INFLATION REPORT

September 2023

Recent trends and macroeconomic forecasts 2023-2024
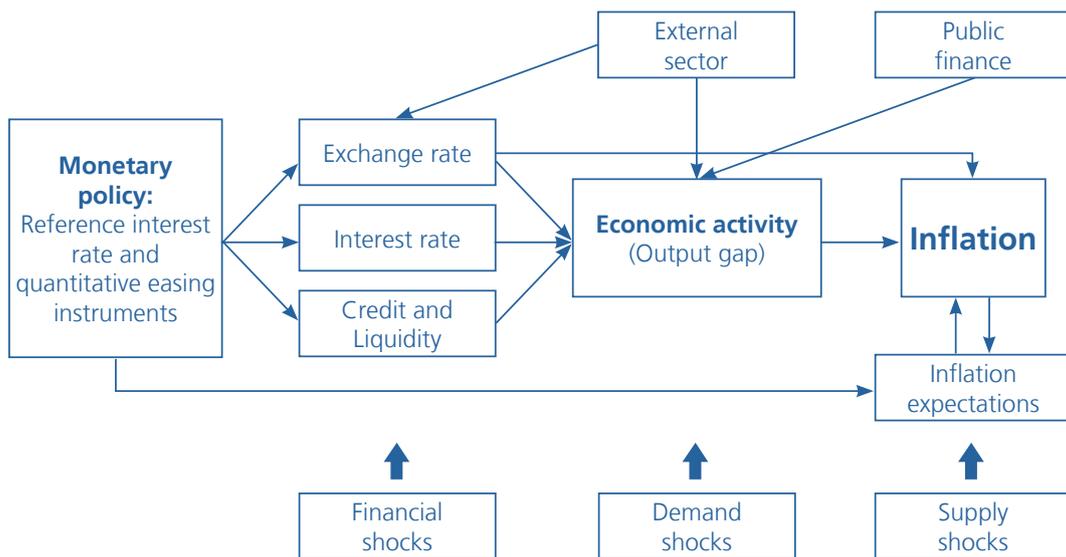
CENTRAL RESERVE BANK OF PERU

INFLATION REPORT

Recent Trends and
Macroeconomic Forecasts 2023 - 2024

September 2023

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CONTENT

This ***Inflation Report*** has been prepared with information as of the second quarter of 2023 for the balance of payments and gross domestic product; and as of August 2023 for the inflation, non-financial public sector operations, the monetary accounts, financial markets, and the exchange rate.

Foreword

- The Central Reserve Bank of Peru (BCRP) is a constitutionally-mandated public autonomous entity charged with preserving monetary stability. Its main functions are regulating the money supply and credit, managing international reserves, and reporting on the nation's finances.

- To fulfill this role, the Bank's monetary policy enforces an inflation targeting scheme. The inflation target (a range between 1 and 3 percent) seeks to anchor inflation expectations at a level similar to developed economies' and to establish a permanent commitment to monetary stability.

- Since 2003, the Board of Directors of BCRP decides every month, in an announced schedule, the level of the benchmark rate for the interbank lending market. This interest rate is the monetary operational target, which has an impact on the inflation rate through time lags and across different channels. Therefore, this interest rate is determined based on inflation forecasts and inflation determinants.

- Inflation may transitorily deviate from the target range due to shocks temporarily affecting the supply of goods and services. In addition, the effectiveness of monetary policy is evaluated in terms of its success in maintaining inflation expectations within the target range, and returning to said range within a reasonable timeframe if economic shocks result in range deviations.

- Additionally, preventive actions by BCRP seek to preserve macro-financial stability and monetary policy transmission mechanisms. The benchmark rate is thus complemented by other monetary policy instruments, such as injection and sterilization operations, reserve requirements and exchange rate interventions, to ensure proper market functioning, reduce excessive exchange rate volatility, and avoid significant variations in the volume and composition, by type of currency and terms, of credit in the financial system.

- The Inflation Report comprises the macroeconomic forecasts for the period 2023-2024, which support BCRP monetary policy decisions, as well as the risk factors that may result in deviations from these forecasts.

- The Inflation Report was approved at the Board of Directors of the BCRP on September 7, 2023.

- The following Inflation Report will be released on Friday, December 22, 2023.

Summary

i.   **Global economic activity** experienced higher growth during the second quarter of the year than predicted in the June Inflation Report, mainly due to the evolution of the services sector in the main developed economies. As a result, the global growth forecast for 2023 has been revised upward, from 2.5 to 2.8 percent. In contrast, global growth for 2024 is projected at a slightly lower rate, from 2.8 to 2.7 percent, mostly due to a slower pace of expansion in China.

ii. The **terms of trade** fell 0.7 percent year-on-year in the first half of the year, although they remain at favorable levels and above pre-pandemic levels. This decline occurred against a backdrop of lower-than-expected growth in China's real estate sector and deteriorating domestic demand outlook, as well as a more restrictive policy by central banks, which affected the price of the main industrial metals.

