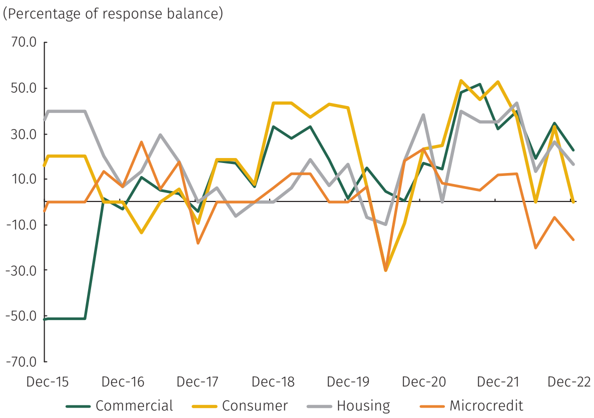
39 The SFC published the draft of regulations for the incorporation of risk provisions in the consumer portfolio for comments on November 10, 2022. The comments on these were accepted until November 18, and on November 29, External Circular 026/2022, which provided instructions for the creation of risk provisions for the consumer loan portfolio in order to deal with the eventual materialization of credit risks, was issued. Therefore, the term adjustment factor was modified in the creation of individual loan-loss provisions in this category and the possibility of making additional general provisions was incorporated. For more detail on this standard see chapter 4 of the *Financial Stability Report* for the second half of 2022.

Graph 4.2
Credit institutions' Perception of Demand for Credit



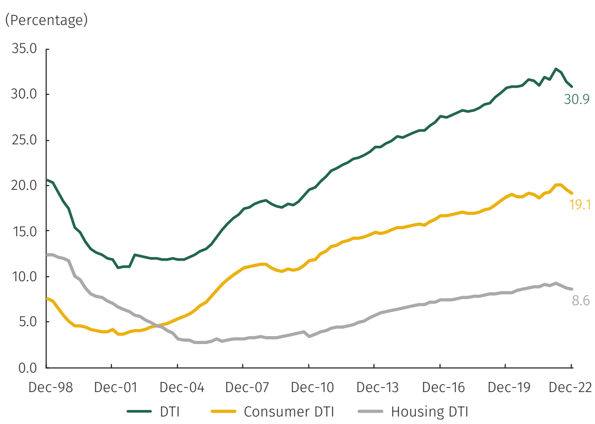
Note: A positive result in the balance of responses is interpreted as a general perception of an increase in the demand for credit in and vice versa.
Source: Survey of the loan situation in Colombia, December 2022, calculations by *Banco de la República*.

Graph 4.3
Change in Supply of New Loans



Note: a positive result in the balance is interpreted as a general perception of a rise in the supply of new loans and vice versa.
Source: *Survey of the loan situation in Colombia*, December 2022, calculations by *Banco de la República*.

Graph 4.4
Debt to Household Income (DTI)



Sources: Office of the Financial Superintendent of Colombia, Superintendency of Economic Solidarity, and Titularizadora Colombiana, calculations by *Banco de la República*.

credit origination arose in the last quarter of the year. The results presented in *Banco de la República's Report on the Credit Situation in Colombia* as of December 2022[40] show that there was a decline in the perception of demand for credit in all credit categories on the part of CIs as of the first quarter (Graph 4.2). In addition, the CIs surveyed stated that they had raised their requirements for granting new loans, mainly for the consumer portfolio. In turn, the CIs' perception of the credit supply only contracted for microcredit (Graph 4.3). Given the above, a slowdown in the household loan portfolio is likely to be seen during the first quarter of 2023.

Household indebtedness remained at historically high levels. During the first half of 2022, in line with the performance of the total loan portfolio, household indebtedness maintained the rapid growth trend that it had been showing since the previous year, primarily due to consumer loans. As a result, the debt-to-income ratio (DTI) rose and reached an all-time high in March 2022 (Graph 4.4). In the second half of the year, this trend moderated although it remained at historically high levels at the end of the year. This level of indebtedness, together with high indicators of household financial burden (Graph 4.5), suggests a higher risk arising from the occurrence of a possible negative shock to income, especially in an environment with the prospect of an economic slowdown and tighter financial conditions.

Private corporate sector indebtedness remains stable as a percentage of the GDP. During 2022, private corporate sector indebtedness remained stable (relative to GDP) and around 54.0% for the third consecutive year (Graph 4.6). Regarding the sources of indebtedness, there was a slight decrease in local currency debt, which contrasted with an increase in foreign currency debt. Nevertheless, the percentage of the latter, which has some type of mechanism to mitigate foreign exchange risk, represents 67.9%, a level that has remained stable with respect to previous years.

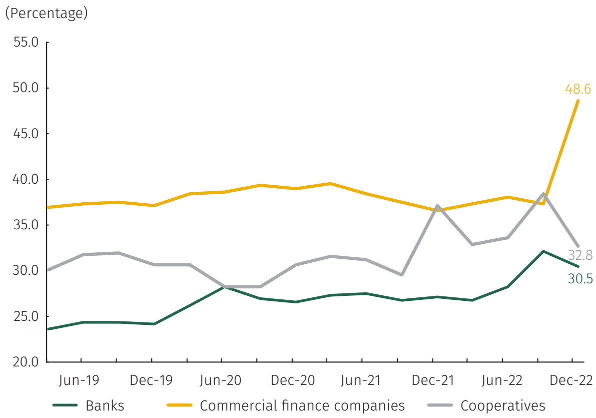
The commercial loan portfolio continued to show improvements in the credit risk indicators while, for the consumer loan portfolio, these indicators started to deteriorate as of the second quarter of 2022. Consistent with the growth in economic activity, the quality indicator by risk (QIR)[41] and quality indicator by default (NPL)[42] for all types of loans, except consumer loans, decreased during 2022. The consumer loan

40 Available at https://www.banrep.gov.co/es/reporte-de-la-situacion-del-credito-en-colombia

41 This is defined as the ratio between the balance of the loan portfolio with a rating other than "A" and the balance of the gross loan portfolio (the "A" rating corresponds to the best rating).

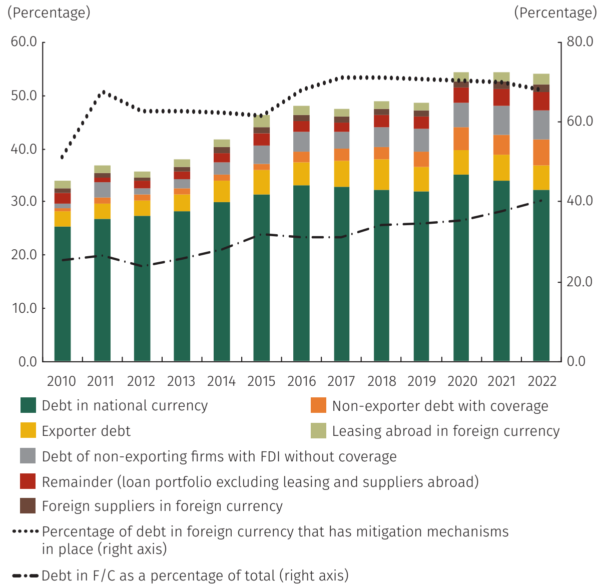
42 This is defined as the ratio between the balance of the non-performing loan portfolio (loans that are more than thirty-day past-due) and the balance of the gross loan portfolio.

Graph 4.5
Average Financial Burden of Households that took out New Loans



Note: Starting in June 2022, *Banco de la República* incorporated a question on the financial burden of borrowers with new loans in household portfolios. The credit institutions that were surveyed provided information on the average financial burden of their borrowers at the time the loan originated.
Source: *Banco de la República* (quarterly survey on the loan situation in Colombia).

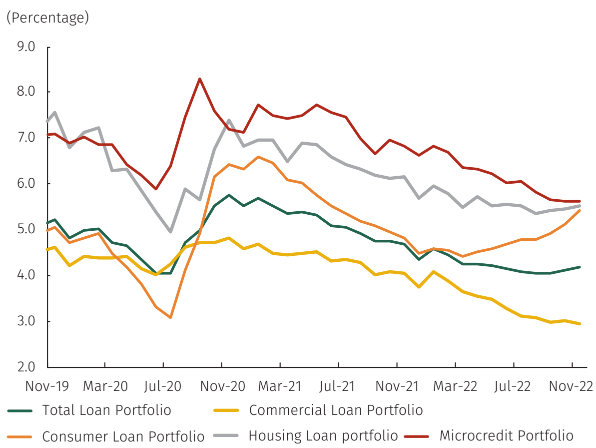
Graph 4.6
Private Corporate Sector Indebtedness[a/] (percentage of the GDP)



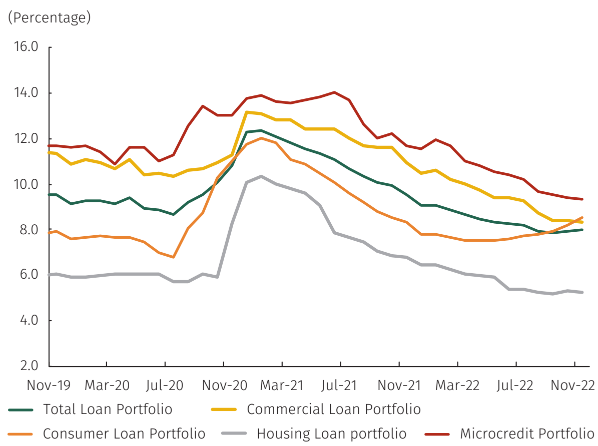
a/ Information from 2022 as of September.
Note: The most recent information from the Superintendency of Corporate Affairs is from December 2021. The same share of this debt is assumed in the data as of September 2022.
Sources: Office of the Financial Superintendent of Colombia, Superintendency of Corporate Affairs, *Banco de la República*, calculations by *Banco de la República*.

Graph 4.7
Portfolio Quality Indicators

A. Quality indicator by default (NPL)



B. Quality indicator by risk (QIR)

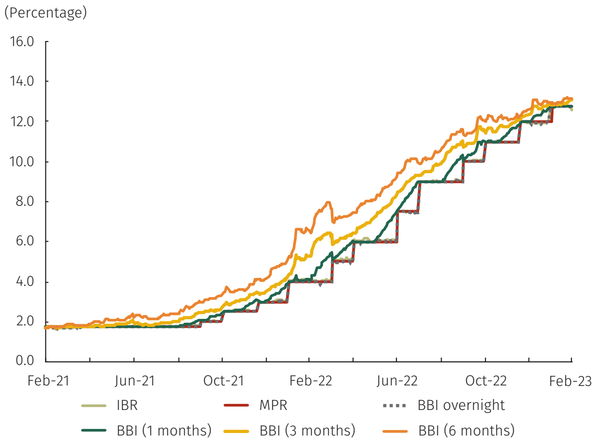


Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

portfolio, in turn, has shown a sustained deterioration in both indicators since the second quarter of 2022 (Graph 4.7).

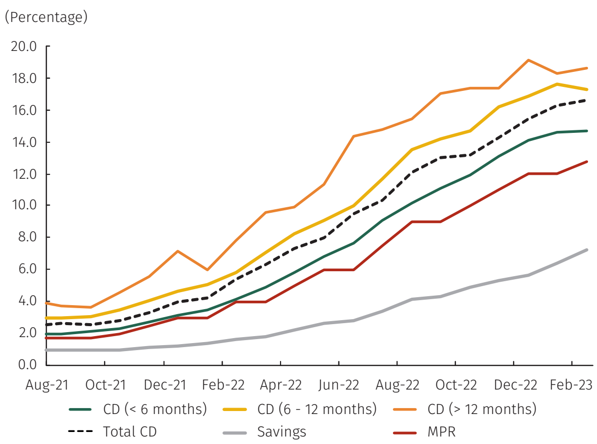
As for interest rates, increases in the monetary policy rate (MPR) continued to be transmitted to money market rates, deposit rates and lending rates. The overnight BBI rate and the overnight interbank rate are indicators of the cost of funding financial institutions at that maturity. Since the beginning of the monetary policy tightening cycle (in September 2021), these rates have remained close to the MPR. In 2022, for the one, three and six-month maturities, BBI rates rose less than the MPR but remained above it for most of the year in an environment of higher inflation and higher expectations of both inflation and increases in the MPR (Graph 4.8). With respect to the rates at which CIs raise funds from their customers, the aggre-

Graph 4.8
Monetary Policy Rate (MPR), Interbank Rate (IBR), and BBI (Overnight, at 1-, 3-, and 6-months)



Source: *Banco de la República*.

Graph 4.9
Nominal Deposit Interest Rates



Source: Office of the Financial Superintendent of Colombia (format 441), calculations by *Banco de la República*. based on information as of February 28, 2023.

gate interest rate for CD fundraising as of December 2022 was 1,285 bp higher than its level in September 2021 with increases that were generalized for all maturities and that exceeded the adjustments of the MPR,[43] mainly in maturities longer than one year.[44] In this regard, the increase in the funding of CIs came mainly from CD deposits from their customers.[45] For savings accounts, the interest rate rose proportionately less (474 bp)[46] (Graph 4.9). On the lending side, commercial, consumer and credit card loan rates have risen more than the MPR since September 2021 while home purchase and microcredit rates reacted to a lesser extent[47 48] (Graph 4.10). Note that commercial and consumer loans are the ones with the largest share in the balance and loan disbursements of CIs.[49]

In the last few days, several financial entities announced reductions in credit card interest rates for a specific sector. The segment to which these measures apply has a low weight in the consumer loan portfolio. The interest rate reductions announced in order to ease the financial burden on households range from 46% to 25% or 20%, depending on the entity, and

43 Between September 2021 and December 2022, the increase in the MPR was 1,025 bp. During that period, the CD rate for less than six months rose 1,195 bp; between six and twelve months, 1,380 bp; and for more than twelve months, 1,547 bp.

44 With respect to that, the duration of CDs increased compared to what was seen during the pandemic. Based on information from Deceval for dematerialized CDs, the issuance of CDs with a period of more than one year in 2022 was concentrated in maturities of one to three years. Likewise, the share of maturities greater than five years was 12.8% while, in 2020 and 2021, the share was close to 4.0%.

45 The share of CDs in the total balance of deposits went from an average of 28.7% in 2021 to 36.5% in 2022. In contrast, the share held in current and savings accounts declined.

46 The interest rate for ordinary active savings accounts of legal entities rose 728 bp, those belonging to official entities, 545 bp; and those belonging to ordinary individuals, 15 bp between September 2021 and December 2022. The average share of the balances for this period was 51%, 17%, and 32% respectively.

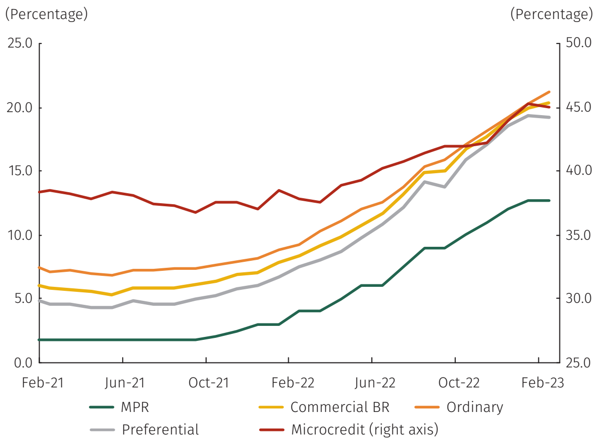
47 As of July 2022, the format for reporting lending interest rates to the Office of the Financial Superintendent of Colombia (format 414) was modified and, as a result, interest rates are not strictly comparable to those reported in the previous format (format 88). However, when the available information is used, it can be seen that, as of December 2022, the increases in interest rates compared to September 2021 were: 1,359 bp in preferential commercial loans, 1,193 bp in ordinary commercial loans, 841 bp in loans covered by automatic payroll deductions, 1,467 bp in consumer loans other than those covered by automatic payroll deductions, 1,568 bp in credit cards, 812 bp in non-LIH home purchases, 586 bp in LIH home purchases, and 722 bp in microcredit.

48 For more details on the factors that may influence the transmission of changes in the monetary policy interest rate to deposit and lending rates, see Box 1 “The Transmission of the Changes in the Monetary Policy Interest Rate (MPR) to the Interest Rates of the Credit institutions (CE),” from the April 2021 *Monetary Policy Report* where a compilation of different studies is presented.

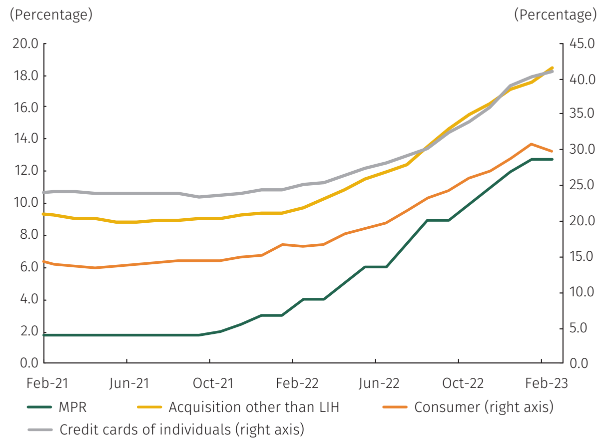
49 In terms of balances, the average share of the commercial loan portfolio in the total gross loan portfolio in legal currency was 48.1% (vs. 49.1% in 2021) and the consumer loan portfolio was 33.7% (vs. 32.5% in 2021). In disbursements, commercial loans accounted for 46.3% in 2022 and consumer loans (without credit cards) for 22.7% (vs. 34.8% and 22.1% in 2021 respectively).

Graph 4.10
Lending Rate

A. Loans to Businesses



B. Loans to households



Source: Office of the Financial Superintendent of Colombia (format 414), calculations by *Banco de la República*. based on information as of 24 February 2023.

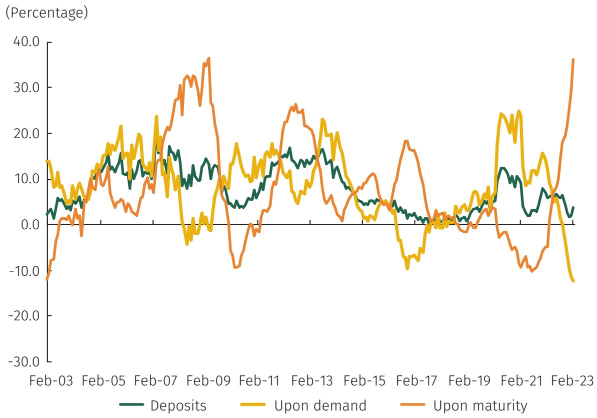
are focused on new credit card purchases, i.e., disbursements. It should be noted that there is a high degree of heterogeneity among entities that meet the conditions to get access to these lower interest rates. For example, certain entities have announced that the reduction will be for credit cards up to a certain limit while other entities have focused the reduction on certain types of purchases (for example, purchases in supermarkets). Note that the weight of these loans in the consumer loan portfolio is low. As of December 2022, the credit card balance for incomes below two minimum wages (2SMMLV), which could be an approximation of the focus of the policy based on the announcements made by the CIs, amounted to COP 5.2 trillion (t) and represented 2.1% of the total balance of the consumption category. As for low-income credit card disbursements (<2SMMLV), disbursements for approximately COP 5.1 t were seen during the last 6 months (as of February 2023). This is equivalent to 7.0% of consumer spending during the same period.[50]

The context of high interest rates and rising inflation and its expectations favored the growth of time deposits and the downturn in demand deposits. The increase in the balance of deposits during 2022 was entirely explained by the increase in CDs and the drop in more liquid deposits.[51] Since the beginning of the year, the balance for these has started to increase more sharply for those with a term of less than eighteen months. At the same time, the balances of deposits in current accounts and savings deposits declined. This shift from demand deposits to term deposits is due to several factors. From the savers' point of view, inflation and the high interest rates of CDs were the most important factors since they implied a high and growing opportunity cost of keeping means of payment in demand deposits (including cash). As was mentioned, the increase in interest rates on savings deposits was lower in scale than the increase in CD rates was. From the CI's point of view, in turn, in addition to starting with a relatively low CD balance in 2020

50 These low-income segment values exclude disbursements with a term of less than one month.

51 The total balance of CI deposits rose COP 68.8 trillon (t) in 2022. CDs rose COP 74.7 tm and offset the fall in the balance of current accounts (COP 6.3 t) and bonds (COP 3 t). The balance of savings deposits rose COP 0.9 t (0.3%) during the year. These data are calculated by *Banco de la República* based on information from the Office of the Financial Superintendent of Colombia format 281. The information in said format is preliminary in nature and may differ from the monthly financial statements.

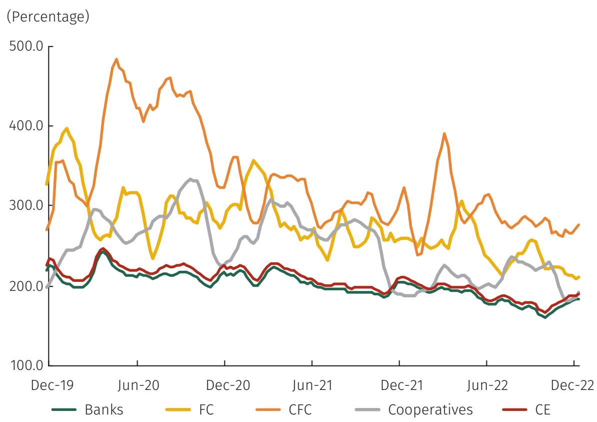
Graph 4.11
Balances of Demand and Term Deposits
(real annual percentage change)[a/]



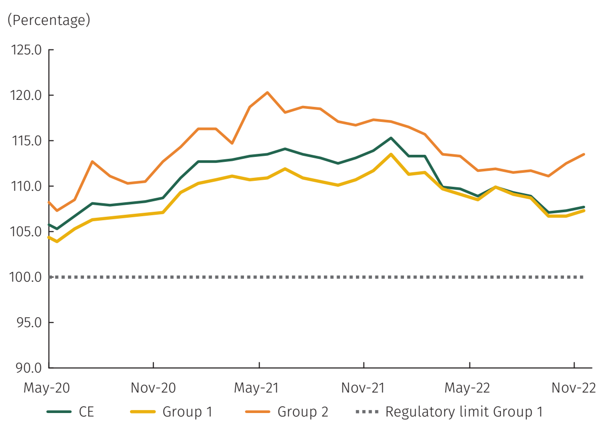
a/ Deflated with CPI excluding food. Monthly information with weekly data corresponding to the Friday closest to the end of the month.
Source: Office of the Financial Superintendent of Colombia (format 281), calculations by *Banco de la República*. The information from format 281 is preliminary in nature and may differ from the monthly financial statements.

Graph 4.12
Credit institutions' Liquidity Indicators

A. 30-day LRI (four-week moving average)



B. NSFR



Note: does not show the regulatory limits for group 2 given that they are lower than the ones for group 1, and the actual aggregate NSFR is higher.
Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

and 2021,[52] the outlook for and appearance of increases in the monetary policy rate, portfolio growth, and the implementation of a new regulatory limit on the net stable funding ratio (NFFR) during the year are noteworthy.[53] In real terms, time deposits registered an annual increase of 25.6% and demand deposits a fall of 9.7% at the end of the year[54] (Graph 4.11).

CEs showed a solid liquidity position during 2022 that is reflected in the levels of the liquidity risk indicator (LRI) and the net stable funding ratio (NSFR) that remain above their regulatory limits. Maturity transformation is one of the fundamental tasks of the financial system. Nevertheless, significant maturity mismatches can be a source of risk. In view of the above, current regulations implemented short-term liquidity indicators (LRI)[55] and structural funding (NSFR) to reduce liquidity risk. Although the two indicators remained above their regulatory limits, they registered a downward trend during the majority of 2022 in line with the increased lending. This trend reversed itself during the last two months for the LRI due to higher holdings of liquid assets, and for the NSFR, especially due to a higher share of term deposits and a more sluggish lending activity (Graph 4.12).

The aggregate return on assets of CIs was at levels similar to those registered before the pandemic. Capital strength remained stable and well above its regulatory minimums. In 2022, the return on assets (ROA) indicator was above the average of the last five years up to November 2022, due to sustained increases during the first half of the year (Graph 4.13, panel A). In particular, the indicator rose due to higher portfolio revenue, other income,[56] and lower loan-loss provisions compared to November 2021 (Graph 4.13, panel B). With respect to the financial soundness of the institutions, the aggre-

52 During 2020 (after the onset of the pandemic) and in 2021, the CD balance declined steadily and reached its lowest level since the end of 2016 (in nominal terms) in November 2021.

53 The NSFR comes from the Basel III requirements (*net stable funding ratio*) and is an indicator that seeks to measure long-term funding liquidity risk through strategic balance sheet management in order to limit excessive dependence on unstable funding sources. This is calculated as the ratio between the available stable funding (ASF) and the required stable funding (RSF). Considering the fact that the ASF corresponds to the weighted sum of the funded positions (liabilities and equity) while the RSF is the weighted sum of the assets that are funded, CIs must classify the positions of these two components as on-balance sheet and off-balance sheet. The NSFR regulatory limits went from 90% to 100% for group 1 and from 70% to 80% for group 2 as of March 31, 2022. Group 1 includes CIs with assets exceeding 2.0% of total banking assets, and Group 2 includes entities that have a portfolio that is a significant asset but do not qualify for Group 1. See the Basic Accounting and Financial Circular, Chapter VI, Appendix 4.

54 See Note 22.

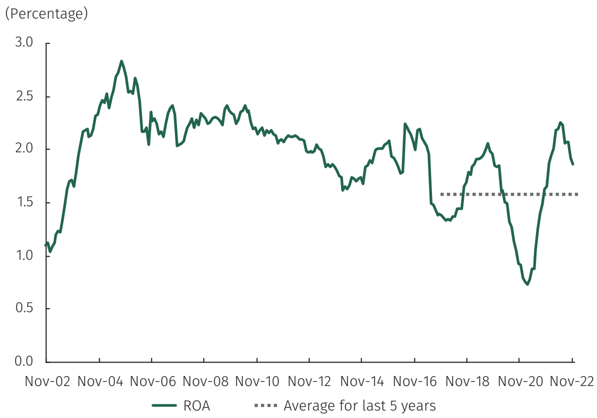
55 The LRI is defined as the ratio of liquid assets adjusted for market liquidity and foreign exchange risk to net liquidity requirements within a period of thirty days.

56 Includes commissions and fees, net valuation of derivatives, net changes, etc. Other expenses include administrative and labor expenses, taxes, etc.

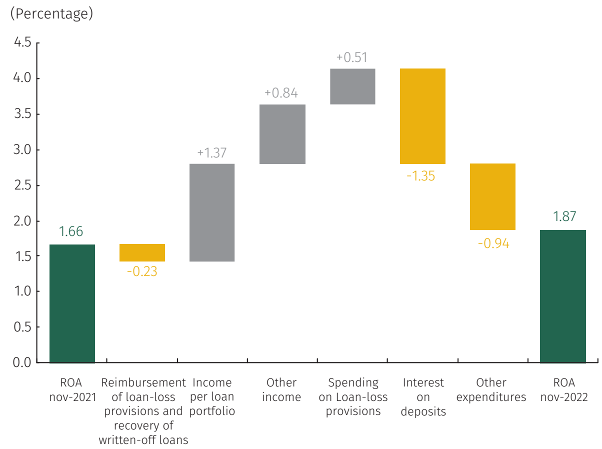
gate levels of total capital adequacy and core capital adequacy registered levels well above their regulatory minimums (Graph 4.14, panel A). Finally, consolidated capital adequacy ratios[57] showed a performance similar to that of the individual ratios although they were at lower levels (Graph 4.14, panel B) thus reflecting the fact that equity was supporting a greater volume of activity.

Graph 4.13
Credit institutions' Profit

A. ROA



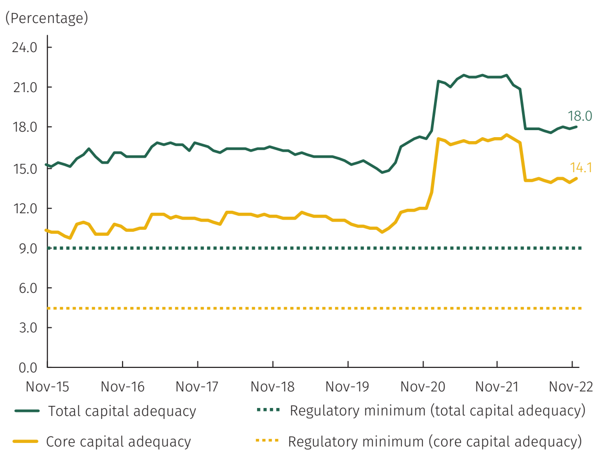
B. Breakdown of ROA



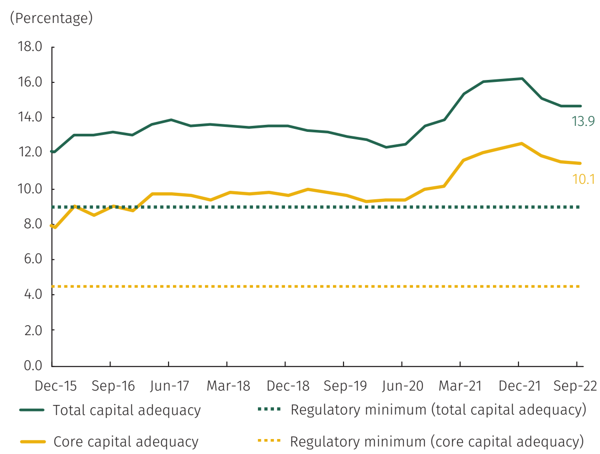
Note: *other income includes* commissions and fees, net valuation of derivatives, net changes, etc. *Other expenses* include administrative and labor expenses, taxes, etc.
Source: Financial Superintendency of Colombia; calculations by *Banco de la República*.

Graph 4.14
Total and Core Capital Adequacy Indicators

A. Individual capital adequacy



B. Consolidated capital adequacy[a/]



a/ The capital adequacy indicators at the consolidated level recognize the structures of financial entities that have subsidiaries in Colombia and abroad that may also have other lines of business, and that in accordance with current regulations consolidate their financial statements through a CE.
Note: the capital adequacy and core capital adequacy figures reported since January 2021 are not comparable to the historical series due to the regulatory change that required entities to start converging to the guidelines established by Basel III. Moreover, the drop presented in March 2022 in the series of both panels is the result of the reduction of the technical equity due to the spin-off of BAC by Banco de Bogotá in March 2022.
Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

57 The consolidated capital adequacy indicators recognize the structures of financial entities that have subsidiaries in Colombia and abroad and may also have other lines of business. These may, in accordance with current regulations, consolidate their financial statements through a CI.

4.2 Local Financial Markets

4.2.1. Foreign Exchange Market

To reach the target of maintaining a low and stable inflation rate and achieving the maximum sustainable level of output and employment, *Banco de la República* follows an inflation-targeting model[58] with a floating exchange-rate system. The exchange rate flexibility is considered a fundamental element for achieving these goals because: 1) it is desirable in countries that frequently face real shocks;[59] 2) in the event of a shock from abroad, a large part of the adjustment is made by the exchange rate,[60] which allows, for example, exports to adjust in the event of a depreciation of the exchange rate, compared to imports; 3) the authorities of a small, open economy with a flexible exchange rate have greater autonomy in their monetary policy which makes it easier for them to achieve their own inflation targets and react to their own economic cycles;[61] 4) reduces incentives for excessive foreign exchange risk-taking;[62] and 5) the volatility inherent to the float stimulates the development of the hedging market which is important for maintaining financial stability and encouraging market development.[63]

During 2022, the Colombian peso weakened, and the peso-dollar exchange rate reached an all-time high in November in line with the general strengthening of the dollar and in response to some idiosyncratic events that increased the perception of local risk. The Colombian peso has been volatile so far in 2023: as of March 16, it had depreciated 1.1% (see Box 4). The Colombian peso depreciated 20.9% in 2022. The largest depreciation of the exchange rate was seen during the second and third quarters of the year, in line with the global strengthening of the dollar and under the influence of a less favorable international environment for risky assets. Local factors were also added, such as the uncertainty regarding the outcome of the presidential elections, the economic policies to be implemented by the incoming government, and the persistence of inflationary pressure. The weaker performance of the Colombian peso versus its peers in the region can be explained by several factors, such as a higher country risk premium spread and

58 Under this approach, monetary policy actions are intended to ensure that future inflation is within the target set in the policy horizon.

59 For example, sharp declines in the terms of trade are usually accompanied by nominal depreciations that help soften the impact of shocks. Thus, exchange rate movements tend to accommodate prices relative to those of the economy and moderate the impact of shocks to activity and employment.

60 The domestic market interest rate is more stable in a flexible regime than in a fixed exchange rate regime.

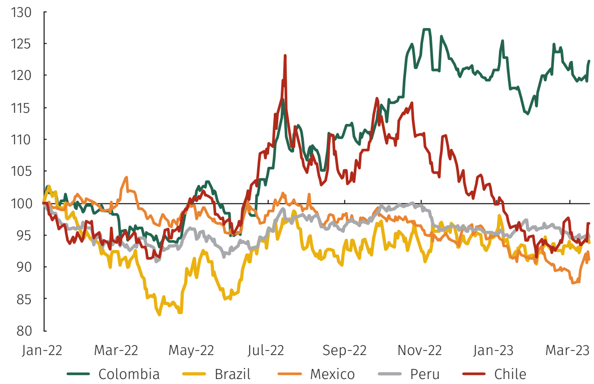
61 Otherwise, when there is a fixed exchange rate against the currency of a developed country, monetary policy is subject to the decisions of the foreign monetary authority. Thus, if the economic cycles are not synchronized, the monetary actions of the developed country could have adverse effects on output and employment in the emerging country.

62 Foreign exchange mismatches arise when an agent receives his income in local currency and part of his liabilities in another currency without any type of hedging. In a flexible regime, agents are induced to internalize and limit exposure to foreign exchange risk. Although there is strong regulation of foreign exchange mismatches of financial intermediaries in Colombia, the volatility of the exchange rate generates incentives for real sector agents to take actions to mitigate their exposure to this risk.

63 The existence of these instruments allows agents to obtain foreign exchange risk hedging at competitive prices.

Graph 4.15
Performance of the Foreign Exchange Market in the Region

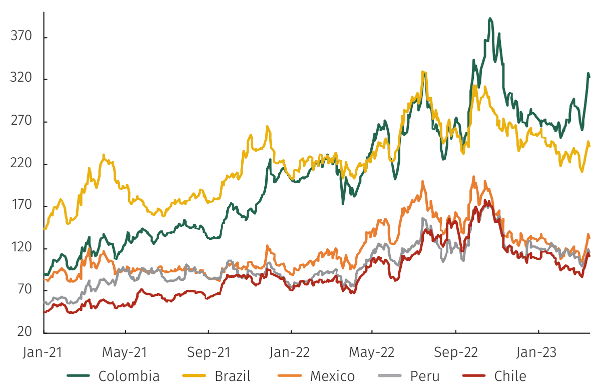
(index December 31, 2021 =100)



Sources: Bloomberg and Data License. Data as of 16 March 2023.

Graph 4.16
Risk Premia (5-year CDS) for some Economies in the Region

(Basis points)



Sources: Bloomberg and Data License.

currency volatility.[64] Thus, the Colombian peso accumulated a 40.2% depreciation during 2021 and 2022,[65] higher than in the other countries in the region (Graph 4.15).

There was evidence of a reduction in liquidity in the foreign exchange market in the second half of 2022.[66] However, there was no evidence of alterations in the appropriate currency price formation process. On average, market liquidity has improved marginally so far in 2023.[67]

In this context, *Banco de la República* did not intervene in the foreign exchange market during 2022 considering that the recent depreciation has been explained by fundamental factors, both global and local, and there are no signs of distortions in market liquidity (see Box 5). There was no shortage in the availability of foreign financing for financial intermediaries and no disruption in the derivatives market. Thus, the trend and volatility of the Colombian peso were the result of the macroeconomic shocks observed and the government's announcements (see Box 4).

4.2.2 Debt and Stock Markets

There was high volatility and significant devaluations in the local financial markets during 2022 due to the increased perception of global and local risk. High volatility has still been evident during the first few months of 2023. In addition to the factors that impacted risk premia in emerging markets in 2022, the higher risk perception in Colombia was mainly associated with the higher inflationary pressure, fiscal and current account imbalances, and the uncertainty surrounding the outcome of the legislative and presidential elections during the first half of the year. Associated with the above, the uncertainty regarding the government's reforms agenda may

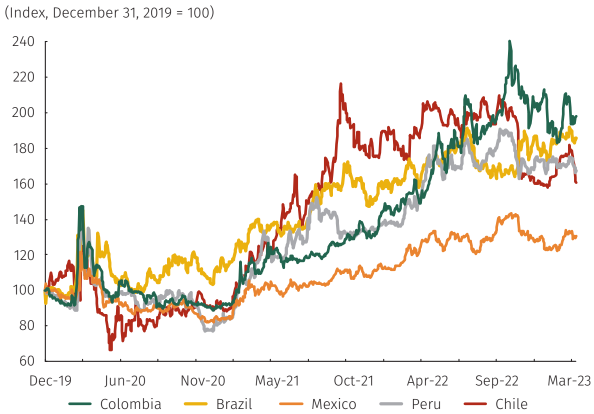
64 Based on some internal tracking models of the Colombian peso. Note that other factors, probably associated with local issues, which are not explained by the variables included in the model (model residual), such as uncertainty variables, explain the peso's performance to a greater extent.

65 During the same period, the BRL, MXN, CLP, and PEN presented variations of 1.8%, -2.1%, 19.7%, and 5.2%, respectively.

66 The *bid-ask spread* (BAS) and market depth measures are taken as a reference. The BAS is calculated as the average of the difference between the best purchase point and best-selling point in the Set-FX spot session for each second between 8:30 AM and 1:00 PM each day, divided by the day's average exchange rate of the Set-FX system. An increase in the indicator reflects low liquidity. The depth measures, in turn, correspond to the average of the sum of the volume of the buy and sell quotes for the peso-dollar operations for the best bids within a range of +/- $5 and +/- $10, and the market total, which are extracted from the Set-FX system every five minutes between 8:30 a.m. and 1:00 p.m. A decrease in the indicator reflects low liquidity.

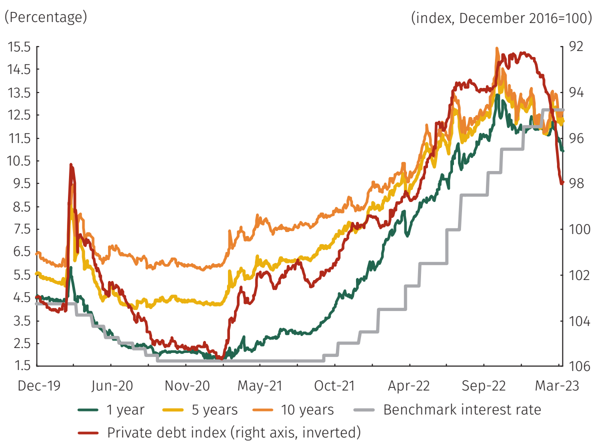
67 In the first half of 2022 (1S22) the average BAS stood at 0.052%, while in the second half of the year it stood at 0.068%. The average BAS in 2023 (as of March 16) was 0.066%. The depth measures at $5, $10, and total, in turn, stood at an average of USD 9 million (m), USD 17 m, and USD 51.1 m, respectively in the first half of the year while, they were USD 5.2 m, USD 9.9 m, and USD 41.4 m, respectively in the second half of the year.

Graph 4.17
Index of Interest Rates in Some Economies in the Region



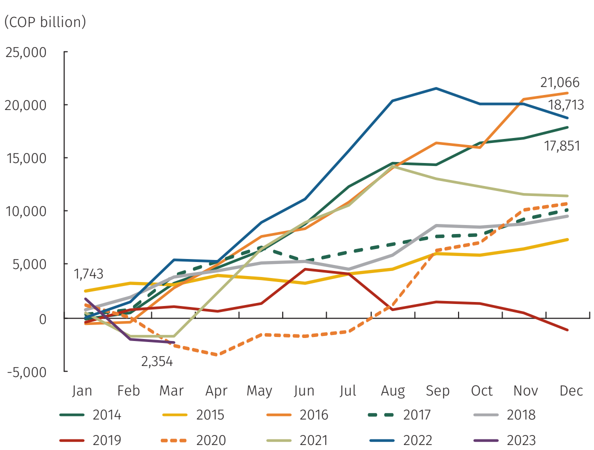
Sources: Bloomberg, SEN (electronic trading system) and Master Trader, calculations by *Banco de la República*.

Graph 4.18
Zero-coupon TES Rate in Pesos by Term, Private Debt Index, and Monetary Policy Rate



Sources: Bloomberg, SEN (electronic trading system) and Master Trader, calculations by *Banco de la República*.

Graph 4.19
Cumulative Net Purchases per Year by Foreign Investors in the TES Spot Market
(COP billion)



Source: DCV, calculations by *Banco de la República*.

have contributed to the volatile performance of local assets. Thus, Colombia's five-year CDS rose 70 bp compared to the end of 2021 (Graph 4.16).

In Colombia, interest rates on public and private debt securities increased in an environment of heightened country risk perception, global inflationary pressure, and monetary policy tightening. In line with what was seen in the debt securities issued by the United States and other countries in the region, Colombian debt securities showed significant devaluations during the year (Graph 4.17). This performance partly resulted from the adjustment of the policy interest rate that has been made by *Banco de la República* since September 2021 and by the idiosyncratic factors already mentioned. These devaluations were higher than those noted in other countries in both local currency securities (TES, average devaluations of 530 bp compared to 300 bp in the United States, and 150 bp in the region) and foreign currency (devaluations of 290 bp compared to 260 bp in the region). TES have continued to show a more volatile performance during 2023 than the securities of their peers in the region, associated with the persistence of local uncertainty. However, these securities have appreciated in line with most sovereign securities at the global level and as a consequence of the expectation that inflation has reached a ceiling in Colombia and will soon begin to decline (Graph 4.18).

Foreign investors made significant purchases of public debt securities in local currency during 2022 and reached their highest value in the third quarter. However, these agents registered sales associated with episodes of uncertainty about the local context in the fourth quarter. The high-interest rates scenario on local-currency public debt securities motivated foreign investors to demand a net COP 16,400 b[68] and COP 820 b[69] of peso- and UVR-denominated TES, respectively, along the year. Thus, their share of the TES market showed a slight increase.[70] Total TES purchases by these investors were higher than those made in 2021[71] and were the highest since 2016[72] (Graph 4.19). Foreign investors have sold peso-denomi-

68 Foreign investors made net purchases of COP 14,974 b on the spot market during 2022. With respect to the futures market, their position, through *non-delivery forwards* (NDF) contracts for peso-denominated TES, decreased COP 1,426 b.

69 Foreign investors made net purchases of COP 3,739 b on the spot market during 2022. As for the futures market, their position, through NDF contracts of UVR-denominated TES declined COP 2,919 b.

70 Foreign investors accounted for a 24.8% share of total public debt in local currency at the end of 2021. The share rose 1.4 pp to 26.2% in 2022.

71 Foreign investors demanded a net COP 7,807 b and COP 3,601 b of peso-denominated and UVR-denominated TES, respectively, in 2021.

72 Foreign investors demanded a net COP 20,084 b and COP 351 b of peso-denominated and UVR-denominated TES, respectively, in 2016.

nated TES amounting to COP 334 b[73] and sales of UVR-denominated TES coming to COP 1,935 b[74] so far in 2023 (based on information as of March 16).

As for the stock market, the MSCI Colcap index fell 8.9% in 2022 in contrast to the average increase registered in the region (4.7%[75]). This index has devalued 13% in 2023 (as of March 16). At the beginning of 2022, the index showed a positive performance supported locally by the takeover bids[76] that were carried out. Subsequently, this trend was reversed, and the index fell significantly in the second and third quarters of the year under the influence of the aforementioned foreign and idiosyncratic factors, which increased the perception of local risk. In addition, low market liquidity exacerbated the movements in the second half of the year. This trend has continued during 2023. The performance of local financial markets in 2023 will depend to a large extent on the international environment, primarily on the trend of monetary tightening, economic activity, and inflation in an environment of high uncertainty. At the local level, fiscal and foreign adjustment trajectories as well as the design, development, and implementation of the reform agenda to be undertaken by the CNG will be important variables for local financial conditions.

4.3 Exposure of the Financial System to Market Risk and the Changes in the Portfolio of Non-Banking Financial Institutions

Non-banking Financial Institutions (NBFI)[77] registered a decrease in real terms in their proprietary and managed portfolios mainly due to greater volatility in the markets and devaluations in their investment portfolio during the last six months. The performance of NBFIs, which accounted for 53.2% of the financial system's assets as of November 2022, was affected by the devaluations and volatility of the local and global markets seen during the year. In this respect, all types of NBFIs presented real annual contractions in their proprietary portfolio at the close of November. This performance was also seen in the managed portfolios except for those of trust companies (TC) that represent 65.4% of third-party assets managed by NBFIs and which showed a positive variation (Graph 4.20). Accordingly, within the NBFIs, there was a mixed profitability trend insofar as brokerage firms (SBF), pension fund managers (PFM), and TC showed a negative trend while insurance companies had a positive performance and, in the case of life insurance, reached profitability levels close to those prior to the COVID-19 pandemic.

The value of the assets of open-ended collective investment funds (CIF) rose due to higher contributions. This is despite the strong devaluations registered in the markets, especially during the second half of the year. The assets of the CIFs managed by SBFs, TCs, and investment management companies (IMCs) reached a balance of COP 65 t and, in contrast to the performance presented during 2021, they showed an increase in net contributions throughout 2022 which grew at a faster

73 The sales of peso-denominated TES on the spot market by foreign investors amounted to COP 904 b over the course of 2023. As for the futures market, their buying position has risen COP 569 b.

74 The sales of TES denominated in UVR on the spot market by foreign investors amounted to COP 1,450 b over the course of 2023. As for the futures market, their buying position has decreased COP 485 b.

75 Calculated as the average appreciation of the following indexes: Ibovespa (Brazil), S&P/BMV IPC (Mexico), S&P/CLX IPSA (Chile) and the S&P/BVL (Peru).

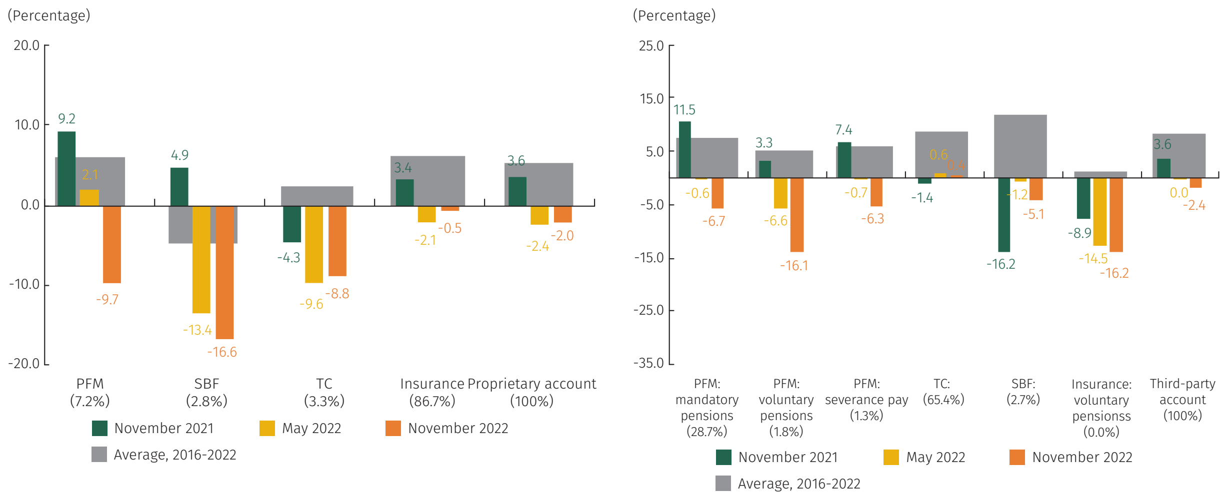
76 Two public takeover bids were made in the first quarter of 2022 and a third was announced for the shares of Nutresa and Grupo Sura, which belong to the ten stocks with the highest weighting in the MSCI Colcap index.

77 They include pension fund managers, insurance companies, trust companies, and brokerage firms.

Graph 4.20
Real Growth of Assets of Non-banking Financial Institutions

A. In Proprietary Account

B. Managed

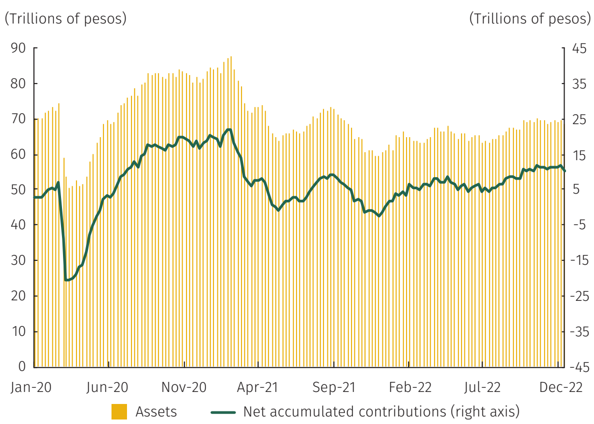


Note: the graph includes information from pension fund managers (PFM); stock brokerage firms (SBF), trust companies (TC) and insurance companies. The series is deflated using the CPI excluding food.
Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

pace during the second half of the year. Despite the above, assets remain at relatively stable levels which is a result of the devaluations seen in the market (Graph 4.21).

The balance of public debt exposed to market risk in the total NBFI portfolio including proprietary and managed positions continued to decline during the second half of 2022. The Colombian financial system's exposure to fixed and variable income markets measured as an investment in securities exposed to market risk[78] is mainly concentrated in TES (58.7% as of December 2022). There was a reduction in these securities at the end of 2022 with respect to the previous six-month period, primarily because of a lower exposure of TC in third-party positions (Table 4.1). Moreover, as for private debt, which represents 23.8% of the balance exposed to market risk, an increase was observed at the end of 2022, mainly resulting from the TC holding a larger share of the managed position in this instrument. Finally, there was a rise in the stock market driven especially by the performance of financial corporations.