     Compared to the previous Report, a lower rise in the terms of trade is expected in 2023 (from 3.7 percent to 3.0 percent) and 2024 (from 2.5 percent to 1.3 percent). The 2023 revision is explained by a fall in the expected growth rate of export prices -mainly for metals such as copper, zinc and gold-, in line with China's growth prospects and higher expectations that the Federal Reserve will keep its monetary policy rate at higher levels over the projection horizon. Meanwhile, for 2024, the correction is due to higher import prices, mainly for oil, reflecting production cuts during the year.

iii. The **current account** of the balance of payments decreased from a deficit of 4.0 percent of GDP in 2022 to an accumulated deficit of 1.9 percent in the last four quarters to June 2023. The evolution responded to lower value of imports, associated with shrinking domestic demand and falling food prices, lower profits of companies receiving foreign direct investment, and higher foreign remittances. Given these developments and lower forecast domestic demand and terms of trade, the current account deficit is revised downward from 1.9 to 1.3 percent of GDP by 2023 and from 1.3 to 1.2 percent by 2024.

iv. **National economic activity** contracted 0.5 percent in the first half of 2023, a result mainly characterized by contracting private investment and a steep slowdown in private consumption, in a context of social conflicts and low consumer and business confidence. Reduced private spending affected activity in the manufacturing, construction, and services sectors, with simultaneous drawdown of stocks, mainly by mining and manufacturing companies. Weather-related factors also had a direct impact on production in the agriculture and fishing sectors and associated manufacturing.

     The supply shocks that affected production in the first half of the year had a greater impact than expected. In addition, business confidence has not recovered as expected, which would reduce the dynamism of non-primary activity. In addition, the persistence of strong warm conditions would have a negative impact on agriculture and fishing

production for the remainder of the year. As a result, the 2023 growth forecasts are revised significantly downward, from 2.2 to 0.9 percent.

Economic activity is expected to recover in 2024 and grow by 3.0 percent, supported by the partial reversal of supply shocks and recovering domestic demand and non-primary sectors, in a scenario of socio-political and macroeconomic stability with low inflation that favors business and consumer confidence. The forecasts in this Report assume strong warm conditions until December 2023 and a moderate global and coastal El Niño event in the first quarter of 2024.

v.   The **fiscal deficit** increased from 1.7 percent in 2022 to 2.6 percent of cumulative GDP over the last 12 months to August 2023, due to deteriorating current income. Given a lower economic growth outlook and lower export prices, the fiscal deficit is revised upward to the fiscal rule mandated limits of 2.4 and 2.0 percent of GDP in 2023 and 2024, respectively.

Debt net of non-financial Public Sector deposits is expected to increase from 21.0 to 21.7 percent of GDP between 2022 and 2023, eventually settling at 22.4 percent of GDP by the end of the projection horizon. **Gross debt** is projected to continue its downward trend and stand at 32.8 percent in 2024.

vi.   In September 2023, the BCRP Board of Directors decided to cut the **benchmark rate** by 25 bps. to 7.50 percent, while underscoring this decision does not necessarily imply entering a cycle of successive interest rate reductions. Future adjustments in the reference rate will depend on new information on inflation and its determinants. Previously, the BCRP Board of Directors agreed to raise the benchmark rate by 25 basis points to 7.75 percent in January 2023 and then, between February and August, decided to keep it unchanged. In August, the BCRP removed its statement that this decision does not necessarily imply the end of the interest rate hike cycle.

vii. **Credit to the private sector** recorded an expansion of 0.2 percent in annual terms in July 2023 (4.6 percent in 2022), mainly reflecting the evolution of economic activity. Going forward, such demand is expected to recover in line with projected GDP growth in the second half of 2023 and in 2024. Thus, the growth rate of credit to the private sector is projected to stand at 1.0 and 4.0 percent in 2023 and 2024, respectively.

viii. The year-on-year **inflation** rate slipped more rapidly in recent months, as it dropped from 7.89 percent in May to 5.58 percent in August. The drop is due to the correction in some food prices such as poultry, fresh fish and potatoes, the year-on-year fall in energy prices and lower non-food and energy inflation (from 5.11 to 3.81 percent over the same period). Trend inflation indicators maintained a downward trajectory, although they are still above the target range.