Graph 4.21
Collective Investment Funds (net assets and contributions)



Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

78 Investments in debt securities may be classified as held-to-maturity, trading, and available-for-sale investments. For the latter two, changes in the prices of investments in the market generate changes in the value of the investments, and this is likely to be reflected in the entities' income statements. Therefore, they are considered investments subject to market risk.

Table 4.1
Investment Balances Exposed to Financial Institution Market Risk (balance in trillions of pesos)

Type of Entity	TES[a/]	Private Debt	Stocks	Total	TES	Private Debt	Stocks	Total
	(balance in trillions of pesos) December 2022				(percentage change in the last six months)			
Credit institutions	50.8	5.8	19.5	76.2	-0.2	0.9	12.3	2.8
Commercial banks	45.4	5.3	0.0	50.7	0.9	2.1	0.0	1.0
Investment banks	4.7	0.3	19.5	24.5	-8.6	-9.6	12.3	7.2
Commercial finance companies	0.7	0.1	0.0	0.9	-9.3	-3.3	35.5	-7.0
Financial cooperatives	0.0	0.0	0.0	0.0	0.0	-46.0	0.0	-46.0
Non-banking Financial Institutions (NBFI)	13.4	8.8	7.0	29.3	9.3	-14.0	-7.4	-2.8
Pension Funds: proprietary position	0.1	0.4	0.2	0.7	-42.7	-45.0	28.8	-35.4
Stock Brokerage Firms: proprietary position	1.2	0.3	0.1	1.6	82.6	-24.3	-10.9	37.8
Trust Fund Companies: proprietary position	0.2	0.4	1.1	1.7	-12.5	39.5	5.4	8.3
Insurance and Capitalization Companies	11.9	7.7	5.6	25.3	6.5	-12.4	-10.3	-3.8
System in Proprietary Position	64.3	14.7	26.5	105.5	1.6	-8.7	6.3	1.2
Managed position								
Stock-brokerage firms: third party position	1.7	8.8	6.5	17.0	-17.6	-6.2	-17.4	-12.0
Trust Fund Companies: third party position[b/]	92.0	40.5	13.9	146.4	-5.1	11.7	2.9	-0.2
System	157.9	64.0	46.9	268.9	-2.7	3.7	1.3	-0.5

a/ The value of the proprietary position is obtained from "Investment Portfolio" on format 351. The value of the managed position is obtained from CSD"
b/ Pension liabilities managed by trust companies are excluded.
Sources: Central Securities Depository (CSD) and Office of the Financial Superintendent of Colombia, calculations by *Banco de la República*.

Shaded section 1
Monetary Base and M3

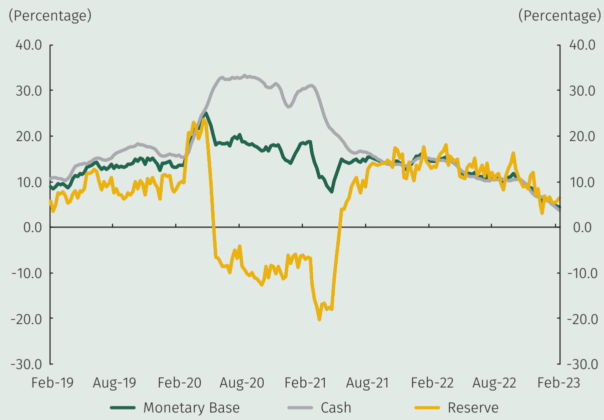
During 2022, demand deposits showed a marked downturn in both nominal and real terms. For the broader monetary aggregates, which include time deposits (such as CDs), average nominal growth was higher than what had been registered in 2021 and, in real terms, the reduction in the pace of expansion was only pronounced in the last quarter.

The balance of the monetary base at the end of 2022 was COP 154,744 b with a COP 9,362 b increase compared to the end of 2021 as a result of a COP 7,268 b increase in cash held by the public and a COP 2,063 b increase in the bank reserve. On average, its annual growth was 11.7% in nominal terms and 4.3% in real terms[1] (vs. 14.2% and 11.6% respectively in 2021). Both cash and bank reserves showed a lower growth compared to what had been seen in the two immediately preceding years. In the case of cash held by the public, the main component of the monetary base,[2] the annual change in nominal terms went from around 14.5% to 7.0%, and in real terms, from 10.7% to -2.8%[3] between December 2021 and the same month in 2022. It is worth noting that since 2000, there have only been three periods in which cash has registered real annual declines. The annual growth of bank reserves also declined over the course of the year, both in nominal and in real terms reflecting the downturn in demand deposits (which are the liabilities with the highest reserve requirement ratio) and a lower excess reserve requirement (Graph S1.1).

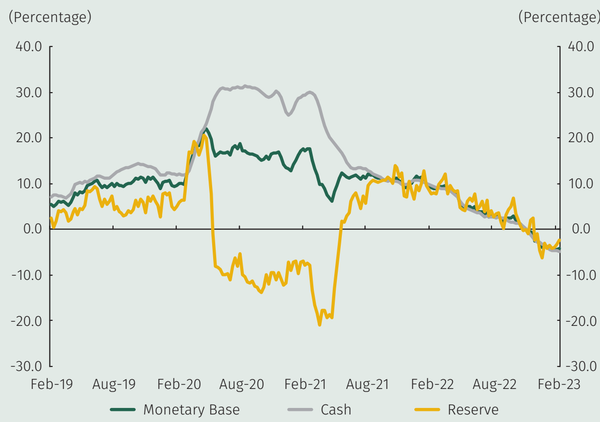
During the year *Banco de la República* carried out the pertinent operations to guarantee an appropriate supply of primary liquidity in an effort to ensure that the differences between supply and demand of liquidity would not generate significant pressure on the money market. Thus, the main source of monetary base expansion was the Bank's purchases of COP 12,137 b in TES on the market. These transactions were carried out as part of the measures taken to regulate the liquidity of the economy and offset the contraction generated by the maturities of securities in the Bank's portfolio

Graph S1.1
Monetary Base, Cash, and Reserves

A. Annual Nominal Percentage Change (4-week moving average)[a/]



B. Real Annual Percentage Change (4-week moving average)[a/ b/]



a/ Data as of Friday.
b/ Deflated using the CPI excluding food.
Source: *Banco de la República.*

(COP 4,593 b, including principal and coupons).[4] The liquidity granted through the purchase of securities is perceived as

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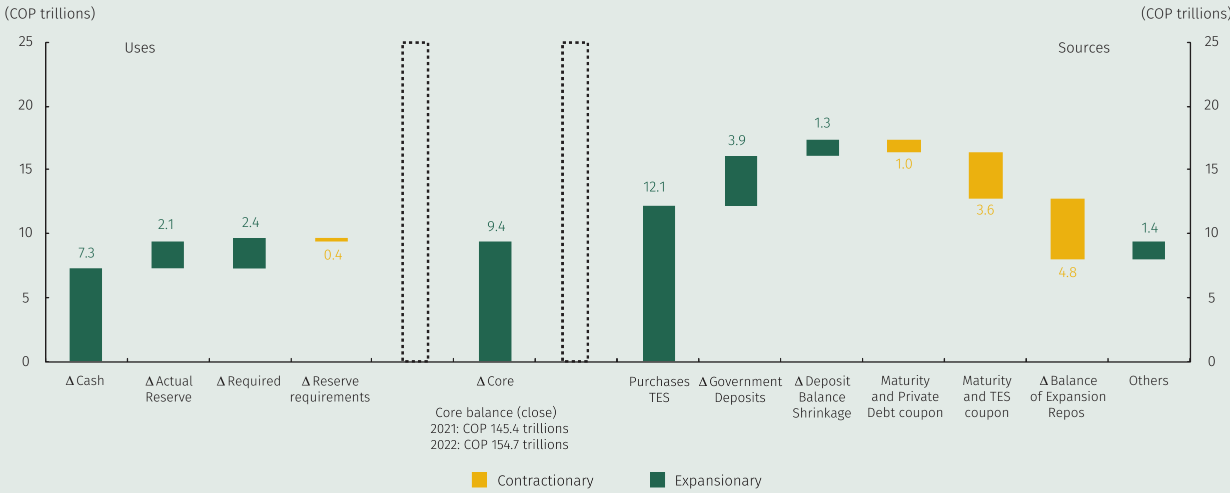
1 In this shaded portion, the CPI excluding food is used as a deflator.

2 The share of cash held by the public in the monetary base averaged 74% in 2022.

3 On average, annual cash growth in nominal terms went from 19.7% in 2021 to 11.5% in 2022 and, in real terms, from 17.0% to 4.1%.

4 In particular, the contractionary effect of the portfolio's TES maturities (including principal and coupons) amounted to COP 3,563 b and that of private debt securities (including principal and interest) to COP 1,030 b during 2022. In addition, the Bank transferred profits corresponding to 2021 to the government in the form of TES for COP 556 b (see *Banco de la República* delivered COP 556 b in TES public debt securities to the national government as payment of the profits corresponding to the year 2021," available at: https://www.banrep.gov.co/es/banco-republica-obtuvo-utilidad-632-mil-millones-mm-2021

Graph S1.2
Uses and Sources of the Monetary Base (change 31-Dec-2022 vs 31-Dec-2021)



Source: *Banco de la República.*

more stable by the financial system since it will remain for the unexpired term of the securities or until they are sold (Graph S1.2).

Transitory liquidity operations (repos and contraction deposits), in turn, with which the Bank adjusts the monetary base supply for short periods, made it possible to offset the effects on the monetary base of movements in other balance sheet accounts (mainly government deposits at the Bank) to the extent that these differed from those of the demand for the monetary base and, at year-end, constituted a smaller source of liquidity compared to what had been seen a year earlier.[5] It is worth mentioning that the Board of Directors decided to adjust the plan for transitory liquidity operations as of 04 April 2022, thus returning to the conditions under which they were carried out prior to March 2020, in general terms.[6] Last of all, the national government deposits in the Bank had a balance that was COP 3,901 b lower than what had been registered at the end of 2021.

On the M3 side, which consists of cash and deposits (such as checking accounts, savings accounts, CDs, bonds, and other liabilities that credit establishments have with their customers),[7] an average annual change of 12.8% in nominal terms and 5.3% in real terms (vs. 8.8% and 6.3% in 2021 respectively), and 13.1% respectively (vs. 8.8% and 7.1% in 2021) and an average real annual change of 5.3% and 5.5% respectively were registered (Graph S1.3). Deposits, which had an average annual growth of 13.1% in nominal terms and 5.5% in real terms (vs. 7.1% and 4.7% respectively in 2021), showed a contrasting trend between demand deposits such as checking accounts, savings deposits, and time deposits such as CDs and bonds. For the former, which represented 64% of total deposits, on average, a more pronounced downturn than that of cash was noted as it showed a partial reversal of the strong preference for on demand means of payment observed in 2020, after the onset of the pandemic and during 2021. At the end of the year, its annual growth was almost zero in nominal terms (something that had not been seen since 2017) and, in real terms, it showed a 9.7% drop. For the latter, the balance of CDs grew steadily, and its rise was concentrated in the short-term maturities. Despite this, its share of total deposits did not reach pre-pandemic levels.[8] Likewise, bond issuance by credit establishments in 2022 was the lowest since the earliest on record (2008).[9]

5 Specifically, the balance of expansion repos at the end of 2022 was COP 4,811 b lower than it was at the end of December 2021 while contraction deposits implied a lower contraction of COP 1,331 b (these values do not include interest accrued on these items).

6 See https://www.banrep.gov.co/es/nuevo-esquema-operaciones-liquidez-del-banco-republica

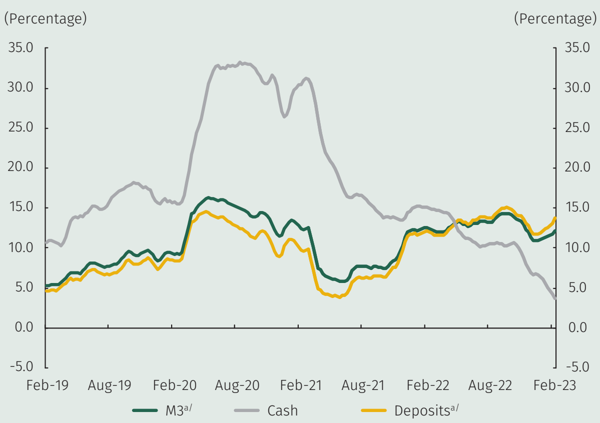
7 Does not include the CDs nor bonds held by *Banco de la República*.

8 On average, the time deposits' share of total deposits in 2022 was 36%, while in 2019 it amounted to 44.6%.

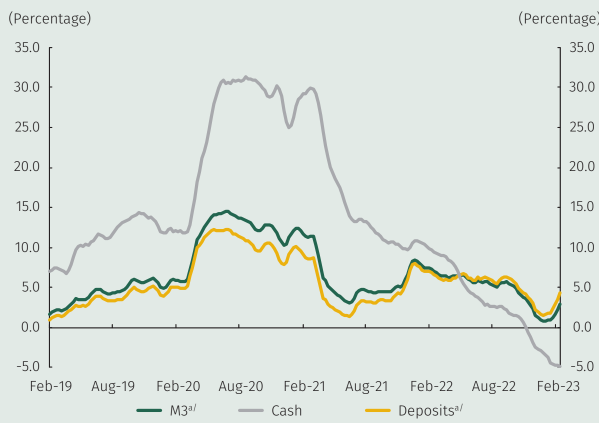
9 In all, there were seven bond issues in 2022, for a total of COP 2,177 b, a figure that is lower than the one in 2021 (fifteen issues for a total of COP 6,336 b).

Graph S1.3
M3 and its Components

A. Annual Nominal Percentage Change (4-week moving average)[b/]



B. Real Annual Percentage Change (4-week moving average)[b/ c/]



a/ Excludes CDs and bonds held by Banco de la República.
b/ Data as of Friday.
c/ Deflated using the CPI excluding food.
Source: *Banco de la República.*

Box 4
The Recent Changes in the Exchange Rate and their Effects on the Economy

1. Performance of the Exchange Rate and some of its Determinants

The US dollar became stronger with respect to the major currencies of developed countries and against the average for emerging economies in 2022 (Table B4.1). Factors such as the uncertainty about the global economic performance caused by the invasion of Ukraine, the sharp increase in global inflation, and a more restrictive monetary policy by the Federal Reserve increased the demand for less risky and higher yielding safe-haven assets and put upward pressure on the dollar against the main currencies. In some emerging economies, the dollar exchange rate was also impacted by declines in the prices of export commodities in the second half of 2022 (such as crude oil and copper) and by idiosyncratic factors related to political uncertainty and macroeconomic imbalances.

Table B4.1
Currency Depreciation Against the Dollar in 2022

	Average (percentage)	End of (percentage)
Colombia	13.7	18.9
Chile	14.8	-0.1
Peru	-1.3	-4.9
Brazil	-4.4	-5.3
Mexico	-0.9	-5.0
Advanced[a/]	12.4	8.2
Emerging[b/]	9.1	5.1

a/ DXY Index consists of the euro, yen, pound sterling, Canadian dollar, Swedish krona and Swiss franc.
b/ FXJPEMCS Emerging Markets Index.
Source: Bloomberg.

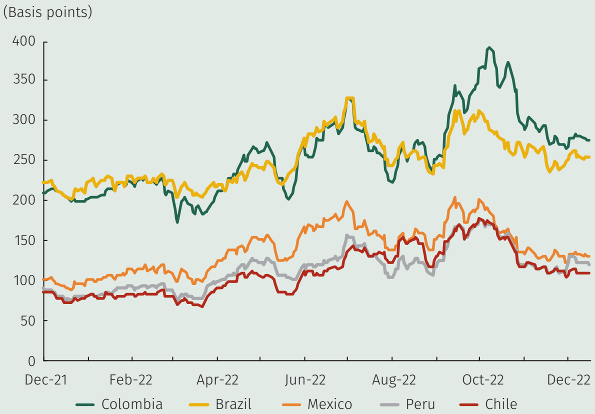
In Colombia, the depreciation of the peso against the dollar reached 18.9% in 2022, a performance that was more accentuated in the second half of the year. This figure was higher than the depreciation registered by emerging countries (5.1% according to the FXJPMCS[1]) and by developed countries (8.2% according to the DYX[2]), not to mention the appreciations seen in several countries in the region. In addition to the global factors that also affected the peso's performance, there were other local factors such as the uncertainty seen in the first half of the year regarding the outcome of the presidential elections and, subsequently, the economic policies that the incoming government might implement. In this regard, when the reason why the Colombian peso depreciated the most against its peers in the region was analyzed, the technical staff's analysis suggests that this performance was partly due to factors such as: a more pronounced increase in the perception of risk in the country, and greater uncertainty and volatility of the Colombian currency.

Changes in a country's risk perception are one of the main factors associated with exchange rate performance. For example, to the extent that an economy is perceived as riskier, its probability of insolvency increases and, as a result, investors may prefer to reduce their demand for bonds issued by that country and redirect their capital to other economies and thus put upward pressure on the exchange rate. In this regard, financial instruments measure this country's risk va-

1 Depreciation of emerging currencies against the dollar based on the JP Morgan index.

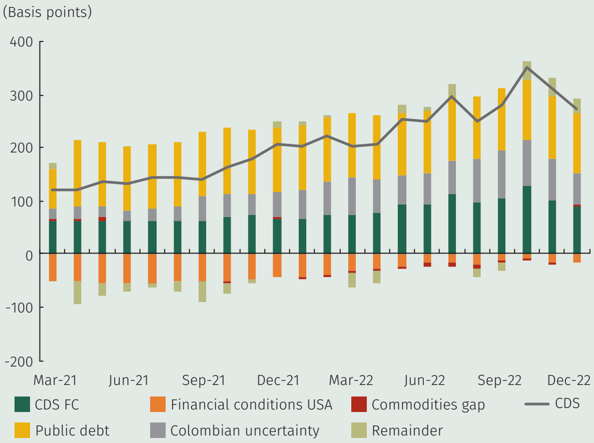
2 Average depreciation of advanced countries against the dollar according to the DYX index. The "U.S. dollar index," also known by its acronym: DYX, measures the value of the U.S. dollar relative to a basket of other currencies, including those of some of the United States' major trading partners. The currencies included in this basket are the euro (EUR), the yen (JPY), the Canadian dollar (CAD), the Swedish krona (SEK) and the Swiss franc (CHF).

Graph B4.1
5-year CDS from Countries in the Region



Source: Bloomberg.

Graph B4.2
Breakdown of Colombian 5-year CDS



Source: Bloomberg, calculations by *Banco de la República*.

luation and serve to hedge against a possible event of non-payment of a foreign currency debt security issued by a government. One of them is the so-called credit default swap (CDS),[3] in which higher values of this financial instrument reflect a higher perception of a country's risk. As shown in Graph B4.1, compared to the main economies in the region, Colombia's five-year CDS is the highest, and the difference is accentuated in the second half of 2022.

In general terms, local and global factors influence the country's risk premia. Regarding local factors, the literature emphasizes that those emerging countries with stronger macroeconomic fundamentals and less uncertainty about their policies and institutions have lower risk premia during episodes of stress in international markets. Regarding global factors, some authors[4] have found a close link between the risk premium of emerging countries and various events such as financial conditions in advanced economies, global and regional risk premia, and changes in raw material prices. In the case of Colombia, an exercise that breaks the five-year CDS down into its main determinants[5] indicates that the higher level registered in the risk premium during 2022 was primarily caused by a high level of public debt, less relaxed foreign financial conditions, a higher risk perception of emerging countries, and by a greater uncertainty[6] about local economic policies (Graph B4.2).

2. The Pass-Through of Nominal Depreciation to Domestic Prices and its Effects on other Variables

Fluctuations in the exchange rate of the peso against the dollar are transmitted to consumer inflation (annual change in the consumer price index: CPI) through at least three channels: two direct and one indirect.[7] The first, the cost channel, refers to the effect of exchange rate fluctuations on the prices of imported supplies and, subsequently, on producer and consumer prices. Indeed, the annual change in the producer price index (PPI) remained at high levels during 2022 (20.35% as of December), partly due to foreign factors, most notably the accumulated depreciation of the peso. The imported segment of the PPI registered an annual variation of 16.4% as of December 2022.

3 The CDS can be interpreted as insurance: in exchange for a fee paid to the seller, this product, which is a financial derivative, provides buyers with protection against losses they may incur when holding a government debt security that presents a credit event (*default* being the most common of these).

4 The most notable are, for example, Ahmed et al. (2017), Aizenman et al. (2011), Daehler et al. (2020), Ertugrul and Ozturk (2014), Fender et al. (2012), Gerlach et al. (2010), Kocsis and Monostori (2016), Longstaff et al. (2011), etc.

5 The exercise considers global factors (risk premium in emerging countries, financial conditions in the United States, raw material prices) and local factors (level of public debt, political and economic uncertainty).

6 The uncertainty indicator is constructed using techniques that analyze the language of a text, by counting the relative frequency of the word "uncertainty" (or its related words) in the monthly reports for Colombia prepared by *The Economist Intelligence Unit*. This indicator was initially developed by Ahir *et al.* (2018) for the world aggregate and for 143 countries individually including Colombia.

7 See Box 2: "Nominal Exchange Rate and Inflation in Colombia," in the March 2015 Report to Congress, available at: https://repositorio.banrep.gov.co/bitstream/handle/20.500.12134/7158/ijd_mar_2015.pdf?sequence=1&isAllowed=y

The second channel refers to the impact of the exchange rate on the prices of imported consumer goods that put direct pressure on total inflation. This channel also manifests through the change in demand for domestic goods as they replace competing imported goods. This has an effect on the change in the CPI, particularly on the prices of tradable goods.[8] Indeed, the CPI basket of goods showed a 15% annual change during 2022, partly the result of the transmission of the accumulated depreciation of the peso.[9] Finally, the performance of the exchange rate can also affect inflation indirectly since it can accentuate the performance of other important variables in the economy that impact agents' consumption and investment decisions and, therefore, affect consumer prices. For example, strong and persistent increases in the exchange rate can generate increases in asset prices such as housing and, through this channel, generate increases in rentals. They may also increase inflation expectations and contribute to higher wage increases agreed upon between workers and employers. These increases in labor costs will put upward pressure on inflation.

Therefore, it is important to measure and understand how prices in the economy respond to fluctuations in the exchange rate, an effect known in the economic literature as the *pass-through*.[10] This estimate is complex because domestic prices may be simultaneously affected by other shocks that are not easy to assess in isolation. Likewise, the pass-through depends on multiple factors, such as the state of the economy, the ability to replace an imported good with a local one, or the intensity and duration of the exchange rate phenomenon. In this sense, the transmission may be incomplete or delayed due, for example, to low demand, some degree of substitution between local and imported goods, or because agents may perceive exchange rate movements as transitory.

In the case of Colombia, available estimates indicate that the pass-through tends to be incomplete in both the short and medium term.[11] They also suggest that this pass-through to domestic prices of imported goods is significant, but not full, and is greater for producer prices than for consumer prices.[12] It is also lagged and can vary between one and three months in the case of the PPI and between two and three quarters in the case of the CPI. Furthermore, it has been found that the pass-through of exchange rate shocks to prices depends on the characteristics of each episode in which the depreciation occurs. In this sense, González *et al.* (2010) mention that, in the face of macroeconomic episodes considered "normal" (inflation close to target, without excess demand), the pass-through is higher when the economy is booming and inflation is high.[13] This finding would also have been seen in 2022 and the remainder of 2023, a period in which there has been an episode of a sustained increase in the exchange rate together with excess demand, high inflation, and a significant increase in the prices of imported goods.

Indeed, in 2022, the sustained and relatively high depreciation of the Colombian peso was one of the factors behind the continued increase in consumer inflation in Colombia, especially during the last few months of the year. This fact has been strongly driving the tradable component of the CPI, especially that of processed food and other goods which has continued to rise despite the overall drop in transportation and logistics costs. In fact, annual

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8 Tradable goods are those that can be traded or exchanged both domestically and internationally. For example, books, shoes, machinery, etc.

9 The degree of transmission of these channels will depend, among other things, on the market power that importers and producers have in the local market and on how fast and costly it is for them to change their prices.

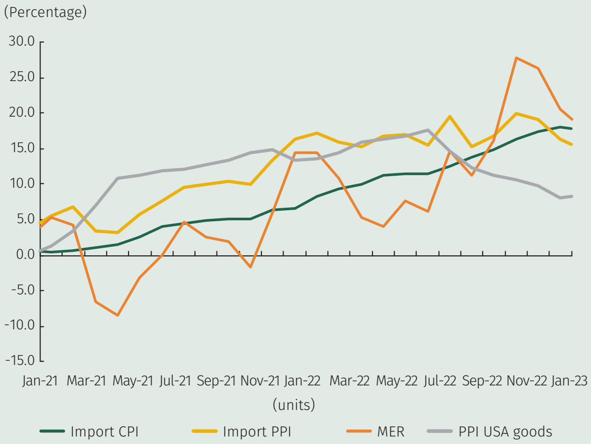
10 Some studies done to estimate the exchange rate pass-through to prices in Colombia are Rowland (2003); Rincón-Castro et al. (2005); Rincón-Castro et al. (2016); Rincón-Castro et al. (2017); Rincón-Castro et al. (2021); Parra-Álvarez (2008); Julio-Román (2019); González-Gómez (2008), etc.

11 See Box 2 of the September 2011 *Inflation Report*: "Exchange rate movements and their impact on inflation: what does the Patacon model say?

12 See Box 2 of the March 2016 *Inflation Report*, "Exchange rate pass-through elasticities to prices."

13 Also, when the real exchange rate is overvalued.

Graph B4.3
Imported CPI, Imported PPI, MER, PPI USA goods
(annual change)



Sources: DANE, *Banco de la República* and US Bureau of Labor Statistics.

adjustments in producer prices of goods in the United States and other countries have been easing over the past two quarters (Graph B4.3) but this trend has not been transmitted to consumer prices in Colombia. This is suggested by the trend in the prices of imported goods in the CPI, which continue to increase annually and which, in December 2022 (18.15%), reached the highest adjustment so far this century.[14] This sharp rise, in spite of the fall in international prices, can be explained by the significant depreciation of the peso against the dollar since the middle of last year.

Suppose the country's macroeconomic imbalances (fiscal and current account) are not reduced and the perception of country risk remains high. In that case, this may generate significant and persistent depreciations with undesirable effects on other relevant macroeconomic variables. For example, income distribution may deteriorate to the extent that depreciation increases the prices of a significant portion of the basket of poorer households and reduces their disposable income since they lack mechanisms to protect themselves from the inflationary tax. Indeed, while food and non-alcoholic beverages (the CPI group that is directly affected by the exchange rate) account for 23.78% in poor households and 22.24% in vulnerable households, they account for 15.80% in the middle class, and 8.16% in the high-income class.

High and persistent nominal depreciations affect inflation and expectations for it and make it more difficult to achieve the monetary authority's goal of maintaining low and stable inflation. This type of shock requires a greater effort in terms of the monetary policy interest rate with undesirable effects on aggregate demand and employment. As was mentioned recently in the communiqués of the Board of Directors of *Banco de la República*, the accumulated effects of the peso depreciation on prices have been one of the elements taken into account for the increase in the policy interest rate in the search for a way to return inflation to its 3.0% target.

Another undesirable effect of significant and persistent depreciations is their impact on the public debt levels. If a country has incurred debt abroad, the depreciation of the domestic currency will increase the cost of debt in pesos since the country has to pay more in domestic currency to service the same amount of debt in foreign currency. Similarly, depreciations tend to be accompanied by an increase in the perception of risk and increases in foreign financing costs. If markets associate a higher exchange rate with capital adequacy problems or high uncertainty in a country, investors will demand higher interest rates to compensate for the perceived higher risk. This translates into higher borrowing costs for the government. Both factors could generate additional spending pressure that might reinforce the risk perception of international financial markets and reduce the fiscal space for a countercyclical policy by the government. In Colombia, the share of foreign currency debt has increased recently. While by the last quarter of 2019 this represented 35.1% of CNG's total financial debt, by the third quarter of 2022, its share

14 Between May 2022 and January 2023, the cumulative price increase for this basket was 12.5%. During this period, the Colombian peso depreciated 22.7% against the dollar. In January and February 2023, the annual change in this basket was 17.67% and 17.57% respectively.

would have reached 42.1%. According to figures provided by the Ministry of the Treasury and Public Credit (MHCP) in the 2023 *Financial Plan*, the depreciation seen in 2022 would probably have generated upward pressure on the levels of public debt to GDP equivalent to 3.9% of the GDP (COP 56 t) while interest payments on foreign debt in 2022 would have reached 1.1% of the GDP (COP 17 t) which would be 0.3% of the GDP (COP 5.8 t)[15] higher than the value seen in 2021.[16]

15 The most recent *Financial Plan* of the MHCP projects an additional collection of COP 20.3 t in 2023 thanks to the Equality and Social Justice Act. The estimated increase in the debt balance is almost three times greater than the estimated proceeds of the reform. The higher interest payments on the CNG's foreign debt in 2022, in turn, represent a figure similar to the revenue projected by the Act.

16 MHCP (2022). *Financial Plan 2023*, Bogota, pp. 23 and 27.

Box 5
Considerations for *Banco de la República's* Intervention in the Foreign Currency Market

Since the end of 2021, the growth of inflationary pressure brought about by a combination of supply and demand factors has generated a scenario of tightening international financial conditions in an environment of normalization of monetary policy interest rates and a new cycle of dollar appreciation. In this context, emerging economies have seen devaluation pressure on their currencies.[1]

Colombia has not been immune to this scenario. It has also been exposed to important events, such as the loss of the foreign currency investment grade by two rating agencies[2] and high uncertainty associated with the outcome of the last presidential elections and the future of economic policy in addition to its possible repercussions from the fiscal point of view. Furthermore, foreign imbalances, reflected in a high current account deficit[3] have raised agents' concerns about the country's foreign financing needs in an adverse global environment.

This box reviews the main elements of the exchange rate policy, which, since September 1999, has been following a free-floating system where supply and demand determine the COP value relative to the USD. This system that is consistent with the inflation-targeting regime. First, a review of the advantages of the floating regime is presented along with a compilation of the criteria used by the Bank regarding exchange rate intervention and its associated costs. Subsequently, an analysis of these criteria in the current situation is done.

1. Advantages of the Free-Floating Regime

Exchange rate flexibility is desirable in countries that frequently face real shocks. For example, sharp declines in the terms of trade[4] are usually accompanied by nominal depreciations that help soften the impact of shocks. Thus, exchange rate movements tend to accommodate relative prices in the economy and moderate the impact of shocks on activity and employment.

Moreover, the authorities of a small open economy with a flexible exchange rate such as Colombia have greater autonomy in their monetary policy, and this makes it easier for them to reach their own inflation targets and react to their own economic cycles. Thus, in the case of foreign shocks, the exchange rate makes a large part of the adjustment so that the domestic market interest rate tends to be more stable than the one in an economy with a fixed exchange rate system. When there is a fixed exchange rate against the currency of a developed country, monetary policy is subject to the decisions of the foreign monetary authority.[5] Thus, if the economic cycles are not synchronized, the monetary policy actions of the developed country could have adverse effects on output and employment in the emerging country.

A flexible exchange rate regime also discourages the emergence of exchange rate mismatches such as those arising from the growth of liabilities in another currency without any type of hedging, and this poses a risk to a country's financial stability. In a flexible regime, where exchange rate volatility exists and is allowed, agents are induced to internalize and limit exposure to exchange rate risk and thus encourage the development of a hedging mar-

1 LACI: Latin American currency index, -5.9%; MSCI: general emerging currencies index, 4.2%; and DXY: developed countries currency index, 13.4%.

2 On May 20, 2021, S&P downgraded Colombia's rating from BBB- to BB+, and Fitch made the same decision on 01 July of the same year.

3 The current account deficit went from 4.0% in 2021 to about 6.2% at the end of 2022.

4 Relationship between export and import prices.

5 The impossible trinity (trilemma) states that an economy cannot simultaneously have a fixed exchange rate, free capital mobility, and an independent monetary policy.

ket. The depth of the latter would contribute to the supply of products at competitive prices. Note that in Colombia, in addition to the hedging mechanisms offered by the market, there is a strong regulation that prevents foreign exchange risk concentration in systemic agents, such as financial intermediaries.[6]

Finally, the exchange rate reflects the changes in macroeconomic and financial factors that are relevant to private sector and government decision-making. In this sense, the exchange rate provides a timely signal of the state of the economy and generates incentives for the real and financial adjustment of this rate to external shocks.

2. Objectives of Foreign Exchange Intervention

As the exchange authority, *Banco de la República* can intervene in the foreign exchange market. Since the beginning of the exchange flexibility regime, the main reasons for such interventions have been the following:

- To accumulate foreign reserves to maintain a level that guarantees payments in foreign currency and allows the country to settle them when faced with extreme situations abroad (e.g., sudden and significant stops in net capital flows). An acceptable level of reserves contributes to maintaining the country's access to financing from abroad.
- To correct exchange rate misalignments that could affect the achievement of inflation targets and the smoothing of economic fluctuations.
- To prevent or address temporary failures in the spot foreign exchange or derivatives market that may affect financial stability or the proper functioning of the markets (short-term liquidity needs due to the closing off of access to foreign credit lines, low supply of a financial hedging market [financial derivatives], etc.).

In line with these objectives, the Bank's intervention in the foreign exchange market is not intended to fix or reach any specific exchange rate level. Moreover, the empirical evidence in this regard is mixed.[7] Research suggests that *Banco de la República*'s active role in the foreign exchange market if it has any significant effect, tends to be small and short-lived.

3. Costs of Foreign Exchange Intervention

Intervention decisions should also be evaluated in light of their associated costs. The costs may be of various kinds. Some are associated with confusion about policy objectives (e.g., perceptions about exchange rate objectives), the generation of expectations of intervention in the face of shocks that do not warrant it (moral hazard), and the need to sterilize monetary expansion (or contraction) resulting from the accumulation (or deaccumulation) of foreign reserves. The latter may be high and have quasi-fiscal implications.[8]

4. History of Foreign Exchange Market Interventions

Banco de la República has a broad set of instruments whose appropriateness depends on policy objectives, their effectiveness, associated costs, and macroeconomic and market conditions. During the first fifteen years of foreign exchange rate flexibility, the objectives and instruments for intervention were related to achieving or maintaining an appropriate level of reserves, curbing strong appreciation or depreciation pressure, and moderating exchange rate volatility to its one-month trend in a context in which hedging markets were

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6 Banrep has macroprudential limits on the total and currency foreign exchange exposure allowed to FEMIs. These limits correspond to -5% and 20% of their regulatory capital in the case of total exposure and -40% and 40% for currency exposure limits.

7 Some papers on this topic are Kamil (2008), Echavarria, López, and Misas (2009), Rincón and Toro (2010), Murcia and Rojas (2014), Echavarría, Melo, and Villamizar (2014), Fuentes et al. (2014), Villamizar (2015), Ocampo and Malagón (2015), Echavarría, Melo, and Villamizar (2017), Kuersteiner, Phillips, and Villamizar (2018), Arango-Lozano et al. (2020), etc.

8 Costs may affect the profits transferred by *Banco de la República* to the national government, mainly when the return on reserves is lower than the cost of sterilization.

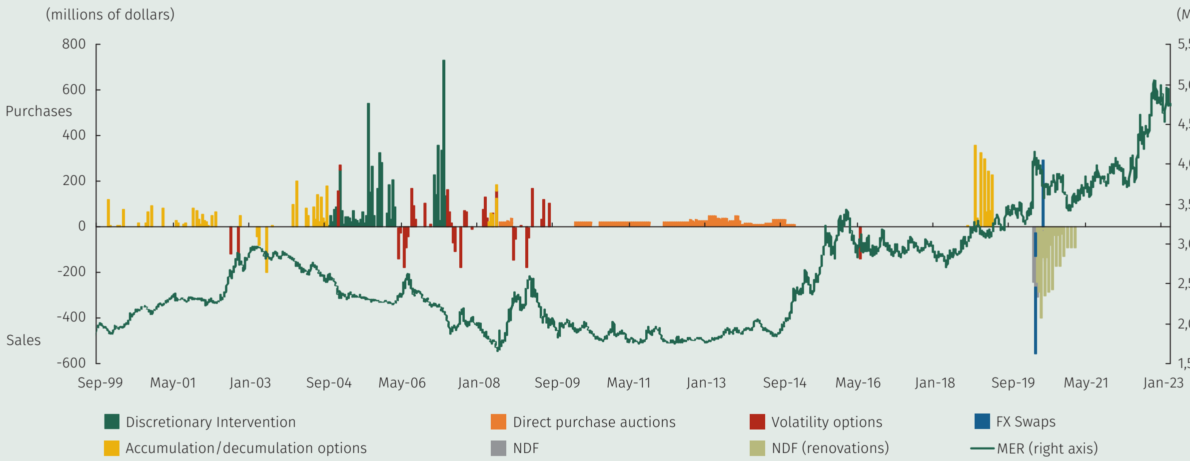
not sufficiently developed. The primary forms of intervention were options for the accumulation and deaccumulation of foreign reserves, volatility options, discretionary purchases of foreign currency in the market, and auctions for the purchase of fixed daily amounts of reserves. Recently, in response to the shocks generated by the emergence of COVID-19, *Banco de la República* implemented new instruments such as dollar sales through *FX Swap* contracts[9] and dollar forward sales through *NDF forward* contracts.[10] These new instruments were successful in providing liquidity to the foreign exchange market and improving the supply of hedging instruments. At the same time, they were perceived as a clear signal of the Bank's commitment to mitigating disorderly developments in the foreign exchange market (Graph B5.1).

5. Relevance of *Banco de la República*'s Intervention in the recent Economic Environment

Starting in September 2021 and up to 31 January 2023, the market has shown a substantial depreciation of the Colombian peso (Graph B5.2) tied to a significant increase in its daily volatility and some deterioration in liquidity.

The high volatility and depreciation trend of the Colombian peso do not seem to be a result of speculative factors but rather coincide with the overall strengthening of the U.S. dollar

Graph B5.1
Use of Foreign Currency Exchange Intervention Mechanisms by *Banco de la República*.



Note: on the main axis, the series are shown as "stacked columns."
Source: *Banco de la República*.

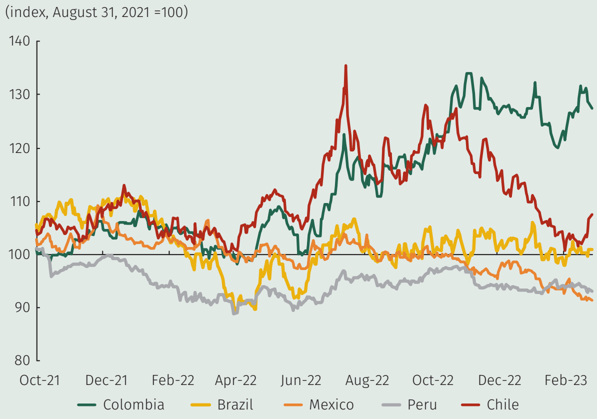
and the significant relative increase in the sovereign risk premium (Graph B5.2). Furthermore, other factors, such as the greater relative sensitivity of the peso, have contributed to amplifying its movements.[11] In this context, it is thought that the Bank's intervention would have little effect insofar as, first, the sensitivity of the currency responds to macroeconomic imbalances that would likely correct themselves over a medium-term horizon, and in the case of volatility, the empirical evidence studied suggests that the Bank's tools do not seem

9 Derivative instrument by means of which the Bank sells dollars on the spot market while repurchasing the same amount at a future time. The mechanism has a neutral effect on *Banco de la República*'s foreign exchange exposure to the extent that it substitutes one foreign currency asset (cash) for another (forward dollars).

10 Future dollars are sold and the difference between the rate agreed upon in the contract and the market rate on the maturity date is paid.

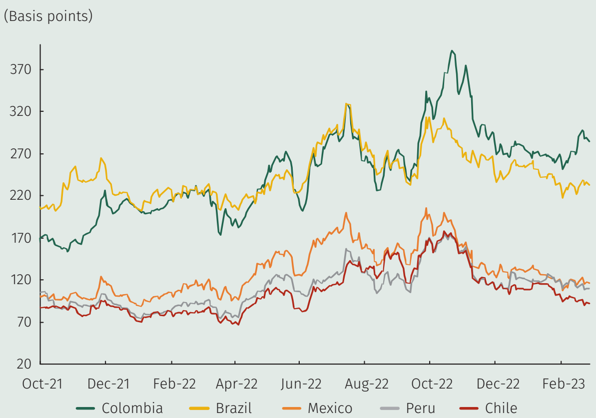
11 When the sensitivity of Colombia's exchange rate against a basket of currencies of different countries (known as exchange rate beta) during different periods is compared, it can be seen that the level of beta for the Colombian peso (COP) is higher than the average of a sample of countries. This suggests that the exchange rate tends to show stronger movements than other currencies when faced with changes in significant variables for these currencies. This greater sensitivity may be explained by Colombia's larger fiscal and current account deficits compared to other emerging countries.

Graph B5.2
Nominal Exchange Rate for Currencies in the Region



Sources: Bloomberg and Data License.

Graph B5.3
Risk Premia (5-year CDS) for some Economies in the Region



Sources: Bloomberg and Data License.

to be particularly effective in moderating it, or at least not at those horizons that are particularly relevant for economic agents.[12]

Moreover, the foreign exchange market has generally functioned adequately, with only a slight deterioration in liquidity[13] which has been in line with the trends in international market liquidity. In addition, there has been no evidence of problems in the price formation process in the foreign exchange market[14] nor restrictions on the availability of hedging instruments in this market. Nor have there been any signs of restrictions on the foreign financing of financial intermediaries.[15] Likewise, no major exchange rate mismatches have been noted on the part of the financial or real sector[16] that could jeopardize financial stability in the event of a pronounced depreciation. In this respect, no need has been perceived for intervention in the foreign exchange market[17] to avoid financial stability problems.

Finally, in a very uncertain environment abroad like the one observed during the recent period, it is believed that the use of foreign reserves should be handled with special care. In particular, the levels

12 The evidence on the effectiveness of foreign exchange intervention in Colombia is mixed. However, studies suggest that if *Banco de la República* were to play an active role in the foreign exchange market, any significant effect it might have would be small and short-lived. For example, according to Rincón-Castro et al. (2020), foreign exchange intervention, regardless of the type or instrument used, has limited or no impact on the exchange rate. When it does, it is limited to a few minutes or to two days at most. The literature has also found that the effectiveness of foreign exchange intervention depends on both the intervention mechanism used, the situation of the economy, and the shocks it faces from abroad. For example, in the case of options for volatility control, Echavarría, Melo, and Villamizar (2014) found that between 2000 and 2012, they were effective up to ten days after the intervention, while Kuersteiner, Phillips, and Villamizar (2018) found that put and call options for volatility control had an impact on the exchange rate with a duration of up to three and two weeks after the intervention. Nevertheless, Rincón-Castro *et al.* (2020) did not find that these types of interventions had any statistical impact between 2000 and 2019 and even increased exchange rate volatility before and after the intervention.

13 The average bid-ask spread (BAS) in 2022 deteriorated from the levels seen in 2021. Nonetheless, it is well below the levels noted in March 2020 (average 2022: 0.07% vs. March 2020: 0.13%). The BAS is calculated as the average difference between the best purchase point and best-selling point in the *Set-FX* spot session for each second between 8:30 AM and 1:00 PM each day divided by the average *Set-FX* rate for the day.

14 Neither in the spot market nor in the forward market.

15 According to the results of the quarterly survey on foreign indebtedness and quotas for December 2022, there is an improvement in the perception of the availability of foreign liquidity by Colombian financial intermediaries since the percentage of respondents reporting that there are foreign entities willing to grant new loans in foreign currency increased with respect to the results of September 2022. Despite the improvement in availability, higher funding costs continue to be evident. According to the entities surveyed, this is due to global uncertainty and market volatility.

16 The foreign currency debt of the private corporate sector that has some mechanism to mitigate exchange rate risk represents the largest portion of this item (69.2%). Furthermore, Banrep has a series of macroprudential limits on the total and currency exchange exposure that FEMIs may have in relation to their technical equity. These limits correspond to -5% and 20% in the case of total exposure and -40% and 40% for currency exposure limits.

17 In other episodes of strong illiquidity and deficient functioning of the foreign exchange market such as the one that occurred in 2020 during the first months of the pandemic, *Banco de la República* intervened with derivative instruments that did not imply losses of foreign reserves and that contributed to restoring proper market operation.

of international foreign liquidity buffers should be maintained to be used only under severe tensions in conditions abroad to the extent that the presence of suitable levels contributes to facilitating the country's access to international financing.

Based on the above considerations and taking into account the advantages of floating exchange rates, the arguments in favor of an intervention by *Banco de la República* to halt the depreciation of the COP, or to reduce exchange rate volatility, have not been clear in the current situation.

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05/ Foreign Balance, Foreign Exchange Market, and Foreign Reserves

5.1 Change in and Outlook for Colombia's Balance of Payments

The current account registered a deficit of USD 21,446 m between January and March 2022 that corresponded to 6.2% of the GDP and represented a USD 3,465 m increase with respect to the foreign imbalance registered a year ago (5.7% of the GDP) (Table 5.1). This widening of the foreign imbalance occurred against a backdrop of high raw material prices and strong domestic demand. The above was reflected in a significant growth of the value of exports, primarily those associated with coal and crude oil that improved the trade balance even with the significant increase in imports. Nevertheless, companies with foreign direct investment (FDI) saw their profit remittance abroad increase and thus overcompensate for the positive effect of exports on the current account deficit.

The reduction in the trade deficit in goods (USD 2,166 m) and services (USD 1,287 m) partially offset the pressure on the current deficit. The trade deficit in goods declined with respect to a year ago due to the higher growth in the value of exports (USD 17,028 m) compared to the value of imports (USD 14,862 m). For one thing, the higher prices of coal and crude oil as well as the growth of non-traditional exports (17.3%) account for the increase in merchandise exports.[79] For another, the annual increase in household spending (9.5%) and in gross fixed capital formation (11.8% in machinery and equipment in particular) contributed to the overall increase in purchases of goods abroad[80] although this was at a lower rate than it was for exports. The lower deficit in the balance of services (USD -4,761 m) is the result of the arrival of a greater number of foreign tourists entering the country, in addition to the increase in income from other business services which was partially offset by higher outlays for travel and freight.

The increase in net outflows of factor income (USD 8,486 m) (Table 5.1) is the main reason for the larger foreign imbalance. This result was associated especially with an increase in the profits of companies with FDI (USD 16,002 m). The increase in profits for companies with FDI was widespread across all the sectors with the increase for companies working in oil drilling and mining, financial and business services, and manufacturing being particularly noteworthy. The recovery of the country's economic activity and the higher price of oil and coal favored a better performance of these companies and, therefore, a higher value of the profits remitted abroad. On the other hand, the increase in the balance of external debt and the generalized increase in interest rates generated greater outflows by factorial income of the category 'Other Investment' by USD 1,252 m.

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79 The increase in income from merchandise exports (USD 1,287 m) was generalized and mainly due to higher sales of coal (USD 6,637 m), crude oil and its derivatives (USD 5,525 m), and, to a lesser extent, in sales of industrial products (USD 2,162 m) and coffee (USD 870 m).

80 The rise in the imported value of goods (USD 14,862 m) was broad-based and was caused in particular by higher imports of supplies and capital goods for industry (USD 5,489 m), followed by fuel and lubricants (USD 3,248 m), transport equipment (USD 2,600 m) and consumer goods (USD 2,022 m). During the last quarter of 2022, there were significant drops in imports. This led to a reduction in the current account deficit that went from 7.0% to 6.1% of the GDP between the third and fourth quarters of last year.

Table 5.1
Colombia's Balance of Payments

Current Account (millions of dollars)	2021 (p)	2022 (p)	Change (millions of dollars)
Current Account (A + B + C)	-17,981	-21,446	-3,465
Percentage of the GDP	**-5.7%**	**-6.2%**	
A. Goods and Services	-20,032	-16,579	3,453
1. Goods	-13,984	-11,818	2,166
Exports FOB	42,736	59,764	17,028
Imports FOB	56,719	71,582	14,862
2. Services	-6,049	-4,761	1,287
Exports	8,081	12,733	4,652
Imports	14,129	17,494	3,365
B. Factor Income	-8,723	-17,209	-8,486
Income	5,932	6,850	917
Outlays	14,656	24,059	9,403
C. Current Transfers	10,775	12,342	1,567
Income	11,937	13,716	1,779
Outlays	1,162	1,374	212
Financial Account Annual flows (millions of dollars)	**2021 (p)**	**2022 (p)**	**Change (millions of dollars)**
Financial account with change in foreign reserves (A + B + C + D)	-16,513	-20,460	-3,946
Percentage of the GDP	**-5.2%**	**-5.9%**	
A. Direct Investment (ii - i)	-6,201	-13,327	-7,127
i. Foreign in Colombia (FDI)	9,381	17,048	7,666
Percentage of the GDP (FDI)	**3.0%**	**4.9%**	
ii. Colombian abroad	3,181	3,720	540
B. Portfolio Investment (1+2)	-4,595	265	4,861
1. Public Sector (ii - i)	-9,135	-4,447	4,688
i. Foreign Portfolio Investment (a + b)	8,958	4,852	
a. International markets (bonds)	5,825	542	
b. Local Market (TES)	3,133	4,311	
ii. Portfolio Investment Abroad	-178	405	
2. Private Sector (ii - i)	4,540	4,713	173
i. Foreign Portfolio Investment (a + b)	-611	-1,973	
a. International markets (bonds)	578	-1,422	
b. Local markets	-1,189	-551	
ii. Portfolio Investment Abroad	3,929	2,740	
C. Other Capital Flows public sector + private sector	-6,371	-7,969	-1,598
D. Reserve Assets	654	571	-83
Errors and Omissions (E and O)	1,468	986	-481
Memo items			
Financial account excluding change in foreign reserves	-17,167	-21,031	-3,864
Change in International Reserve	654	571	

(p): provisional
(pr): preliminary
Source: *Banco de la República*.