An inflation rate of 3.8 percent is expected by the end of 2023, a revision on the upside from expectations in the June Report (3.3 percent). This revision is due to adverse weather events that temporarily affect food prices. Trend inflation, measured by the year-on-year change excluding food and energy prices, is expected to return to the target range by the end of this year. Thus, inflation will decline over the forecast horizon and close at 2.4 percent in 2024.

ix. The upward bias of the **balance of risks for the inflation projection** is reduced compared to the previous report. Risks to the projection include mainly the following contingencies: (i) the occurrence of a strong or severe El Niño in the summer of 2024, which could affect the supply of perishable agricultural products and therefore their prices; (ii) the advent of new episodes of socio-political instability, which would deteriorate the outlook for private spending and moderate the expected downward trend in inflation; (iii) slower global growth due to tighter financial conditions, lower growth in China and renewed supply chain problems that would imply lower demand for exports; (iv) intensified geopolitical tensions that could exacerbate and prolong the current energy and food crisis; and (v) upward pressures on the exchange rate, capital outflows and greater volatility in international markets due to episodes of greater political uncertainty or tighter international financial conditions.

SUMMARY OF INFLATION REPORT FORECAST

	2022	2023*		2024*	
		IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
Real % change					
1. Gross Domestic Product	2.7	2.2	0.9	3.0	3.0
2. Domestic demand	2.3	1.5	-0.3	2.9	3.0
a. Private consumption	3.6	2.6	1.2	3.0	3.0
b. Public consumption	-3.4	2.0	2.0	3.0	2.0
c. Fixed private investment	-0.4	-2.5	-5.3	1.8	1.8
d. Public investment	7.7	1.5	1.5	4.0	4.0
3. Exports (good and services)	6.1	3.4	2.8	3.3	3.3
4. Imports (good and services)	4.4	0.8	-2.0	2.9	3.4
5. Global economic growth	3.4	2.5	2.8	2.8	2.7
Note:					
Output gap [1/] (%)	0.2	-0.7 ; 0.0	-1.5 ; -0.5	-0.5 ; 0.5	-1.0 ; 0.0
% change					
6. Inflation	8.5	3.3	3.8	2.4	2.4
7. Expected inflation [2/]	6.3	4.9	4.1	3.3	3.0
8. Expected depreciation [2/]	-5.1	0.4	-3.1	0.9	0.9
9. Terms of trade	-10.5	3.7	3.0	2.5	1.3
a. Export prices	1.8	-3.1	-3.6	1.9	2.2
b. Import prices	13.7	-6.6	-6.5	-0.6	0.9
Nominal % change					
10. Currency in circulation	-3.8	-3.5	-5.0	-1.0	-1.0
11. Credit to the private sector	4.6	4.0	1.0	5.0	4.0
% GDP					
12. Gross fixed investment	25.3	23.8	23.3	23.4	22.8
13. Current account of the balance of payments	-4.0	-1.9	-1.3	-1.3	-1.2
14. Trade balance	4.2	5.2	5.8	5.3	5.7
15. Long-term external financing of the private sector [3/]	6.0	2.1	1.1	1.5	1.3
16. Current revenue of the general government	22.1	20.7	20.2	20.7	20.3
17. Non-financial expenditure of the general government	22.0	21.0	20.9	21.0	20.8
18. Overall balance of the non-financial public sector	-1.7	-1.9	-2.4	-1.8	-2.0
19. Balance of total public debt	33.8	32.1	32.9	31.6	32.8
20. Balance of net public debt	21.0	20.9	21.7	21.4	22.4

IR: Inflation Report
*   Forecasts.
1/   Differential between GDP and tren GDP (in % of trend GDP).
2/   Survey on expectations to the analysts and financial entities carried out at the time of publication of the respective Inflation Report. Data observed in the case of depreciation for 2022, and the average of expectations throughout year in case of inflation has been considered.
3/   Includes net direct investment, foreign assets investment from residents (AFP), foreign net portfolio investment, and private sector's long term disbursement. Positive sign indicates net inflow of foreign capital.

I. External sector

1. The recent evolution of economic activity has outweighed the forecasts of the June Inflation Report. At country level, the performance of the United States and other developed economies stood out, offsetting deteriorating activity in China. At sector level, services continued to be the most dynamic component, although part of this dynamism also translated into persistent inflationary pressures. In line with these developments, the global growth forecast for 2023 has been revised upward (from 2.5 to 2.8 percent).

   For the forecast horizon, the global economy is expected to slow down: some monthly frequency indicators suggest a moderation in the service sector's activity starting in the third quarter. The lagged impact of monetary policy on financial and credit conditions, lower gains in the labor market, reduced private savings surpluses and inventory drawdowns explain these developments.