The pressure on the current account deficit was also offset by an increase in net revenue from current transfers (Table 5.1). This increase (USD 1,567 m) is mainly due to higher workers' remittances (USD 832 m) sent from the United States and the United Kingdom, in an environment of reduced unemployment in these countries. Revenue from other transfers also increased, particularly income from compensation received by state-owned companies.[81]

FDI became the main source of financing from abroad during 2022. During this period, the financial account registered USD 20,460 m in net capital inflows (5.9% of the GDP) which were higher than those seen in 2021 when they totaled USD 16,513 m (5.2% of the GDP) (Table 5.1). Funds received through FDI (USD 17,048 m) are noteworthy, followed by net disbursements from foreign loans and other capital flows (USD 13,093 m), and income from foreign portfolio investment (USD 2,880 m). FDI inflows in 2022 were USD 7,666 m higher than what was received a year earlier. This was evident in most economic activities, especially in the financial and business services sector, where a significant portion of the funds received went to the acquisition of shares of resident firms engaged in food and beverage processing and non-metallic mineral manufacturing. Funds also came in for companies operating in oil drilling and mining and in the transportation and communications sectors.

The financing of the foreign deficit was also supported by net income from foreign loans and foreign portfolio investment. In loans from abroad and other capital flows (USD 13,093 m), net disbursements received by the private sector (USD 9,320 m) and by the public sector (USD 3,773 m) are notable. Foreign portfolio investments for the period under analysis, in turn, were estimated at USD 2,880 m. This was the result of net purchases of fixed-income securities in the local market by non-residents (USD 4,311 m). It was partially offset by net payments of long-term debt securities in international markets (USD 880 m) and net sales of variable-income instruments by non-residents (USD 551 m).

The technical staff forecasts a reduction of the current account deficit to 4.0% of the GDP in 2023 (compared to 6.2% of the GDP in 2022) in line with the expected moderation of domestic demand and the outlook for the country's fiscal adjustment. This improvement may have been due to lower imports that resulted from the slowdown in the Colombian economy, and the lower costs of imported products and international transportation of goods caused by the normalization of global supply chains and other factors. The downward trend of imports in the last quarter of 2022 continued in January when a 5.7% reduction in FOB value was registered compared to what was seen a year ago. The above, together with the positive prospects for exports of services associated with international tourism, will probably lead to a reduction in the country's trade deficit even though a decrease in the value of merchandise exports is expected due to the effect of lower prices for the main traditional export products such as crude oil and coal combined with relatively low production levels as well as the economic slowdown all of our country's trading partners are experiencing. The reduction in the profits of companies with foreign capital, among which the lower profits of companies participating in the mining and energy sectors are the most notable, may have also contributed to the lower current account deficit as a consequence of the reduction in their income. The above would be partially offset in the primary income balance by the higher interest payments on foreign debt. Current transfers, in turn, could

81 The indemnities correspond to transfers received for payment of claims incurred on assets that were reinsured abroad.

limit the reduction of the deficit to the extent that income from current transfers is expected to moderate.

The reduction in the current deficit in 2023 will probably be reflected in the country having a lower net foreign financing need which could be met with different capital flows and in a context of tight financial conditions. Specifically, FDI will probably represent a significant proportion of the current account deficit this year although it is expected to be lower than in 2022 due to the economic slowdown, lower raw material prices and a high base of comparison in 2022 caused by particular transactions for the acquisition of Colombian companies. At the same time, the public sector is expected to acquire new foreign liabilities although to a lesser extent than in previous years This would be in line with the fiscal adjustment expected this year. According to the technical staff's projections, in turn, foreign financing costs are likely to remain unfavorable in 2023 to the degree that international interest rates are likely to be relatively high and the local risk premium stands above its historical averages.

From the macroeconomic point of view, the current account deficit reflects a high imbalance in the public sector. For the public sector, the deficit in the savings-investment balance[82] is estimated to have gone from 7.7% of the GDP in 2021 to 5.3% of the GDP in 2022. This adjustment, however, may have been smaller than the reduction in the private saving-investment balance that would have gone from a surplus of 1.8% of the GDP in 2021 to a deficit of 2.8% in 2022. The projected lower current account deficit will likely be in line with the expected fiscal adjustment in 2023 in view of the trends in public finance forecasts announced by the national government in its most recent Financial Plan. Note that the forecast of the foreign deficit remains highly uncertain given the risks associated with the changes in global and local financial and economic conditions.

5.2 Foreign Reserves

In compliance with Act 31/1992, *Banco de la República* manages the country's foreign reserves in accordance with the public interest, to the benefit of the national economy, and to facilitate the country's payments abroad. Consequently, the law requires that investment of the reserve assets shall be subject to the criteria of security, liquidity, and profitability. The security criterion under which the foreign reserves are managed in Colombia implies proper control of the risk to which the investments are exposed. In order to manage them within acceptable parameters and levels, the Foreign Reserves Committee of *Banco de la República*[83] defines strict limits on each of the various risks that the reserves are exposed to. In order to comply with the liquidity criterion, the Bank invests the foreign reserves in financial assets that are easy to liquidate or in assets with short-term maturities and defines investment tranches on the basis of liquidity and profitability objectives. Once the criteria are defined to ensure that the foreign reserves portfolio is invested at a low risk, the management policy also seeks to achieve a suitable return since this criterion is part of the mandate given to *Banco de la República* by

82 The figures for the savings-investment balance for 2021 come from the annual national accounts by institutional sector. The estimate of this balance for 2022 uses nominal GDP figures and its components obtained from the quarterly national accounts and includes projections by the technical staff for the calculation of public savings and investment.

83 The Foreign Reserves Committee is composed of the Minister of the Treasury and Public Credit or his delegate, the full-time members of the Board of Directors and the Governor.

law. An explanation of the policies that guide the investment of the reserves and some relevant definitions are provided in the Appendix.

The main purpose of the foreign reserves is to protect the country from external shocks that may affect both trade and financial flows and, depending on their magnitude, may jeopardize macroeconomic stability. Trade flows may be affected, for example, by a drastic reduction in exports or an increase in imports that tightens the foreign liquidity situation. Financial flows, in turn, may be affected by difficulties in accessing financing from abroad such as reduced access to international loans, or higher capital outflows from both foreign investors and residents. A country's foreign reserves are a determining factor in the perceived creditworthiness of domestic borrowers, inasmuch as credit rating agencies and foreign lenders consider that a suitable level of reserves would allow residents to meet their obligations in foreign currency such as paying for imports and servicing the foreign debt at a time when the country faces difficulties in accessing foreign financing. Thus, an appropriate level of reserves contributes to improving the risk perception of the country and its residents, and this enables the government and private sector to access international capital markets.

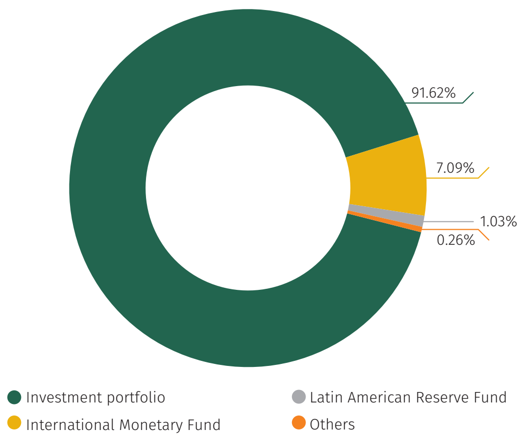
***Banco de la República* holds foreign liquidity buffers in amounts it considers sufficient to meet the aforementioned objective.** To this extent, the importance of having an appropriate level of liquidity in foreign currency to prevent and face external shocks is recognized and different metrics used at the international level are considered. For example, it is desirable for the level of *Banco de la República*'s foreign liquidity to cover the foreign deficit foreign debt payments as well as other potential capital movements.

Net foreign reserves[84] totaled USD 57,269.2 million (m) as of 31 December 2022, which indicated a USD 1,310 m decrease during 2022. The main factor explaining this decrease is the negative profitability obtained as a result of the devaluation of investments caused by increases in short and medium-term interest rates so far this year. The devaluation of other reserve currencies against the U.S. dollar also contributed to the decline in the level of reserves. The return on the foreign reserves during 2022 excluding the foreign exchange component was -1.06% (-USD 613.5 m). This performance is mainly due to the reduction in investment prices due to the sharp increase in the market interest rates in which the foreign reserves are invested. This appreciation effect occurs because there is an inverse relationship between bond prices and interest rates, i.e., the price of bonds declines as interest rates rise. The impact of the decline in the price of investments due to the increase in interest rates is offset over time by the higher interest received by the investments. The impact of the exchange rate effect on the valuation of the reserves was the second factor that contributed to the decline in the level of the foreign reserves.

The main component of the foreign reserves is the investment portfolio. This corresponds to investments in financial instruments on the international market and to the certified physical gold (91.14% and 0.48% of the reserves, respectively). The breakdown of the foreign reserves as of 31 December 2022 is presented in Graph 5.1.

84 The net foreign reserves are equal to the total foreign reserves, or gross reserves, minus *Banco de la República*'s short-term foreign liabilities. The latter consists of demand obligations to non-resident agents in foreign currency. The gross foreign reserves came to USD 57,290.1 m, and the short-term foreign liabilities totaled USD 20.9 m.

Graph 5.1
Breakdown of the Foreign Reserves
(Information as of 31 December 2022



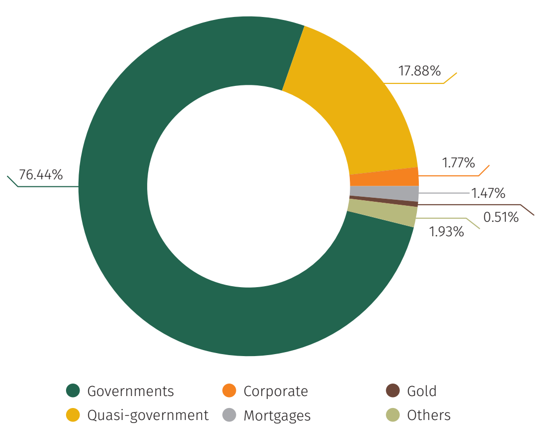
Note: gold is included in the investment portfolio (see section 3.1 of the *Board of Directors' March 2021 Report to Congress*). The item others includes international agreements, cash on hand, and demand deposits.
Source: *Banco de la República*.

5.2.1 Reserve Indicators

The value of foreign reserves fluctuated in line with the international markets, but since the second half of the year they have remained at relatively stable levels and the various indicators used to evaluate them show an appropriate level for the country. Since the foreign reserves are mainly invested in bonds of developed countries, they showed a negative return in 2022 due to the reduction in the prices of these instruments.[85] This was the result of more contractionary monetary policies. However, as a result of investments at higher rates, there was a significant recovery in the return on foreign reserves in the last quarter of the year.

Despite the reduction in the level of foreign reserves, the different indicators for evaluating them show suitable levels for the country. An indicator that is widely used internationally to measure the proper level of foreign reserves is the methodology known as *assessing reserve adequacy* (ARA). This metric is proposed by the IMF and provides that reserves must cover the main risks for the balance of payments during periods of pressure on the foreign exchange market. According to the IMF, this indicator seeks to cover risks associated with a loss of access to foreign financing, a loss of confidence in the local currency, a reversal of capital flows, and a possible collapse of demand from abroad.[86] An economy is believed to be maintaining proper levels of reserves if the ratio of the reserves to the appropriate level is between 1.0 and 1.5. Based on figures from December 2022, the ratio of reserves to the IMF´s appropriate level calculated for Colombia stood at 1.32. Other indicators used for assessing the foreign reserves could give warning signals regarding the external vulnerability of economies. Included among these are the ratios of foreign reserves to monetary aggregates, short-term foreign debt, and the current account deficit. In the case of Colombia, these indicators suggest that the level of reserves was appropriate as of February 2023.

Graph 5.2
Breakdown of the Investment Portfolio by Sector
(information as of 31 December 2022)



Source: *Banco de la República*.

5.2.2 Breakdown of the Investment Portfolio[87]

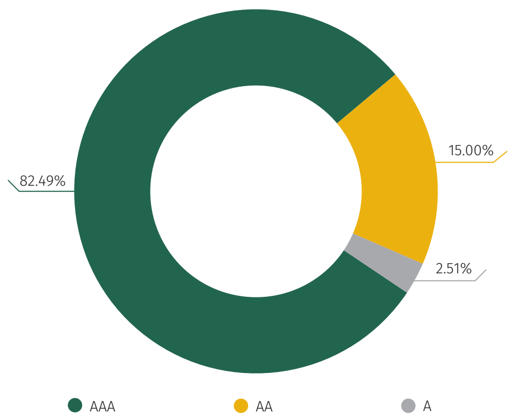
The investment portfolio was mainly composed of securities issued by governments and government-related entities at the close of December 2022. Graph 5.2 shows the breakdown of the investment portfolio as of December 2022 when about 94.32% was invested in bonds issued by these entities.

85 Bond prices move inversely to interest rates. Thus, an increase in interest rates leads to a reduction in the prices of these securities.

86 FMI (2015). "Assessing Reserve Adequacy: Specific Proposals."

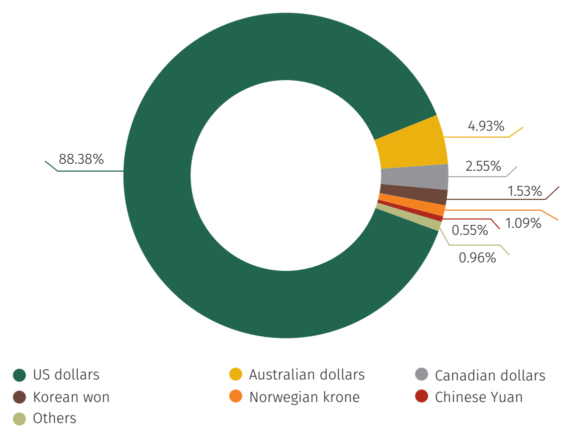
87 The graphs of the breakdown of the portfolio by currency and credit rating were calculated based on the amount in the investment portfolio excluding the gold.

Graph 5.3
Distribution of Investment by Credit Rating
(information as of 31 December 2022)



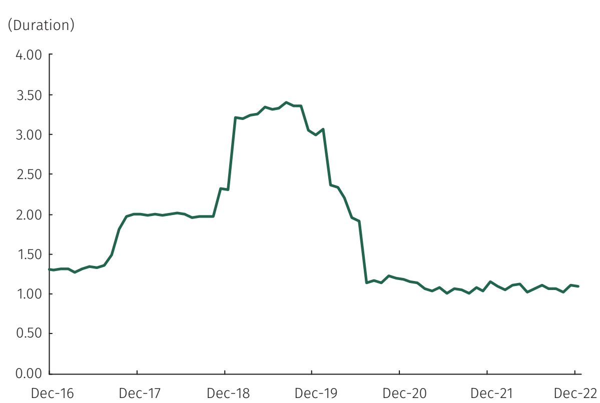
Source: Banco de la República.

Graph 5.4
Currency Breakdown of the Investment Portfolio
(information as of 31 December 2022



Source: Banco de la República.

Graph 5.5
Duration of the Investment Portfolio



Source: Banco de la República.

The breakdown of the portfolio by rating shows the high credit quality of the investments. Graph 5.3 shows that 82.49% of the portfolio is invested in instruments rated AAA and 15.00% in AA. The Bank uses the lowest the investment grade rating granted by at least two of the three main rating agencies (S&P, Moody's, and Fitch Ratings) as a benchmark.

The investment portfolio is made up of currencies that are characterized by their high daily trading volumes and by the fact that they belong to countries with elevated credit ratings. The US dollar is the currency with the highest share. Graph 5.4 shows the foreign exchange breakdown of the investment portfolio as of 31 December 2022. Considering that one of the objectives of foreign reserves is to be able to meet the country's foreign payments during times when foreign financing sources are reduced, the exchange rate breakdown of Colombia's foreign reserves seeks to duplicate the behavior of the country's outflows in the balance of payments. Thus, the reserves attempt to cover the volatility of the country's payments abroad that comes from exchange rate movements. The largest share of Colombia's foreign reserves is in US dollars because the majority of the country's commercial and financial transactions with the rest of the world are carried out in this currency. Investment in the following currencies is also allowed: Canadian, Australian, New Zealand dollars; Swedish krona; the pound sterling; Swiss franc; euros; yen; Norwegian krone; the reminbi; Hong Kong and Singapore dollars, and Korean won.

As of 31 December 2022, the investment portfolio had a duration[88] of 1.12, which means that the value of the portfolio could be lowered by 1.12% in the event of a 1.0% increase in the rates of all the bonds in the portfolio. The change in the duration of the investment portfolio can be seen in Graph 5.5. The decrease in duration that occurred during 2019 and 2020 was due to the Bank's preemptive adjustment of the portfolio breakdown to invest in instruments with a lower sensitivity to interest rate increases. This made it possible to limit the negative impact on the portfolio's valuation due to the sharp increase in interest rates that occurred during 2022.

5.2.3 Profitability of the Reserves

The profitability of the reserves depends primarily on two factors: interest and appreciation. The first corresponds to the interest received from the instruments invested in while the appreciation factor corresponds to the change in the prices of the securities due to movements in interest rates. This second factor occurs because there is an inverse relationship between bond prices and interest rates, i.e., the price of bonds declines as interest rates rise and vice versa.

88 The effective duration is a measurement of risk defined as a percentage decrease (increase) in the value of the portfolio with respect to a 1.0% increase (decrease) in the interest rates.

The foreign reserves had a return of -1.06% as of December 2022.[89] This was mainly due to the devaluation of investments after the rapidly increasing interest rates in the markets in which the reserves are invested (appreciation factor). Expectations of increases in benchmark policy rates by central banks due to concerns about an upward trend seen in inflation data towards levels above the defined targets in several countries, and the measures taken by monetary authorities in response to such inflation levels led to a sharper increase in interest rates in markets relevant to foreign reserves. In the United States, for example, two-year government bond rates rose about 230 bp during 2022. This rapid increase in interest rates has negatively affected the profitability of the reserves during the majority of the year and thus generated devaluations in the investments. However, higher levels in the interest rates abroad had a positive impact on the profitability of foreign reserves through higher interest received on investments (interest factor) during the latter part of the year. Nevertheless, they were not enough to offset the devaluations seen in the first few months of the year. The negative performance of the foreign reserves was widespread across several economies because it was mainly explained by global factors.

With interest rates in international markets at high levels with respect to those seen in recent years, the foreign reserve investments are expected to generate higher interest (interest factor) in 2023, and this will be the main factor determining the year's profitability. The negative performance of foreign reserves up to this point in 2022 came from the occurrence of low probability risks that emerged during the year and that generated an impact due primarily to the effect of the sudden increase in interest rates on the devaluation of securities. However, this extraordinary increase in international interest rates that caused the devaluations in 2022 occurred in a context of historically high levels of global inflation that were well above the targets of most central banks. This will increase the interest received on investments in 2023, but in the medium term. As global inflation levels decrease, interest rates on sovereign debt securities will tend to fall and thus generate both investment appreciation and lower interest received.

The outlook for the profitability of foreign reserves is favorable for 2023 given the higher level of interest that the portfolio's assets will receive. Furthermore, the possibility of devaluations as a result of higher increases in interest rates seems lower this time than in previous periods, considering the fact that inflation has begun to ease in the world's main economies and the monetary authorities have shown signs of ending the upward cycle of their monetary policy rates in the coming months.

5.2.4 Measures to Reinforce International Liquidity

The IMF approved a new two-year Flexible Credit Line (FCL) arrangement for Colombia for USD 9,800 m in April 2021. This agreement, which is equivalent to 350% of Colombia's quota at the Fund complements the country's external liquidity, provides insurance against external tail risks, and preserves the agents' confidence in the Colombian economy. All of the above facilitates the country's access to international financial markets under favorable conditions.

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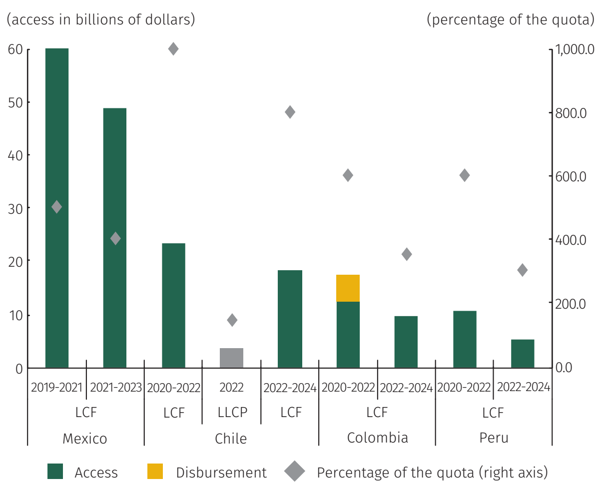
89 This profitability is obtained by dividing the actual return by the average value of the net reserves on 31 December 2021 and on 31 December 2022. Since 2015, the impact of the exchange rate effect on the profitability of the reserves has been excluded.

The FCL is an instrument designed by the IMF to support countries with a sound monetary, fiscal, and financial policy framework and a favorable track record of economic performance in the event of a potential critical balance of payments need. The primary objective of the FCL is to provide beneficiary countries with immediate access to liquidity in the event of extreme external risks. The current scenario, characterized by great uncertainty and global volatility, poses relevant risks that highlight the importance of maintaining adequate levels of external liquidity.

Colombia has had access to the FCL since 2009. The country's sound framework for macroeconomic policy and prudent management of the economy have enabled it to benefit from successive agreements under the instrument. This has been possible because the country continues to meet the required access criteria.[90] In this regard, the IMF Board has highlighted the strength of the country's economic policy frameworks that include a credible inflation targeting regime, a flexible exchange rate, a fiscal policy framework anchored in sustainable public debt, and effective financial sector regulation and supervision. Access to the line represents a positive signal regarding the stability, good performance, and resilience of the Colombian economy. This has increased international confidence in the country. Mexico, Colombia, Peru, and Chile currently have agreements in force with the IMF under this instrument (Graph 5.6).

Graph 5.6
Recent FCL Agreements



Sources: IMF and *Banco de la República*.

The current arrangement, which replaced the previous one approved in 2020, is considered by the Colombian authorities to be a temporary, precautionary financing line. Therefore, the country is committed to a gradual exit process as long as conditions allow it. The reduction in access under the current agreement to an amount equivalent to 350% of the quota (vis-à-vis the 417% in the 2020 agreement) held for precautionary purposes is in line with this exit process and is the result of an expected decrease in external vulnerabilities. The four countries that have current access to this facility have reduced their level of access in their current agreements relative to their previous agreements[91] (Graph 5.6).

90 These criteria are: 1) a sustainable external position; 2) a capital account in which private flows predominate; 3) a history of access to the international capital markets under favorable terms; 4) a relatively large level of reserves when requesting FCL for precautionary reasons; 5) sound public finances (including sustainable public debt conditions); 6) low and stable inflation in a context of a sound monetary and exchange rate policy framework; 7) a sound financial system and the absence of bank solvency issues that pose a systemic threat to the stability of the banking system; 8) effective oversight of the financial sector; and 9) integrity and transparency of information.

91 Mexico, Colombia, Peru, and Chile currently have access to FCL funds equivalent to 400%, 350%, 300%, and 800% of their respective quotas in the organization. Their immediately preceding agreements were equivalent to 500%, 600%, 600%, and 1,000% of their quotas respectively. Note that Chile cancelled the instrument in the period between its current agreement and its previous FCL agreement and replaced it with a short-term line of liquidity (LLCP) for an amount equivalent to 145% of its quota.

Colombia's mid-term review under the IMF's FCL arrangement is currently underway to ensure that the country is still in compliance with the conditions for access to this instrument. One year after the renewal of the FCL, the outlook abroad seems to be a little more favorable although the prospects are accompanied by a high level of uncertainty. While international financial conditions have improved for Colombia, the expected global slowdown, coupled with geopolitical tensions, means that the level of external risks remains high. Hence, it is desirable to have sufficient external buffers to complement the coverage provided by our level of foreign reserves.

Moreover, *Banco de la República* also has access to the Federal Reserve repo facility (FIMA), which is an instrument that enables access to immediate liquidity if required under extreme circumstances. In these transactions, FIMA account holders (central banks and other international monetary authorities with accounts at the Federal Reserve Bank of New York) exchange their U.S. Treasury bonds held in custody at the Fed for U.S. dollars with the commitment to repurchase the securities the next day and pay the interest. The primary benefit that access to the FIMA repo facility has for *Banco de la República* is to have immediate liquidity in US dollars without having to sell off the assets of the foreign reserve portfolios permanently, thus mitigating the liquidity and market risks. *Banco de la República* would use this repo facility only in the event that it has decided to sell dollars on the spot market and the market for buying and selling Treasury bonds be highly illiquid at the time.

Shaded section 2
Share of the Bank for International Settlements (BIS) held by *Banco de la República*

In compliance with Act 1484/December 12, 2011, which authorized *Banco de la República*'s incorporation as a shareholder of the Bank for International Settlements (BIS),[1] this section summarizes the most relevant activities carried out with that entity in recent months. Based on the authorization conferred on it, the Central Bank acquired 3,000 shares of the BIS for a price of 65,712,000 in special drawing rights (SDR), which is equivalent to USD 100,978,710 that are registered on the financial statements of the Bank at their acquisition cost in SDR under "contributions to international organizations and entities."