   Some of the risk factors of this central scenario resemble those identified in the June Report. In particular, a slower convergence of inflation toward target could imply additional tightening, or slower easing of monetary policy by the major central banks. The possibility of escalating global trade and geopolitical tensions also persists. Moreover, in the wake of real estate shocks and other factors, the possibility of a sharp slowdown in China has increased significantly since the last Report.

Recent developments in global economic activity

2. The **recent economic performance** of most economies, particularly developed economies, has been better than expected. The resilience of the economy has been supported by growth in the services sector and by a strong labor market. However, some indicators suggest a somewhat weaker dynamism from the third quarter onwards.

   The activity data show that, in general terms, the global economy proved resilient in the face of various shocks such as the tightening of monetary conditions, high energy prices and geopolitical tensions, among others. As in the first months of the year, it was the services sector that accounted for this performance: the global services index has remained in the expansion zone for the eighth consecutive month.

Graph 1
**PMI GLOBAL: INDEX OF WORLD ECONOMIC ACTIVITY OF THE MANUFACTURING
AND SERVICES SECTORS**
(Diffusion index)

Expansion (>50)

Contraction (<50)

51.1
49.0

Services
Manufacturing
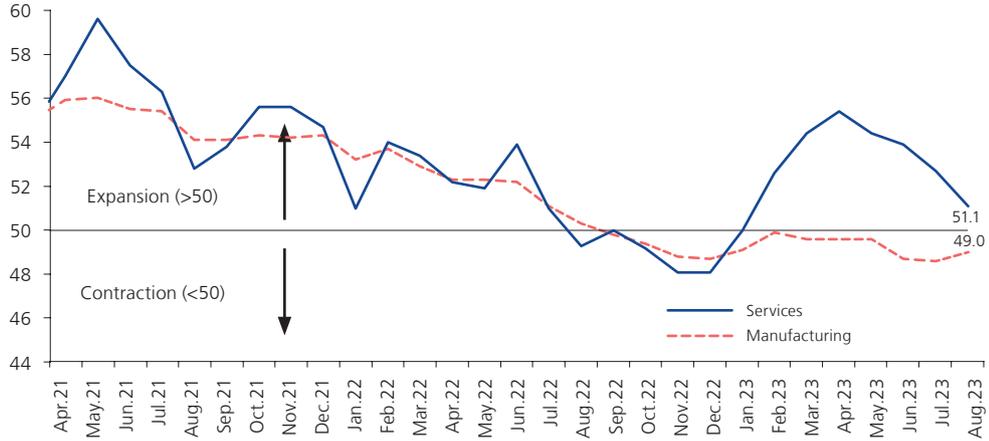
Source: S&P Global.

Favorable labor market conditions supported this dynamic. In developed economies, the unemployment rate remained close to historical lows and job creation, although at a slower pace, was higher than expected.

Graph 2
UNEMPLOYMENT RATE: 2015-2023
(Percentage)

USA
Eurozone
United Kingdom
Japan
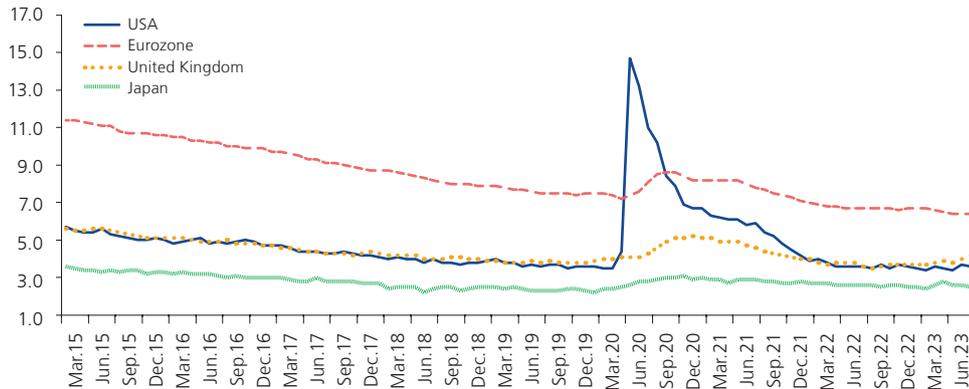
Source: Organization for Economic Co-operation and Development (OECD).

The manufacturing sector continued to be affected by the marked slowdown in China, geopolitical tensions and lower world trade. Another important factor -present this year- was the slower build-up or drawdown of inventories. During the economic recovery period of 2021 and 2022, many economies recorded a build-up of inventories that, in the current context of lower demand and expectations of lower Global growth, is being reversed.