The Board Members of *Banco de la República* have participated actively in the periodic meetings held by the institution in which recent events and the outlook for the global economy and financial markets are examined. The most recent discussions at the meetings of BIS member country governors have focused on various topics such as the developments in growth and inflation; disruptions in global value chains and trade; the implications of commodity price shocks; the risks to inflation; recent exchange-rate developments, and the risks of cryptoassets.

Within the framework of the work coordinated by the BIS Consultative Council for the Americas (CCA), the Bank actively participates in research projects, groups, and conferences on various areas relevant to central banks. For example, within the framework of the Scientific Committee (which includes the chief economists of the respective central banks), the BIS organized the Annual Research Conference in November 2022. The conference focused on structural changes in inflation and output dynamics after the pandemic and other shocks. The annual meeting of the working group on monetary policy in Latin America, which brings together the chief economists of the region's central banks, was also held at the end of last year. The international environment and contagion effects, growth and inflation in Latin America, and the policy response were discussed.

1 This international institution was created in 1930 and currently includes 63 central banks around the world. Its mission is to serve central banks in their quest for monetary and financial stability by fostering international cooperation in these areas as well as to serve as a bank for member central banks. Its headquarters are located in Basel, Switzerland, and it has two representative offices: one in Hong Kong and another in Mexico City.

Regarding BIS consultative groups that do research and analysis in areas such as financial stability and banking operations, the Consulting Group on Innovation and the Digital Economy (CGIDE) published the report titled *API Standards for Data-sharing (Account Aggregator)*[2] in October 2022. Likewise, the publication of the report *Incorporating Climate-related Risks into Foreign reserve Management Frameworks*[3] by the Risk Management Advisory Group (CGRM) in July 2022 is also noteworthy. The topics on which the CGRM will be working in 2023 were pre-selected at the end of last year. These will focus primarily on risk models, risk appetite, financial risks, cyber risks, measuring value-added risk management, and risks of central bank digital currencies (CBDC). *Banco de la República* participates in the two consultative groups.

Furthermore, the CCA organized the third and sixth edition of the two roundtables between CCA member governors and private sector representatives late last year. The participants included CEOs of financial institutions and New York-based chief economists and strategists for Latin America, who discussed the economic outlook for the region, the implications of high interest rates, the challenges for local capital markets, the pace of inflation convergence towards the target across the region, the risks of high inflation, benchmarks to assess the monetary policy stance in the region, the performance of financial conditions, and exchange rates of the countries in the region.

A high-level conference was also held in November 2022 to commemorate the twentieth anniversary of the Representative Office for the Americas. Sixteen central bank governors from the region participated in the meeting, including the Governor of *Banco de la República*. The topics discussed at the conference focused on getting inflation back on target, addressing the challenges of digitization of the financial system, and growth and trade challenges for the Americas.

Finally, several representatives of the Bank had the opportunity to attend various meetings. In addition to others, the Bank participated in: 1) a conference on big tech in finance, in which the implications for pru-

2 The report is available at: https://www.bis.org/publ/othp56.htm

3 The report is available at: https://www.bis.org/publ/othp54.pdf

dential policy, financial stability, and competition were discussed; 2) the third edition of the *BIS Innovation Summit*, which focused on technological innovation in times of uncertainty, and 3) a conference of Official Sector Service Providers (OSSPs) organized by the BIS and *Banco de Mexico* that was designed to provide training on banking and custody account services and to address the challenges of cross-border reserves and payments.

06/ Financial Situation of *Banco de la República*

6.1 Financial Position of *Banco de la República* (balance sheet)[92]

During 2022, the Bank's balance sheet expanded significantly. At the close 2022, the Bank's assets registered a balance of COP 331,710 b which was COP 39,875 b (13.7%) higher than what was seen in December 2021. The liabilities, in turn, amounted to COP 189,609 b with a COP 6,129 b increase compared to the end of the previous year (3.3%), and the equity totaled COP 142,101 b which is COP 33,746 b higher than what had been registered the year before (Table 6.1).

The increase in assets is mainly caused by the effect of the exchange rate on the valuation of foreign reserves in pesos. Foreign reserves are *Banco de la República*'s main asset. Although its balance in dollars decreased (USD 1,298 m for gross reserves),[93] its balance expressed in pesos rose COP 42,329 b (18.1%) compared to the end of 2021 as a result of the depreciation of the Colombian peso against the reserve currencies.[94] Note that the Bank did not make any purchases or sales of foreign currencies on the foreign exchange market during 2022. The second most important component of the Bank's assets is the investment portfolio in local currency that rose COP 3,920 b due to the purchases of TES in the secondary market as of June (COP 12.137 b in purchase value),[95] which offset the devaluations of the portfolio, the maturities (of TES and private debt securities[96]), and the delivery of TES at market prices to the national government as part of the payment of the profits to be distributed for the year 2021.[97]

Liabilities increased mainly because of the increase in the monetary base. The main component of liabilities is the monetary base. This was COP 154,744 b at the end of 2022 and COP 9,362 b higher than it was at the end of 2021.[98] The balance of obligations with international organizations (the second largest component of liabilities), in turn, rose COP 2,090 b during the year as a result of the variation in the

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92 In this section, the line items are shown by economic rather than by accounting criteria. With respect to the financial statements presented to the Office of the Financial Superintendent of Colombia and the National General Accounting Office, the differences are: first, the assets discount the value of the liabilities associated with purchase transactions for the foreign reserves portfolio for which payment has not yet been made has been discounted (this is registered as a higher value of the asset in the Bank's financial statements and as a requirement of the foreign reserves under liabilities); second, the coins in circulation, which are not part of the accounting information on the Bank's balance sheet, are included in the assets and liabilities in this section; and third, other reclassifications of lower value accounts. In this respect, the asset and liability values presented in this *Report* (COP 331,710 b and COP 189,609 b respectively) differ from those registered in the Bank's financial statements as of 31 December 2022 (COP 339,118 b and COP 197,018 b).

93 The dollar balance of foreign reserves fell due to both a devaluation of the assets of which it is composed and the appreciation of the dollar against other reserve currencies (see Chapter 5.2: Foreign Reserves).

94 The Colombian peso depreciated against the main reserve currencies: US dollar (21%), Korean won (14%), Australian dollar (13%), Canadian dollar (13%), euro (13%), and Norwegian krone (8%), etc.

95 See the shaded section Monetary Base and M3.

96 In the case of private debt securities, maturities of CDs and bonds issued by credit institutions, which the Bank acquired in 2020, are being observed.

97 Pursuant to the provisions of Act 2159/2021 article 26, *Banco de la República* submitted COP 556 b in TES to the national government in March 2022. See https://www.banrep.gov.co/es/banco-republica-obtuvo-utilidad-632-mil-millones-mm-2021

98 See the shaded section Monetary Base and M3.

Table 6.1
Financial Position of Banco de la República classified by Economic Criteria
(billions of pesos)

Accounts	December, 2021		December, 2022		Change	
	Balance	Percentage share	Balance	Percentage share	Absolute	Percentage
Assets	291,835	100.0	331,710	100.0	39,875	13.7
Gross Foreign reserves	233,247	79.9	275,577	83.1	42,329	18.1
Share in international entities and organizations	10,493	3.6	8,722	2.6	-1,771	-16.9
Investments	32,187	11.0	36,107	10.9	3,920	12.2
TES	30,989	10.6	35,909	10.8	4,920	15.9
Private debt securities	1,198	0.4	198	0.1	-1,000	-83.5
Repo transactions	10,122	3.5	5,297	1.6	-4,825	-47.7
Other net assets	5,784	2.0	6,007	1.8	222	3.8
Liabilities and equity	291,835	100.0	331,710	100.0	39,875	13.7
Liabilities	183,480	62.9	189,609	57.2	6,129	3.3
Foreign-currency liabilities that affect foreign reserves	33	0.0	26	0.0	-7	-22.5
Monetary Base	145,383	49.8	154,744	46.7	9,362	6.4
Cash	108,599	37.2	115,898	34.9	7,298	6.7
Reserve	36,783	12.6	38,847	11.7	2,063	5.6
Interest-bearing deposits not constituting reserve requirements	3,349	1.1	2,020	0.6	-1,329	-39.7
Other deposits	146	0.1	59	0.0	-87	-59.9
National Government (National Treasury Office L/C)	10,966	3.8	7,068	2.1	-3,898	-35.5
Obligations to international organizations	23,603	8.1	25,693	7.7	2,090	8.9
Total equity	108,355	37.1	142,101	42.8	33,746	31.1
Capital	13	0.0	13	0.0	0	0.0
Reserve	764	0.3	744	0.2	-20	-2.6
Surplus	109,253	37.4	149,765	45.1	40,512	37.1
Foreign exchange adjustment[a/]	108,398	37.1	150,832	45.5	42,434	39.1
Special foreign-exchange account settlement	453	0.2	453	0.1	0	0.0
Investment in assets for cultural activities	334	0.1	356	0.1	22	6.6
Transfer to international organizations	0	-	-1,943	-0.6	-1,943	-
Cumulative effect of accounting change	67	0.0	67	0.0	0	0.0
Other comprehensive income (OCI)	-2,088	-0.7	-10,047	-3.0	-7,960	381.2
Results	632	0.2	1,771	0.5	1,140	180.4
Exercise Results	632	0.2	1,506	0.5	875	138.4
Retained earnings from Prior Years due to Change in the Accounting Treatment of Foreign reserves	0	-	265	0.1	265	-
Cumulative results (effect of change in accounting policies)	-188	-0.1	-145	-0.0	42	-22.6
Accumulated results of process of convergence with IFRS	-31	-0.0	0	-	31	

Note: In this table, the line items are shown by economic and not accounting criteria. With respect to the financial statements presented to the Office of the Financial Superintendent of Colombia and the National General Accounting Office, the differences are: first, the assets discount the value of the liabilities associated with purchase transactions for the foreign reserves portfolio for which payment has not yet been made has been discounted (this is registered as a higher value of the asset in the Bank's financial statements and as a requirement of the foreign reserves under liabilities); second, the coins in circulation, which are not part of the accounting information on the Bank's balance sheet, are included in the assets and liabilities in this section; and third, other reclassifications of lower value accounts. In this respect, the asset and liability values presented in this Report (COP 331,710 b and COP 189,609 b respectively) differ from those registered in the Bank's financial statements as of 31 December 2022 (COP 339,118 b and COP 197,018 b respectively).
a/ Includes the exchange rate adjustment of the net foreign reserves, liabilities with the IMF (SDR allocations) liabilities with FLAR (Andean pesos).
Source: *Banco de la República*.

exchange rate since the balance in dollars remained relatively constant. Last of all, the national government's peso deposits[99] presented a reduction of COP 3,898 b.

Last of all, the equity rose due, in particular, to the positive change in the foreign reserves foreign exchange adjustment. The exchange adjustment account had a positive variation of COP 42,434 b at the end of 2022, as a result of the increase in the peso balance of foreign reserves and the higher value of obligations with international organizations registered in liabilities.[100] The above was offset, in part, by: 1) the other comprehensive income (OCI) account for which the balance fell COP 7,960 b due to unrealized yields on TES held by the Bank (-COP 6,049 b) and the change in accounting for the valuation of foreign reserves in accordance with Decree 2443/December 2022 (-COP 1,900 b),[101] 2) due to the transfer of shares in international organizations that are not part of the COP 1,943 b in foreign reserve assets to the national government,[102] and 3) the transfer of COP 556 b in profits to the national government, charged against the results of 2021. The results for 2022 amounted to COP 1,771 b and included the result of COP 1,506 b for the fiscal year and the accumulated gains from previous years due to the change in the accounting treatment of foreign reserves of COP 265 b (Table 6.1).[103]

6.2 Income Statement (L&P)

6.2.1 Close of December 2022

At the close of December 2022, *Banco de la República*'s profits came to COP 1,506 b as a result of COP 4,448 b in income[104] and COP 2,942 b in expenditures (Table 6.2). Compared to 2021, the profit was COP 875 b higher because of COP 2,057 b in higher revenue and COP 1,182 b in higher expenses. It should be mentioned that there was a change in the accounting treatment of the return on foreign reserves in 2022. Therefore, the result for the year 2022 is not comparable with the one for 2021 with respect to this concept.[105]

The income seen in 2022 was higher than in 2021, mainly due to the yield of the TES portfolio held by the Bank. Revenue registered in 2022 presented an annual change of COP 2,057 b, especially due to COP 2,007 b in higher monetary income resulting from: 1) a higher yield on TES held by the Bank (COP 1,487 b),[106] and 2) hi-

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99 These deposits are made through the General Office of Public Credit and the National Treasury at *Banco de la República*. Interest-bearing and other deposits such as the cashier account as well as accrued interest that has not yet been paid by *Banco de la República* are included.

100 Includes the COP 44,689 b exchange adjustment of net foreign reserves that is partially offset by the foreign exchange adjustment of liabilities with the IMF for SDR allocations (COP 2,238 b) and liabilities with FLAR for Andean pesos (COP 17 b).

101 See shaded area, Change in the accounting treatment of foreign reserves.

102 Act 1955/2019 article 50 https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=93970

103 See shaded area, Change in the accounting treatment of foreign reserves.

104 In the case of the yield on foreign reserves, monetary income is presented net (income - expenditure). For presentation purposes, a negative return on foreign reserves is shown as an expense on the Bank's income statement.

105 See shaded area, Change in the accounting treatment of foreign reserves.

106 Due to higher average volume and higher purchase interest rate (purchase PIR).

Table 6.2
Banco de la República's Income Statement for 2022
(billions of pesos)

	Implemented:		Change	
	2021	2022	Absolute	Percentage
I. Total Income (A+B+C)	2,391	4,448	2,057	86.0
A. Monetary income	1,843	3,850	2,007	108.9
1. Interest and returns	1,534	3,710	2,176	141.8
Foreign reserves	-413	-332	81	-19.7
Monetary Regulation Investment Portfolio (TES)	1,511	2,997	1,487	98.4
Active Monetary Regulation Operations (Repos)	249	1,005	756	303.6
Transactions in other private debt securities	159	40	-118	-74.6
Foreign Exchange Regulation Transactions	29	0	-29	-100.0
Other operations	0	0	-0	-100.0
2. Foreign exchange differences	299	135	-163	-54.7
3. Other monetary income	10	5	-6	-54.9
B. Face value of the coins issued	309	316	7	2.2
C. Corporate income	239	282	43	18.2
1. Commissions	203	241	38	18.7
Banking services	57	75	18	31.2
Fiduciary operations	146	166	20	13.9
2. Other corporate income	35	41	5	15.2
II. Total expenditures	1,759	2,942	1,182	67.2
A. Monetary expenditures	787	1,805	1,018	129.4
1. Interest and returns	581	1,643	1,062	182.9
Government Interest-bearing Deposits (DGCPTN)	493	1,586	1,093	221.7
Liability Transaction Deposits for Monetary Regulation	39	57	18	47.3
Foreign Exchange Regulation Transactions	49	0	-49	-100.0
2. Costs of Management and Handling of Funds Abroad	46	48	2	4.2
3. Commitment fee for IMF flexible credit	128	103	-25	-19.4
4. Foreign exchange differences	31	10	-21	-68.9
5. Other monetary expenditures	1	1	0	9.7
B. Spending on banknotes and coins	273	334	60	22.1
C. Corporate expenditures	699	801	102	14.6
1. Personnel costs	447	517	71	15.8
2. Overhead	128	155	28	21.5
3. Other Corporative	125	129	4	3.0
D. Gastos de pensionados	0	2	2	n. a.
III. Operating results (I - II)	632	1,506	875	138.4

n.a. Not applicable
Source: *Banco de la República*.

gher interest from expansion repo transactions (COP 756 b).[107] In addition, income from the face value of the currency issued was COP 316 b, and corporate income was COP 282 b. This was due to the change in the accounting treatment of foreign reserves pursuant to Decree 2443/December 12, 2022. In particular, the total return on foreign reserves was -COP 1,967 b of which -COP 332 b were registered on the P&L and -COP 1,635 b that corresponded to unrealized returns on the portfolio under the passive management mandate (passive portfolio) of foreign reserves were registered in the OCI account under the Bank's equity.[108]

Expenses, in turn, were higher than those from the previous year because, primarily, of the remuneration paid on the national government's deposits in the Bank. Expenses were COP 1,182 b higher in 2022, specifically due to the higher value of monetary expenditure (COP 1,018 b) and, in particular, due to the increase in interest on government deposits at the Bank (COP 1,093 b)[109] that resulted from the higher rate of remuneration, partly offset by the lower average volume of its balance.[110] The corporate outflows, in turn, came to COP 801 b and were COP 102 b higher than the ones registered in 2021 (14.6%, equivalent to 4.0% in real terms). The latter can be explained by: 1) personnel expenses, COP 517 b with an increase of 15.8% (5.1% in real terms) and those related to a retirement plan resulting from the transformation of six branches into cultural agencies were included;[111] 2) overhead expenses, COP 155 b, with an annual increase of 21.5% (10.3% in real terms), and 3) other corporate expenses, COP 129 b with an annual change of 3.0% (-6.5% in real terms).

6.2.2 Outlook for 2023

The budget for 2023 was approved by the BDBR in December 2022 with the prior approval of the Fiscal Policy Board (*Consejo Superior de Política Fiscal* - Confis) with regard to the implications for public finances. *Banco de la República*'s budget has two main components: monetary and corporative. The former includes the results of responsibilities such as monetary, foreign exchange, and credit authority; manager of the foreign reserves; banker and lender of last resort for credit institutions; and issuing bank. The corporate results include the administrative management of the Bank such as, for example, income from commissions, personnel costs, operating expenses, and pensioner expenses.

A profit of COP 11,004 b is anticipated for 2023 and will be much higher than what was seen during 2022. This projection is the likely result of a significant increase in monetary revenue in an international environment of high interest rates and corresponds to COP 15,651 b in estimated revenue of and COP 4,647 b in expenditures of (Table 6.3).

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107 The average daily volume of these transactions was COP 14,343 b in the January-December 2022 period and COP 11,988 b in the same period of 2021. For these same dates, the average annual rates of return were 7.25% and 2.10% respectively.

108 See shaded area, Change in the accounting treatment of foreign reserves.

109 This value considers the remuneration of both deposits and interest-bearing cash accounts of the General Office of Public Credit and the National Treasury (DGCPTN in Spanish).

110 Between January and December 2022, the average balance was COP 22,533 b and the average interest rate for the remuneration of these deposits was 7.29% compared to COP 25,556 b and 1.95% respectively during the same period in 2021.

111 The transformed branches were Ibague, Monteria, Pasto, Riohacha, Quibdo, and Leticia. When this retirement plan was subtracted from corporate and personnel expenses, the nominal annual increases were 10.5% and 9.5% respectively.

Note that the estimated result assumes an extraordinary nature in the expected level of profits which, in fact, corresponds to the highest projected value of *Banco de la República*'s results since 1994. Nevertheless, it is also important to note that this forecast is subject to the inherent risks derived from the performance of the assumptions considered in its calculation, especially those related to the yield on foreign reserves, followed by the projected income for the expansion repo transactions. In particular, to the extent that there are increases in the foreign interest rates of the securities in which the reserves portfolio is invested (in addition to those already included in this projection),[112] the projected yield of these reserves would probably be lower than what is considered in this estimate. Furthermore, if the growth of the monetary base turns out to be lower than the assumption included in this forecast, the expansion repo income would also be reduced. These are the main risks that could reduce the results estimated here.

A significant increase in the Bank's revenue is expected during 2023. The approved budget for 2023 considers an annual COP 11,955 b (390%) increase in monetary revenue compared to the budget approved in 2022, especially as a result of a higher estimated return of COP 9,466 b on foreign reserves.[113] As has been mentioned in this Report, this would derive from high interest rates in the international markets as a consequence of a strong monetary policy response to the inflationary phenomenon the global economy is facing. There is also likely to be higher income from interest on repo transactions (COP 1,566 b),[114] and from yields on TES held by the Bank (COP 1,059 b).[115] Income from the face value of the coins issued, in turn, could have an annual change of COP 96 b and corporate income of COP 38 b.

Meanwhile, an increase in expenses is anticipated due mainly to the remuneration of the national government's deposits. In 2023, a COP 1,371 b increase in monetary outflows is forecast as a result, primarily, of the higher remuneration of the national government deposits in the Bank (COP 1,345 b).[116] Moreover, higher expenses are projected for issuing and putting monetary species (COP 163 b) into circulation, including their dissemination, and for corporate expenses (COP 65 b).

6.3 Reserve Accumulation and Profit Distribution

According to the Bank's legal framework contained in the Constitution, Act 31/1992, and the Bank's by-laws, once the net investment in goods for cultural activity is discounted and the statutory reserves are appropriated, the remainder of the profits will belong to the nation. As was mentioned, the results for the year 2022 amounted to COP 1,771 b, and included the COP 1,506 m result for the fiscal year 2022 and the accumulated gains from previous years due to the COP 265 b change in the accounting treatment of foreign reserves (Table 6.4).

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112 For this forecast, the yield curves as of 31 October 2022 for the United States, Australia, Canada, New Zealand, Norway and Korea were taken, and a 100% probability of a 25 bp increase in foreign interest rates at the end of 2022 and at the end of 2023 was considered, resulting in a 50 bp increase over the two years.

113 To clarify, as was mentioned above, the criterion for calculating the return on foreign reserves is different for the 2023 budget compared to the 2022 budget due to the change in the accounting treatment of this return (see the shaded area, Change in accounting treatment of foreign reserves).

114 Generated by the higher remunerative interest rate and the higher average volume projected for these transactions.

115 Result of the higher average interest rate.

116 Due to both higher interest rates and an increase in the average balance.

Table 6.3
Banco de la República's Budget, 2023
(billions of pesos)

	Approved Budget		Change	
	2022 (A)	2023 (B)	Absolute	Percentage
I. Total Income (A+B+C)	3,562	15,651	12,089	339.4
A. Monetary income	3,066	15,020	11,955	390.0
1. Interest and returns	2,943	14,998	12,055	409.6
Foreign reserves	-931	8,535	9,466	n. a.
Monetary Regulation Investment Portfolio (TES)	2,661	3,720	1,059	39.8
Active Monetary Regulation Operations (Repos)	1,176	2,742	1,566	133.2
Transactions in other private debt securities	37	1	-36	-97.0
2. Foreign exchange differences	118	17	-101	-85.7
3. Other monetary income	4	5	1	21.2
B. Income from coins issued	241	337	96	40.1
C. Corporate income	256	294	38	14.8
1. Commissions	235	253	18	7.6
Banking services	77	76	-1	-0.9
Fiduciary operations	158	177	19	11.7
2. Other corporate income	21	41	20	95.4
II. Total expenditures (A+B+C+D)	3,053	4,647	1,595	52.2
A. Monetary expenditures	1,815	3,186	1,371	75.6
1. Interest and returns	1,581	2,965	1,385	87.6
Government Interest-bearing Deposits (DGCPTN)	1,522	2,867	1,345	88.4
Liability Transaction Deposits for Monetary Regulation	59	98	39	66.8
2. Costs of Management and Handling of Funds Abroad	80	93	13	16.4
3. Commitment fee for IMF flexible credit	104	114	10	9.5
4. Foreign exchange differences	42	8	-34	-81.0
5. Other monetary expenditures	8	6	-2	-26.4
B. Spending on banknotes and coins	327	490	163	49.7
C. Corporate expenditures	901	966	65	7.2
1. Personnel costs	550	584	35	6.3
2. Overhead	182	219	37	20.1
3. Other Corporative	165	158	-7	-4.3
4. Flexible budget availability	4	5	0	7.2
D. Pensioners' expenses	9	5	-4	-43.3
III. Fiscal year result (I – II)	510	11,004	10,494	2,059.0

n.a. Not aplicable
Source: *Banco de la República*.

Table 6.4
Distribution of Profits
(billions of pesos)

	Distribution of Profits in 2023
A. Results 2022	1,771
Results for fiscal year 2022	1,506
Retained earnings from Prior Years due to Change in the Accounting Treatment of Foreign reserves	265
B. More Use of Equity Reserves	0
C. Minus the Allocation of Equity Reserves	0
D. Minus Other Deductions	162
Net Investment in Cultural Activity Goods	17
Loss due to the adoption of IFRS 9 (change in accounting policy on TES held by *Banco de la República*)	145
Net Result in favor of the national government: A + B – C – D	1,609

Source: *Banco de la República.*

Based on this result, the project for transferring profits to the government that was submitted to the BDBR for their consideration in February 2023 considered the following points:

1. In accordance with Act 31/1992 and the Bank's bylaws,[117] the use and constitution of equity reserves was not required.

2. The value of the net investment in cultural assets in 2022 amounted to COP 17 b which, in accordance with the paragraph in the Bank's Bylaws, Article 62,[118] must be deducted from the profit to be transferred to the national government.

3. The transfer of the net value of COP 120 b in accumulated earnings carried forward from previous years. This value considered the distribution of COP 265 b that arose from the change in the accounting treatment of foreign reserves already mentioned, and the collection of COP 145 b of the pending loss generated by the accounting reclassification of the monetary intervention TES portfolio carried out in 2018.[119]

As per the above, the BDBR approved the profit distribution project in February 2023, and, at the end of March, the Bank transferred COP 1,609 b to the national government, mostly in the form of TES.

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117 Issued by means of Decree 2520/1993.

118 In accordance with this article, the profit to be transferred or the loss to be borne by the government is defined as the result of subtracting the expenses, including depreciation, and the expenses destined to meet the Bank's operation and investment for the fulfillment of its cultural and scientific functions from the Bank's income.

119 The TES portfolio held by the Bank was reclassified in 2018 from the "fair value through profit or loss" category to "fair value through changes in OCI." This resulted in an accumulated loss of COP 512 b from previous years. Of this amount, the Bank has deducted COP 366 b from the profit transfer made between 2019 and 2022.

Shaded section 3
Change in the Accounting Treatment of Foreign Reserves

The main items that, as of 31 December 2022, made up the assets that constitute the foreign reserves and their share of the total are shown in Diagram S3.1:

The investment portfolio of foreign reserves, which accounts for the largest share, is characterized by the fact that it is available for immediate use. Contributions to the International Monetary Fund (IMF) and the Latin American Reserve Fund (FLAR) enable Colombia to maintain access to its contingency credit lines. The payment and reciprocal credit agreements signed within the framework of the Latin American Integration Association (LAIA) facilitate trade between member countries.

Banco de la República prepares its financial statements based on the principles established in the International Financial Reporting Standards (IFRS) in force in Colombia in accordance with the accounting framework established by the National General Accounting Office except for the following aspects that constitute exceptions to the application of IFRS:

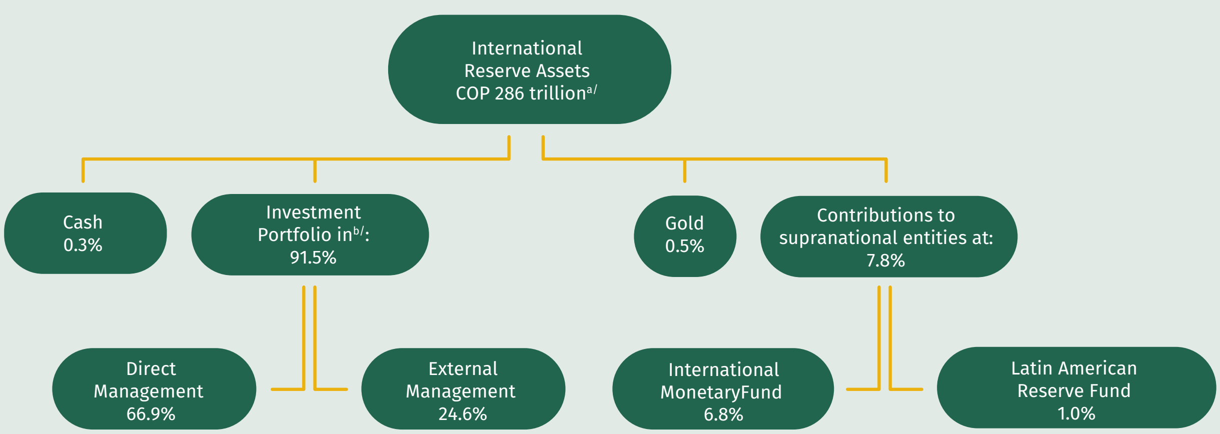
1. Aspects that are contrary to the special regime contained in Act 31/1992 and in its bylaws, issued under Decree 2520/1993 and its amendments, in particular those related to:
    a. the accounting treatment for the exchange rate adjustment of foreign reserves caused by fluctuations in the peso exchange rate with respect to the currencies represented in the reserves.
    b. The accounting procedure for the coins issued.
2. The provisions of IFRS 9, Financial Instruments, with respect to the treatment of the loan portfolio and its impairment, for which the special technical standards issued by the Office of the Financial Superintendent of Colombia are applied.

1. Analysis of the classification of reserve assets in accordance with IFRS 9, Financial Instruments.

The classification and valuation of a financial asset should consider two main criteria (Diagram S3.2):

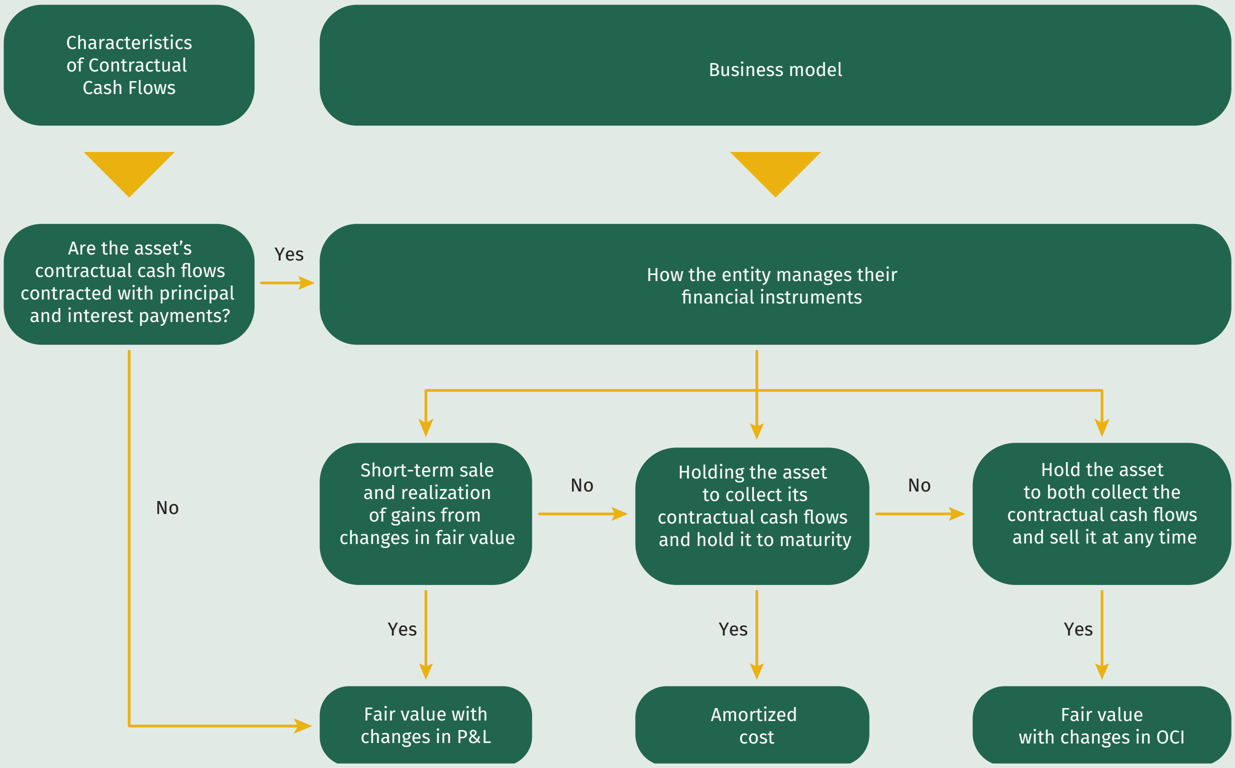
1. The existence and characteristics of contractual cash flows of financial assets (payment of principal and interest).
2. The entity's business model for the management of such assets.

Diagram S3.1
International Reserve Assets



a/ When the value of COP11 t in foreign reserves liabilities was discounted, the balance of net foreign reserves amounted to COP275 t (USD57,269 m) as of 31 December 2022. On the same date, the payment and reciprocal credit agreements signed within the framework of the Latin American Integration Association (Aladi in Spanish), which are also part of the assets that constitute foreign reserves, showed no balance.
b/ It contains derivatives such as currency forwards and bond and interest rate futures.
Source: *Banco de la República*.

Diagram S3.2
Classification and Valuation of a Financial Asset



Source: *Banco de la República.*

As can be seen from the diagram, there are three categories in the accounting classification of financial assets:

Fair value through profit and loss (P&L) changes for financial assets held to be sold in the short term to obtain the profit resulting from changes in the market price. Changes in their market prices are registered in the P&L, and these correspond to interest accruals and fluctuations derived from changes in market prices due to changes in interest rates.

Amortized cost for financial assets held to maturity. The interest yield is recognized periodically in the P&L based on the interest rate agreed upon at the time of purchase (internal purchase rate of [PIR] return).

Fair value through other comprehensive income[1] **(OCI)** for financial assets for which the business model is to both collect contractual cash flows over the life of the asset and to sell the asset at any time for reasons other than to obtain the profit resulting from changes in the market price. In this category, financial assets are measured at market prices, and their effects are treated for accounting purposes as follows:

a. The interest yield calculated under the amortized cost methodology is recorded in the P&L.

b. Net fluctuations in market prices are accounted for in equity (OCI).[2] In the event of derecognition of these instruments prior to maturity, any cumulative gain or loss is realized and is therefore reclassified from OCI to income in the income statement (P&L).

2. Management of the Foreign Reserve Investment Portfolio

The foreign reserves investment portfolio is divided into three tranches: short term, medium term, and gold. Regarding the first two tranches:

1 New category, in effect as of 2018, incorporated into the most recent version of IFRS 9.

2 Equals the difference between the total change in the market price (fair value) of the asset less interest income at amortized cost (purchase PIR).

1. The purpose of the short-term tranche is to cover potential liquidity needs of the reserves for up to twelve months.
2. The medium-term tranche is implemented with a time limit and profile of expected profitability that is higher than that of the short-term tranche under the constraint that the expected return in U.S. dollars is positive with a 95% probability over a three-year horizon.

In the Bank's case, in order to reflect the different investment horizons of the foreign reserve portfolio tranches, different reference indexes are defined for the short-term and medium-term tranches.

The management of foreign reserves versus the index can be carried out two ways each of which has investment guidelines that delimit the permitted deviations from the index, as follows:

1. A passive management whereby the breakdown of the benchmark index is replicated. The investments of this type of management are made mainly in securities issued by entities that the benchmark index is made up of. This component is referred to as the portfolio under passive management mandate (passive portfolio).
2. An active management whereby a profitability higher than that of the benchmark index is sought. Within a controlled risk framework, investment strategies are defined in which the composition of the managed portfolios differs from that of the benchmark index in order to increase the profitability of the reserves in the long term. This component is referred to as the portfolio under active management mandate (active portfolio).

3. Accounting Treatment of the Foreign Reserves

Foreign reserves are valued daily at market prices and the accounting treatment of changes in value arising from changes in the exchange rate and changes in the prices of investments are in accordance with the provisions of Act 31/1992 and the Bylaws of *Banco de la República*. The exchange adjustment of foreign reserves arising from fluctuations of the peso against the currencies in which they are invested is entered in the surplus in shareholders' equity account without affecting the income statement.[3]

With respect to the variations generated by changes in the prices of investments, the national government issued a Decree on 12 December 2022 by which the Bank's Bylaws were amended, adding, in particular, Article 62, paragraph 4 and thus establishing that:

The changes in foreign reserves generated by changes in the prices of the investments referred to in paragraph 4 of this article may be registered in "Other Comprehensive Income-OCI" in equity in accordance with the accounting policy defined by Banco de la República *in line with Act 31/1992, these Bylaws, and internationally accepted accounting principles and standards.*

Prior to this modification, all changes in investment prices caused by changes in interest rates were recorded in the income statement.

The aforementioned modification was the result of the review of the Bank's accounting framework vis-à-vis the practices of other central banks and international accounting standards. In conclusion, it was considered appropriate for the Bank to recognize and classify the financial instruments that the foreign reserves are made up of in accordance with the three categories for the recognition and measurement[4] of financial instruments established in IFRS, particularly IFRS 9. Prior to this modification, the Bank could only record changes in foreign reserves generated by changes in investment prices in two categories: 1) fair value through profit and loss and 2) amortized cost. With the amendment of its bylaws, changes in foreign reserves generated by changes in the prices of investments will constitute income or expenses of the Bank in its accounting records from the moment they are generated, or when they are made effective if they have been registered in the Other Comprehensive Income (OCI) account in shareholders' equity.

Note that this accounting treatment applies to investments in local currency held by the Bank, particularly TES and private debt securities.

In accordance with the foregoing, and for purposes of presenting the changes in the accounting treatment of foreign reserves resulting from the issuance of the aforementioned decree, Table S3.1 presents the accounting record of this item before 2022 and as of 2022 with the following classifications:

- Fair value through profit and loss: *FV* at *P&L*
- Fair value through OCI: *FV* at *OCI*
- Amortized cost: AC

3 Act 31/1992, article 27, (numeral 4), paragraph c) and Article 62, numeral 4 of the Bylaws.

4 The process of determining the monetary amounts at which financial statement items are recognized and accounted for.

Table S3.1
Accounting Treatment of the Foreign reserves

Component of assets constituting foreign reserves	Accounting treatment: Classification based on subsequent measurement[a/]		Modification
	Prior to 2022	Starting in 2022	
Cash	*FV at P&L*	*FV at P&L*	No
Investment portfolio other than derivatives under direct and external management:			
Liability portfolio	*FV at P&L*	*FV at P&L*	Yes
Asset portfolio	*FV at P&L*	*FV at P&L*	No
Derivatives: currency forwards and bond and interest rate futures	*FV at P&L*	*FV at P&L*	No
Gold	*FV at P&L*	*FV at P&L*	No
Contributions to IMF	*AC*	*AC*	No
Contributions to FLAR	*FV at P&L*[b/]	*FV at P&L*	No
ALADI	*AC*	*AC*	No

a/ Regardless of classification in the three categories, the initial measurement will always be at market prices.
b/ In this case, the best benchmark for fair value is acquisition cost.
Source: *Banco de la República*.

As can be seen, the change in the treatment of foreign reserves established in said decree applies to the registration of the portfolio yield under the passive management mandate. This considers the fact that its business model is the collection of contractual cash flows based on the objectives of replicating the benchmark index as well as on prudent risk parameters aimed at preserving capital and being available for sale at any time. Based on the information presented in Diagram S3.2, the appropriate category is "fair value through other comprehensive income – (OCI)." The accounting record of the yield of the other components of the assets that make up the foreign reserves remained unchanged.

4. Accounting Record of the Yield on Foreign Reserves in 2022

Based on the above, the foreign reserves portfolio under the passive management mandate was classified in the category "fair value through other comprehensive income–(OCI)" as of 01 January 2022. Until 31 December 2021, this had been registered in the category "fair value through profit and loss."

In applying the change in the accounting treatment of foreign reserves, there were two effects on the registration of the yield of these reserves in 2022:

1. Application of the new classification: impact on the accounting record of the portfolio under passive management mandate as of 01 January 2022.

As was mentioned, the foreign reserves portfolio is valued daily at market prices. The accounting record of the asset is unchanged. However, in its prospective application, as determined in the aforementioned decree, the portfolio under the passive management mandate in effect as of 31 December 2021 had to be valued with the purchase PIR.[5] This last result was COP 265 b (USD 74 m) higher than the value of the portfolio at market prices registered in the assets and reflected unrealized losses due to fluctuations in the prices of the investments held by the Bank under this portfolio classification as of January 1, 2022.

Table S3.2 shows the Bank's accounting record according to which a COP 265 b decrease in the OCI account was recognized at the beginning of the year 2022, and its counterpart corresponded to another equity account called "Retained earnings from prior years" with no net effect on the Bank's equity.

2. Statement of the return on the Bank's foreign reserves in 2022.

As was mentioned above, the new accounting treatment of foreign reserves did not modify the accounting record in assets. The change originated in the registry of unrealized gains or losses of the portfolio under the passive management man-

5 The final portfolio as of 31 December 2021 is equal to the starting portfolio as of 01 January 2022.

Table S3.2
Accounting Record in the OCI Account
(billions of pesos)

Assets		Equity	
Portfolio under passive management mandate	**No change**	OCI	**- COP 265**
		Retained earnings from prior years	**+ COP 265**

Source: *Banco de la República.*

date and arose from fluctuations in the prices of the investments in this portfolio. Prior to 2022 this performance was recognized in the P&L. From 2022 onwards, this information must be entered in the OCI account under equity.

Based on the above, the total return on foreign reserves in 2022 was a negative COP 1,967 b. This is a result of the devaluation of its balance due to increases in the foreign interest rates which reduced the prices of the investments and offset the interest yield on these investments recognized in the P&L.

Table S3.3 shows the accounting record of this yield under the previous accounting treatment schematically and compares it to the current accounting treatment established in Decree 2443/12 December 2022.

Table S3.3
Total Return on Foreign reserves
(billions of pesos)

Total Return on Foreign reserves: - COP 1,967			
Previous accounting treatment:		Current accounting treatment:	
P&L	- COP 1,967	P&L	- COP 332
		OCI	- COP 1,635

Source: *Banco de la República.*

07/ Management of Cultural Affairs by *Banco de la República*

Banco de la República **contributes to the country's cultural activity along four lines of action: the Library Network, the Gold Museums, the art, coin, and stamp collections, and musical activities.**[120] The Bank has a cultural presence in 29 cities in Colombia which interact within a network and develop the lines of work defined for the heritage collections that circulate at the national level. The bibliographic collection is managed from the *Luis Ángel Arango* Library, 21 libraries, and 6 regional documentation centers. The archaeological and ethnographic collection is displayed at the Gold Museum in Bogota and six regional museums. The art collection is exhibited at the *Miguel Urrutia* Art Museum (MAMU in Spanish), the *Botero* Museum and the Casa Gómez Campuzano. The numismatic collection is preserved at the *Casa de Moneda* Museum, and the philatelic collection is housed at the Medellín branch. The flagship space for musical activity is the Concert Hall at the *Luis Ángel Arango* Library.

In 2022, in-person cultural activities were fully reactivated, along with the online programming. With the changes adopted due to the health emergency generated by COVID-19, more than five million users accessed the sites and services. These users enjoyed the programming of libraries, museums, and musical activities at the national level through an accessible and inclusive model with a variety of on-site and online activities for all audiences.

Picture 7.1.
Listening community of the *Cuando el río suena* podcast in Santa Marta

Photo: Office for Cultural Affairs, *Banco de la República*.

The digital contents produced by the Cultural Affairs Office continue to feed the online universe. A collection of 3,133 conference registrations was completed and made available on Banrepcultural's YouTube channel which has just over 50,000 subscribers. In terms of sound production, the podcast *Cuando el río suena* (Picture 7.1) was launched. This podcast with its 16 chapters invites reflection on the importance of water sources and the profound relationship they have with living beings. The podcast *La paz se cuenta* completed 29 episodes with voices committed to peace building coming from the most diverse places, and *La música se habla* consists of 95 interviews, 11 album reviews, and 12 playlists with which bringing a wide audience and musical knowledge closer together is sought. Moreover, visits to the cultural portal exceeded seven million, and social networks, with 751,887 followers, became one of the most effective channels for sharing collections with digital audiences.

Initiatives to promote inclusion and accessibility were reinforced with various projects such as the launching of the children's book *Hamamelis and the Secret* (*Hamamelis y el secreto*), the second Colombian work adapted to sign language. The *Navarro Braille Musicography Kit* (Picture 7.2), a didactic tool

120 Act 31/1992 (article 25) stipulated that the Bank could continue to carry out the cultural and scientific functions it had been involved in at the time this law was passed.

Picture 7.2.
Use of the *Navarro Braille Musicography* Kit

Photo: Office for Cultural Affairs, *Banco de la República*.

Picture 7.3.
Workshop on the Peace Speaks Up project at the District Jail Public Library

Photo: Office for Cultural Affairs, *Banco de la República*.

Picture 7.4.
Mediation in the *Kitchens of the Pacific*. Know-how and Journeys exhibition, in Pasto

Photo: Office for Cultural Affairs, *Banco de la República*.

for musical learning for the visually impaired, was disseminated. Activities were carried out with inmates at the *Picaleña* Prison Complex in Ibagué and at the District Prison Public Library in Bogotá (Picture 7.3). In addition, the technical area of the *Luis Ángel Arango* Library was the venue for the internship of young people with cognitive disabilities. Extensive programming was also developed for stakeholders, such as teachers, mediators, and tour guides.

Thematic projects with a national scope strengthened cultural exchange and regional representation. The reading facilitation program *Leer el Caribe* celebrated its 19th anniversary generating dialogues and reflections on the work and context of regional writers in Cartagena, Montería, Sincelejo, Barranquilla, Santa Marta, Riohacha, San Andrés and Valledupar. With this model, the second version of *Leer el Pacífico* was completed in the cultural centers of Quibdó and Buenaventura. Furthermore, in order to generate reflections on ancestral trades, the *Kitchens of the Pacific. Know-how and Journeys* (*Cocinas del Pacífico. Saberes y recorridos*) exhibition began its tour. in Pasto (Picture 7.4) and will continue its tour in Buenaventura, Popayán, Ipiales, Quibdó, and Cali. The first season of *Trades that create heritage: living expressions of Colombia (Oficios que crean patrimonio: expresiones vivas de Colombia)* dedicated to the manufacturing of hats, was also held in Manizales, Tunja, Monteria, Villavicencio, and Neiva. In addition, to continue the cycles *Colombia en un bambuco* and *Colombia en una décima*, *Colombia en una música campesina*, which reflects on the cultural richness of this musical genre, was held with a program of conferences and workshops in Manizales, Buenaventura, Ibagué, Montería, and Villavicencio.

During 2022, cultural activities were enhanced at the Bank offices that were transformed from branches into cultural agencies (Ibagué, Leticia, Montería, Pasto, Quibdó and Riohacha). Ibague's cultural agency, which is committed to providing quality programming, developed *Musicaminos* based on compositions from the region. In Leticia, the work has been reinforced with researchers from the Ethnographic Museum collection. As a result of the project *The River: Possible Territories* (*El río: territorios posibles*) in Montería, work has been carried out with the riverside population that represents traditional trades and knowledge. In addition, work began on the opening of the new library which will have a general reading room and a children's room. The *Meeting of Researchers from the Colombian Pacific region* was held in Pasto in order to disseminate work on the geographic, historical, political, and socio-cultural contexts of the region. In Quibdó, activities to promote reading were undertaken for children from Afro and indigenous communities in the children's room (Picture 7.5), and in Riohacha, activities are carried out with the Wayuu community from a multilingual and multiethnic perspective.

The editorial activity continues to contribute to the analysis and dissemination of Colombia's cultural heritage. In 2022, two editions of the *Cultural and Bibliographic Bulletin*, issues 101 and 102, and the exhibition catalogs were highlighted: *Colombian Escarabajos. A country discovered by biking; Kitchens of the Pacific*. *Know-how and Journeys*; *Tipo, lito, calavera. Sto-*

Picture 7.5.
Workshop in the Children's Room of the Quibdó Library

Photo: Office for Cultural Affairs, *Banco de la República*.

Picture 7.6.
Cecilia Vicuña Exhibition Catalog: *Seehearing the Enlightened Failure*

Photo: Office for Cultural Affairs, *Banco de la República*.

Picture 7.7.
Traveling Suitcases in the Village of Babilonia, Sincelejo

Photo: Office for Cultural Affairs, *Banco de la República*.

ries of graphic design in Colombia in the twentieth century; *Voices from an ancestral culture. Ceramics from the National Museum of Korea*; *Cecilia Vicuña: Seehearing the Enlightened Failure* (Picture 7.6) and *Mapa Teatro, Laboratory of social imagination*, 40 years.

7.1 Network of Libraries

The Library Network continued to offer a wide range of on-site and virtual activities for all audiences, and the traveling suitcase program expanded its coverage. The *Luis Ángel Arango* Library and the libraries of Armenia, Bucaramanga, Valledupar, Neiva, Medellín, Cartagena, Sincelejo, Leticia, Pasto, Manizales, Santa Marta, Buenaventura, Riohacha, Ipiales, Ibagué, Cúcuta, Honda, and Girardot came together for events such as the *Festival of Books for Children and Young People* with activities including talks, reading clubs for different ages, workshops, and gatherings. The traveling suitcases (Picture 7.7) contain collections of books that, through free loans to teachers and mediators, reach remote communities in order to share reading experiences based on the users' ages, areas of knowledge, or specific interests. In 2022, this service reached 15,142 users in 67 municipalities and 41 villages and townships in 30 departments.

The *Luis Angel Arango* Library began the process of adapting facilities to favor new uses and the autonomy of users. In order to respond efficiently to current and potential audiences, the reorganization of facilities and collections is being carried out considering the historical demand of users, the supply of services, and the importance of having remodeled, pleasant, and efficient places.

Alliances were developed with institutions that supported cultural services and programs. This is the case of the *Citizenship and Democracy Laboratory* in alliance with the Colombo-German Institute for Peace (Capaz) that promoted work with youth organizations in Buenaventura, Quibdó, Riohacha, Florencia, Montería, Bogotá, Tumaco, and La Ceja (Antioquia) and had 183 participants. The *Digital Culture in Public Context Week* was also held in partnership with BibloRed and the Center for Journalism Studies (Ceper) at the Andes University. This addressed the mediation of cultural collections in the context of digital culture. Last of all, the documentary *Colombian* Escarabajos*: The Science Behind Cycling* (*Escarabajos: la ciencia detrás del ciclismo)* (Picture 7.8), produced in partnership with the Ministry of Science, Technology, and Innovation, won the award for Best Science and Technology Program at the Latin American Public Television (TAL) awards.

The *Descubridor* technological tool is now in operation and facilitates access to and searches in the cultural collections. Those who use the Library Network get access to the 2,693,469 titles, to electronic databases, and digital collections. The new tool allows a comprehensive search through all these resources as well as through the art, numismatic, philatelic, and archaeological collections to obtain more and better results.

Picture 7.8.
Documentary *Colombian Escarabajos: The Science Behind Cycling*

Photo: Office for Cultural Affairs, Banco de la República.

Picture 7.9.
Visit to the Archeo-botanical Garden of the Quimbaya Gold Museum

Photo: Office for Cultural Affairs, *Banco de la República*.

Picture 7.10.
Threads that Connect Us with the Past. Exhibition at the Exploratory Room of the Gold Museum

Photo: Office for Cultural Affairs, *Banco de la República*.

7.2 Gold Museums

The Gold Museum in Bogota together with its six regional museums conserves and exhibits one of the most important pre-Hispanic collections. These venues maintained their function as cultural and identity references in Bogotá and in the regions. The archaeological and ethnographic collections amount to 34,285 pieces of gold and silverwork and 19,553 pieces of ceramics, stone, and shell carvings, along with other materials.

Progress was made on the architectural and technical renovation projects for the Zenú Gold Museum (Cartagena) and Quimbaya Gold Museum (Armenia). Its reopening will be part of *Banco de la República's* 100th anniversary celebration. The renovated *Zenú* Gold Museum is the result of research that combines archeology, biology, bioacoustics, and music, along with other disciplines. This is a 21st century museum designed to reflect the rich diversity of the Caribbean today with extraordinary objects and attractive stories of a millenary past. Moreover, the reopening of the Quimbaya Gold Museum, which will be completed in 2023, was conceived of as a comprehensive project that would include a virtual regional documentation center, a hall for temporary exhibitions, a children's room, and an archeo-botanical garden.

***Portable Universe (El universo en tus manos)* was the Gold Museum's 215th international exhibition.** This exhibition, which brings together more than 400 pieces, was presented at the Los Angeles County Museum of Art (LACMA) between May and October 2022. There, 96,281 visitors viewed the ancestral worldviews, cultural diversity, and productions in gold, clay, stone, textiles, and other materials used by Colombia's pre-Hispanic societies. The exhibition was at the Museum of Fine Arts, Houston (MFAH) from November 2022 to April 2023, and will then continue its tour at the Montreal Museum of Fine Arts in Canada (MMFA) from June to October 2023. These projects disseminate the cultural heritage and enhance the image of our country around the world.

The archaeological heritage appropriation projects showed that the objects in the collection are a source of inspiration. *Threads that connect us with the past* (*Hilos que nos conectan con el pasado*) (Picture 7.10) was an innovative call made through social networks for the followers to embroider pieces inspired by the archaeological collection. A total of 123 pieces of embroidery were received from all over the country and were exhibited at the Museum between May 2022 and February 2023. The Colombian Embassy in New Delhi hosted the exhibition *From Ritual to Meditation: A Look at Yoga from the Gold Museum of Colombia* (*De la ritualidad a la meditación: una mirada al Yoga desde el Museo del Oro de Colombia*), which is made up of a series of photographs comparing the contemplative postures of the archaeological pieces with those of yoga.

The traveling suitcases incorporated new themes that broaden the dissemination of the archaeological and ethnographic heritage. The traveling suitcases are educational re-

Picture 7.11.
Mapa Teatro Exhibition. *Laboratory of a Social Imagination, 40 years*, on the third floor of MAMU

Photo: Office for Cultural Affairs, *Banco de la República*.

sources that contain replicas of pre-Columbian goldsmith and ceramic pieces. *Nariño, art, and thought* (*Nariño, arte y pensamiento)* is the title of the new suitcase, which along with twelve others, is loaned free of charge to teachers and cultural mediators to promote, through a look at the past, reflections on the present and future of our society. These reached 79,654 users in remote locations.

7.3 Art and Numismatic Museums

***Banco de la República*'s art collection has 6,533 works of art that are representative of Colombia, Latin America, and international art and that date from the 15th century to the present day**.

Several temporary exhibitions received national and international recognition. *Mapa Teatro, Laboratory of a Social Imagination, 40 Years* (Picture 7.11) has been on display at the *Miguel Urrutia Art Museum* (MAMU) from October 2022 to May 2023 and was chosen from among the ten best exhibitions in the world according to the London-based contemporary art magazine Frieze. In addition, this exhibit, together with *Traces of Disappearance: The cases of Urabá, Palace of Justice and Nukak territory* (*Huellas de desaparición. Los casos de Urabá, Palacio de Justicia y territorio Nukak*), which were presented between December 2021 and April 2022, and *Tipo, lito, calavera. Stories of graphic design in Colombia in the twentieth century* (*Tipo, lito, calavera. Historias del diseño gráfico en Colombia en el siglo XX)* was on exhibit at the *Casa Republicana* from September 2022 to September 2023 and were selected from among the best exhibition projects of 2022, according to newspaper *El Tiempo*.

Picture 7.12.
Participatory Curatorial Workshop in Manizales

Photo: Office for Cultural Affairs, *Banco de la República*.

Participatory curatorship has contributed to drawing the public closer to the art collection. Based on the exhibition titled *Coming and Going: Dialogues about the Collection* (*Ires y venires: Diálogos en torno a la colección)*, held from March 2021 to July 2022, a research project was launched together with the cultural centers of Manizales, Santa Marta, and Pasto, to reinterpret the exhibition from regional visions (Picture 7.12). In Manizales, work was done with leaders of the LGBTIQ+ population, and the result was an exhibition that will soon be on display.

Picture 7.13.
360° screen at El Dorado airport

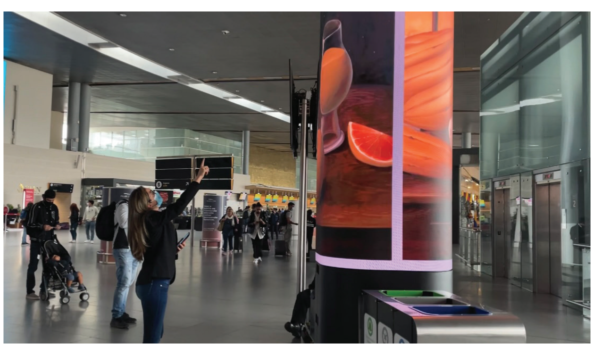


Photo: Office for Cultural Affairs, *Banco de la República*.

The architectural and technical renovation project of the *Casa de Moneda* Museum *that* is scheduled to reopen in July 2023 will be a flagship event in the celebration of the 100th anniversary of *Banco de la República*. The Museum is located in a colonial cloister, one of the first buildings to exist in Bogotá and where, in 1621, the first coin minting operations began. Since 1961, it has housed the Bank's numismatic collection that currently includes 19,787 pieces. In 2021, the curatorial and museographic renovation process was launched. This will make it possible to tell the economic history of Colombia from the pre-Hispanic past to the present with new stories and perspectives in dialogue with archaeological, artistic, and documentary pieces.

The *Volarte* project (Picture 7.13) at the *El Dorado* airport has made it possible to disseminate content related to the collection on 360° digital screens. This intervention joins other *Banco de la República* initiatives to bring art and culture to different scenarios and audiences, in this case, the millions of travelers who pass through the airport's facilities every year, through screens that make it possible to support the resolution of 3D content in large formats.

7.4 Musical Activities

The Bank implements its musical endeavors through programs in the 29 cities that make up its cultural network. The purpose of this effort is to provide access to and enjoyment of music through concerts, workshops, master classes, recitals, rehearsal rooms, and opportunities for music practice in Bogotá, Buenaventura, Ibagué, and Pasto.

Picture 7.14.
Pre-concert Workshop for the Amir Amiri Ensemble in Quibdó

Photo: Office for Cultural Affairs, *Banco de la República*.

The 56th National Concert Season brought back live music. After two years of virtual programming, 136 on-site concerts were held. Of the 48 concerts performed in Bogotá, the most notable was the one given by Russian pianist Sergei Sichkov, which was the first performance on the new Steinway & Sons Model D grand piano. Included among the 88 concerts held in other cities were, the Iranian ensemble Amir Amiri (Image 7.14) who performed in Buenaventura and Quibdó; the Sitkovetsky German trio gave recitals in Manizales and Pereira; the Concerto di Margherita Swiss ensemble in Valledupar and Riohacha; and the Colombian soprano Betty Garcés performed in Cúcuta and Medellín. In addition, 18 virtual concerts were broadcast from digital platforms.

The continuing programs of commissioned works and retrospective concerts are a reference to the history of music in Colombia. The Bank prepares programs to strengthen the music scene and preserve Colombia's musical heritage. Since 1965, the Bank has sponsored the composition of original musical works on a regular basis. In 2022, *Octahedron*, a work commissioned from composer Rodolfo Acosta and performed by Ensemble Aventure and *La ruta de la mariposa*, a work commissioned in 2019 from Damián Ponce de León and performed by cellist Santiago Cañón-Valencia, were premiered.

Moreover, since 1998 *Banco de la República* has invited Colombian composers to create a recital featuring their chamber works in order to portray their trajectory and development. The retrospective concerts in 2022 celebrated the life and work of the Colombian-Catalan composer Moises Bertrán and the pianist and composer Amparo Ángel from Popayán (Picture 7.15).

Picture 7.15.
Amparo Angel Retrospective Concert at the *Luis Angel Arango Library* Concert Hall

Photo: Office for Cultural Affairs, *Banco de la República*.

The invitations for *Young Performers* and *Young Composers* are part of *Banco de la República*'s efforts to contribute to artistic training programs in the country. The call for *Young Performers* addressed to musicians with classical, traditional, and popular Colombian repertoires has established itself as one of the major platforms in the country where the careers of young musicians are promoted. As a complement to this, the invitation for *Young Composers* that seeks to promote professional development through workshops, consulting, review, and adaptation of compositions in order to present them in concert and have them recorded by a professional instrumental ensemble has been in place since 2021.

7.5 Scholarship Programs for Postgraduate Studies Abroad in Music and Art

As part of their culture policy, *Banco de la República* helps Colombian artists and musicians further their skills by encouraging studies abroad through the annual *Talented Young People* program. The two fields alternate since one year a student of music is supported and the next year, a student in visual arts is. Since 1986, there have been 34 beneficiaries (19 in music and 15 in visual arts).

7.6 100th Anniversary Celebration

The books, ***Memorias del Banco de la República en su primer Centenario (Memoirs of Banco de la República on its 100th Anniversary) and Banco de la República: cien años de patrimonio y cultura (Banco de la República: One Hundred Years of Heritage and Culture)***, together with the reprinting of nine economic titles, describe the Bank's contribution to the country's economic, social, and cultural spheres and give an account of the institution's development. As a complement, three documentaries take a look at the history, present, and future of *Banco de la República* and underscore the impact of its work for the well-being of Colombian men and women.

Picture 7.16.
Detail of the Zenú Gold Museum

Photo: Office for Cultural Affairs, *Banco de la República*.

The renovated **Zenú Gold Museum** (Picture 7.16) in Cartagena and the **Quimbaya Gold Museum** in Armenia will offer the public new ways to appreciate the archeological, goldsmith, and ceramic collections. **The opening of the library in Montería** will make it possible to expand the services that have been offered for 35 years through the *Orlando Fals Borda Regional Documentation Center*. The renovated *Casa de Moneda Museum*, which exhibits the numismatic collection, will emphasize the concept of the value given to objects and services used for barter or in place of money throughout Colombia's history. As a complement, the book *Treasures from the Casa de Moneda Museum* will publicize a selection of exhibits and stories from the collection of banknotes and coins.

Finally, the **National Concert Season** will include three presentations of works commissioned by the Bank and one international concert. In addition, there will be a **commemorative philatelic issue** and an exhibition showing the documentary management process of the **Gold Museum's historical photographic archive**.

Appendix
Management Policy for the Foreign Reserve Investment Portfolio

According to good practice recommendations, the management of foreign reserves should be based on liquidity, security, and profitability criteria. In that respect, an attempt must be made to 1) have enough liquidity in foreign currency; 2) have strict policies regarding the management of the different risks that the transactions face; and 3) generate reasonable, risk-adjusted returns subject to liquidity and other risk restrictions. How these rules are applied in the management of Colombia's foreign reserves is explained below.

1. Risk Management Policy

Banco de la República has a framework for risk management that identifies and assesses the risks to which their transactions and portfolios are exposed and seeks to keep them low. Some of the main policies for risk management are as follows:

Liquidity Risk: Only financial assets that are in permanent demand in the secondary market are invested in and the portfolio is divided into tranches in order to be able to convert reserve assets into cash rapidly and at a low cost, and so that some of the defined tranches can be liquidated faster.

Market Risk: Investment comprises a limited group of eligible assets with strict investment limits on the duration, spread duration, foreign exchange composition, and breakdown of the portfolio by sector. The goal is for the value of the portfolio to be moderately sensitive to interest rate movements in the market.

Credit risk: Investments are only made in assets with high credit ratings given that these investments have a low probability of defaulting on their payments. The minimum credit rating for governments and entities related to governments is A-. With respect to private issuers, the minimum rating is A+ for exposure to individual issuers, and BBB- (investment grade) when the investment is done through funds. Historically, the percentage of issuers with these ratings that have defaulted on their payments the year after is close to 0%. If the rating of an issuer that the portfolio has invested in directly drops below the minimum allowed, the exposure is liquidated within a short period of time. In addition, the maximum exposure is limited by sector and issuer to curtail the impact of credit events on the value of the portfolio.

Exchange risk: The impact of the foreign exchange risk is mitigated by the "foreign exchange adjustment" equity account that is dealt with under Decree 2520/1993 number 4 of Article 62 (Bylaws of *Banco de la República*). This account rises during those years when reserve currencies become stronger with respect to the Colombian peso and decline in those years when they weaken. Therefore, the variations in the currencies do not have any impact on the consolidated profit or loss statement. *Banco de la República*, like the majority of the central banks around the world, has currencies other than the US dollar as part of their currency components in order to cover the country's payments abroad since these are made in many currencies. It is important to keep in mind the fact that the prices of the currencies are highly volatile and do not often have defined long-term trends. This makes it very difficult to reliably predict their behavior.

Counterparty risk: To mitigate counterparty risk, transactions are settled through payment on delivery mechanisms. Counterparties in fixed income trading are required to be market makers, and the counterparties in currency trading are required to have high credit ratings. The purpose for payment on delivery mechanisms is to make the exchange of debt instruments for cash or exchange of payments in a foreign currency exchange transaction a simultaneous one in order to eliminate the possibility of a default by one of the parties to the trade. The foreign currency exchange counterparties must have a minimum credit rating of A- if they have an ISDA contract.[1] If they do not have said contract, the minimum rating is A+.

2. Tranche of the Investment Portfolio

The investment portfolio is made up of three tranches: the short term, the medium term, and the gold tranche.

The purpose of the short-term tranche is to cover potential liquidity needs from the reserves in twelve months. Currently, this tranche consists of working capital and a passive portfolio. The working capital is the portfolio into which the funds that come from intervention in the exchange market are placed and their investments are concentrated in very short-term assets denominated in US dollars. Given that the objective of this tranche is to provide immediate liquidity for intervention in the foreign exchange market, the working capital is concentrated in deposits and investments that can be liquidated in one day at a very low cost. As of December 2022, the value of the short-term tranche was USD 28,128.8 m, of which USD 1,225.9 m correspond to working capital and USD 26,902.8 m to the passive portfolio.

1 The purpose of the contract established by the International Swaps and Derivatives Association (ISDA) is to establish the terms and conditions that govern over-the-counter derivatives traded between entities.

The passive portfolio is the main component in the short-term tranche. This portfolio is characterized by an investment horizon and a profile of expected profitability that are higher than those of the working capital portfolio. In addition, it has a foreign exchange breakdown that is intended to replicate the performance of the country's balance of payments outflow, and a profitability that is similar to that of its benchmark.[2] The passive portfolio is invested in multiple currencies and instruments that are in line with those in a benchmark defined under the restrictions that the expected return on the portfolio excluding the foreign exchange component must be positive in 12 months with a confidence level of 95% and that the expected value of a possible loss must not exceed 1.0%.

The medium-term tranche is intended to raise the expected profitability of the foreign reserves in the long term while preserving a conservative portfolio with a profile of expected profitability that is higher than the short-term tranche and the benchmark. Its goal is to maximize the risk-adjusted return in US dollars, the currency in which foreign reserves are valued for the portion of the portfolio that is less likely to be used within a twelve-month period. Thus, the maximum return is sought subject to the restriction that the expected return in US dollars for this tranche be positive with a 95% probability, and that the value expected from a possible loss not surpasses 1.0% over a three-year horizon. Currently, the majority of the medium-term tranche consists of actively managed portfolios that seek to generate a return that is higher than the benchmark.[3] As of December 2022, the value of the medium-term tranche came to USD 24,194.3 m.

The last tranche corresponds to foreign reserve investments in gold. This metal makes it possible to diversify the investment portfolio since its price behaves differently than the prices of the investments in the short- and medium-term tranches. As of December 2022, the market value of the gold tranche in the reserves came to USD 272.4 m.

The securities in the investment portfolio are deposited in financial institutions known as trustees.[4] The entities that provide custody service for the securities in the foreign reserves are the New York Federal Reserve, Euroclear, JP Morgan Chase, and State Street. The investments in physical gold are in the custody of the Bank of England.

3. Benchmark Indices

To manage the reserve investment portfolio, *Banco de la República* has defined theoretical portfolios or benchmark indices[5] for short- and medium-term tranches. Different indices are built for each one of these tranches in order to reflect their investment goals. The indices serve as a frame of reference to measure the management of each one of the portfolios. The way the two benchmark indices are built is explained below.

In order to build the benchmark of the short-term tranche,[6] first of all, a foreign exchange breakdown target is determined. Once the foreign exchange breakdown target is defined, a portfolio is sought that maximizes the risk-adjusted return[7] and complies with the loss restrictions defined for this tranche. The foreign exchange breakdown for this index is intended to replicate the trend of the outflows from the country's balance of payments.[8] The goal is for the currencies other than the US dollar to appreciate during periods in which the dollar value of the country's payments abroad increases, which would mean that the value of these foreign currencies could decline with respect to the US dollar during periods in which the dollar value of the foreign payments decreases. As of December 2022, the foreign exchange breakdown of the short-term tranche benchmark was 81% US dollars, 9.0% Australian dollars, 4.0% Canadian dollars, 1.0% New Zealand dollars, 2.0% Norwegian krone, and 3.0% Korean won. The loss restrictions defined for the short-term tranche are: 1) having positive returns over a horizon of twelve months with a 95% level of confidence while excluding the exchange rate effect and 2) that the expected value of a possible loss over a twelve-month horizon does not exceed 1.0% of the value of the tranche.

A similar procedure is followed to build the benchmark of the medium-term tranche, with two fundamental differences: no restriction is imposed on the foreign exchange breakdown, and the loss restrictions are defined over a longer horizon. First, no currency exchange breakdown restriction is imposed given that the goal of this tranche is to maximize the risk-adjusted return in US dollars. Secondly, the restriction of having positive returns at a 95% confidence level and that the expected value of a possible loss does not exceed 1.0% of the value of the tranche is defined for a horizon of three years is intended to reflect the lower probability of using the funds in this tranche in the short term. When building a portfolio that maximizes risk-adjusted profitability in dollars, investments in currencies other than the US dollar are allowed.

2 The concept and components of the benchmark will be explained in the next section.

3 The fact that one of the seven active portfolios is managed directly by *Banco de la República* and the rest by external managers is explained in the section "External Management Program." An explanation on how this program functions can also be found there.

4 Currently, the minimum credit rating allowed for custodians is A-.

5 In the capital markets, a benchmark index alludes to a basket of assets with predetermined weights in accordance with certain rules that define their components. In general, an index tries to comprehensively replicate the trend of a financial asset market and serves as an indicator of the performance of other investment portfolios in the same market. For example, some of the best-known benchmark indices on the stock markets are the MSCI ColCap in Colombia, or the S&P500 and the Dow Jones in the United States (the Bank uses fixed income market indices only).

6 This benchmark does not apply to working capital, since there are no benchmark portfolios that make it possible to properly measure the instruments accepted in this portfolio.

7 The sections entitled "Technical Explanation of the Methodology for Building the Benchmark Index" and "Market Risk Restrictions on the Optimization Process" in the 2013 and 2019 Foreign Reserves Management reports contain a detailed description of the methodology used for building the benchmark.

8 See Box "International-reserve Portfolio's New Foreign Exchange Components" in the Board of Directors' March 2012 Report to the Congress of the Republic for a detailed explanation of the methodology for the foreign exchange breakdown of the reserves.

As of December 2022, the benchmark indices defined for the two tranches have a low level of market risk with an effective duration of 0.79 for the short-term tranche benchmark and of 1.50 for the medium-term tranche. Graph A1.1 shows the benchmarks approved for the short- and medium-term tranches.[9]

4. External Management Program

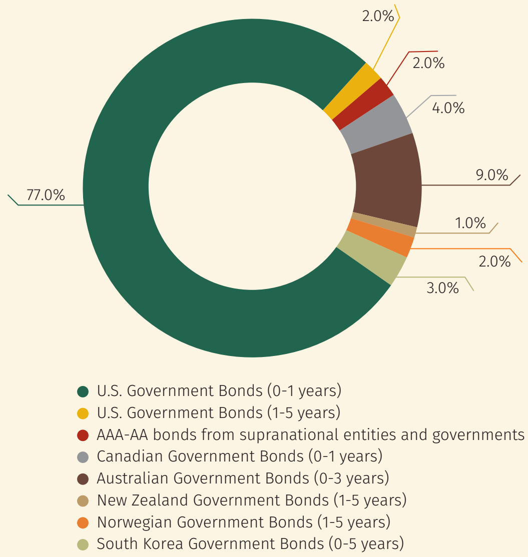
Banco de la República manages the short-term tranche, a portion of the medium-term tranche, and the gold tranche directly. The remaining medium-term tranche funds are managed by external portfolio managers. At the end of December 2022, the portion of the investment portfolio that is managed internally corresponded to USD 37,919.8 m (72.10% of the investment portfolio) while the external management program came to USD 14,675.7 m (27.90% of the investment portfolio).

The main reasons for using external managers are to generate returns that are higher than the benchmark and to improve the diversification of the portfolio. In this respect, the companies chosen to participate in the program have ample experience analyzing financial markets and have a sophisticated infrastructure that could be useful to define investment strategies and train Bank officials in the management of international investments. The latter is another objective of the external management program.

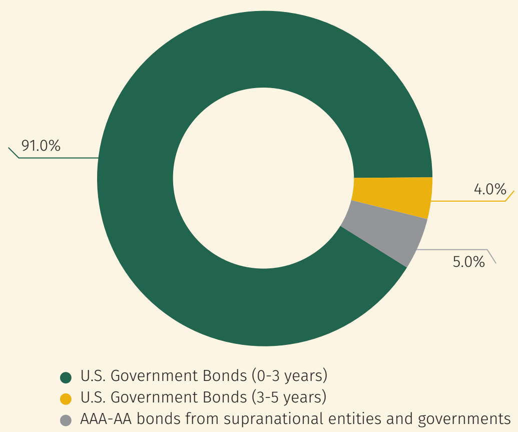
The private firms that participate in the program are chosen through a competitive selection process and are continuously evaluated. Based on the results obtained by each administrator under the contract, the number of assets managed or their continued participation in the program is reviewed. The private companies that participate in the external management program currently are Goldman Sachs Asset Management, L.P., J.P. Morgan Asset Management (UK) Limited, Pacific Investment Management Company LLC, State Street Global Advisors Trust Company, UBS Asset Management (Americas) Inc. and Wellington Management Company LLP. (Graph A1.2). The funds that these companies manage are in *Banco de la República's* custody accounts, and the administrators' contracts can be canceled whenever deemed necessary. The investments in funds managed by the Bank for International Settlements (BIS) are also considered part of the external management program. Only central banks and multilateral entities have access to these funds, and the purpose for them is to invest in assets that are appropriate for global foreign reserves as part of a cooperative effort by different countries.[10]

Graph A1.1
Components of the Benchmark Indices for the Short- and Medium-term Tranches.
(information as of 31 December 2022)

A. Short-term Tranche

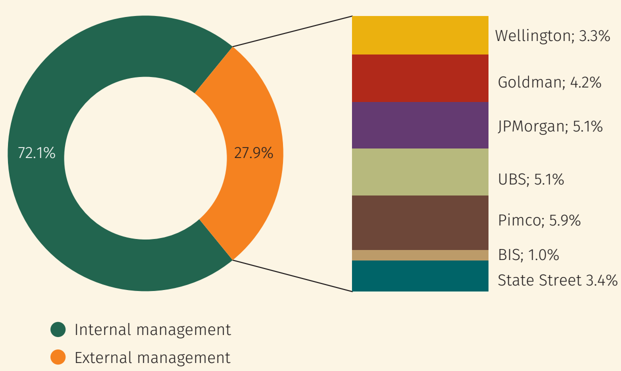


B. Medium-term Tranche



Source: *Banco de la República.*

Graph A1.2
Management of the Investment Portfolio
(information as of 31 December 2022)



Source: *Banco de la República.*

9 For the different sectors that the benchmark index is made up of, the indices published by ICE data indices are used.

10 Investments are currently made in a fund of securities issued by the Chinese government (USD 286.41 m) and a fund of securities issued by non-financial corporations (USD 262.37 m).

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