Graph 3
CHANGE IN INVENTORIES
(In billions, currencies of each country)
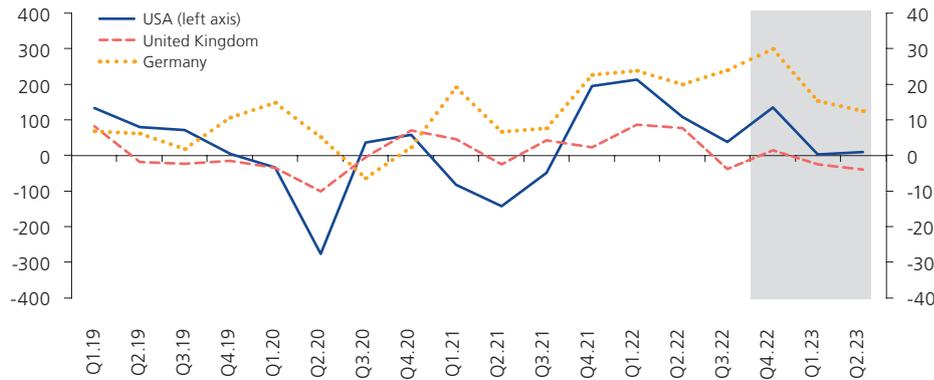
Source: US Bureau of Economic Analysis; Office for National Statistics, Federal Statistical Office.

The differentiated behavior between the services and manufacturing sectors has remained unaltered so far in the third quarter. However, as of June, the services sector began to show some deceleration, influenced, among other factors, slower new orders and lower pressures on final goods and input prices.

Graph 4
PMI GLOBAL MANUFACTURING AND SERVICES: NEW ORDERS, 2021-2023
(Diffusion index)
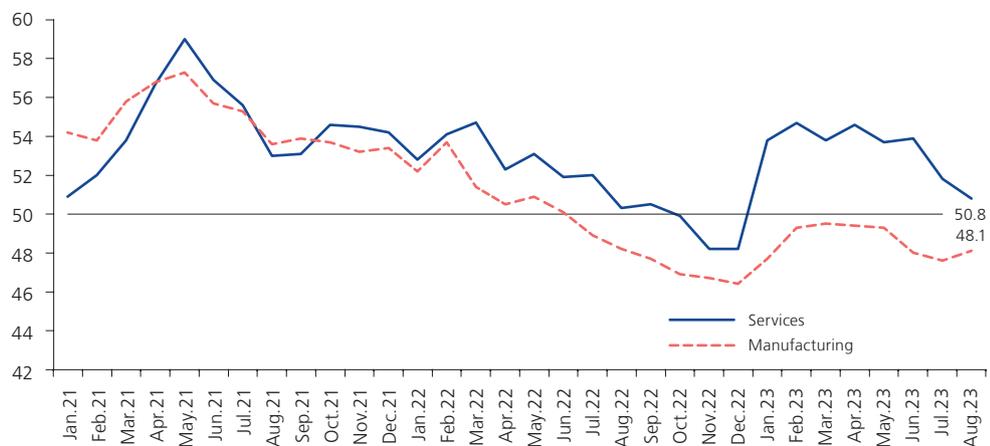
Source: PMI S&P.

3. Among **developed economies**, the United States has shown positive indicators, although somewhat slower in July and August. Growth in the second quarter –seasonally adjusted in annual terms at 2.1 percent– was higher than in the previous period, and the probability of a contraction in activity towards the end of 2023 or the beginning of 2024 has been reduced compared to the June Report forecasts. Among the factors accounting for this performance are the strength of the labor market, higher public spending and enhanced private investment associated with the measures dictated by

the government to increase competitiveness (Inflation Reduction Act and CHIPS Act). This performance is also being favored by a slower than expected slowdown in the real estate market, despite the increase in mortgage interest rates.

GDP growth in the Eurozone was slightly better than expected: the performance of France and Spain offset a stagnating German economy, which was particularly affected by the evolution of manufacturing and the lower dynamism of foreign trade. In the United Kingdom, consumption of services and, to a lesser extent, of goods, allowed a better-than-expected performance, despite interest rate hikes in the face of high inflation (the highest among the main developed economies). Japan has seen a faster pace of expansion due to the strong momentum of net exports and tourism, associated in part with the depreciation of the yen.

Table 1
MANUFACTURING AND SERVICES PMI
(Diffusion index)

	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23	Aug.23
PMI Manufacturing									
India	57.8	55.4	55.3	56.4	57.2	58.7	57.8	57.7	58.6
Japan	48.9	48.9	47.7	49.2	49.5	50.6	49.8	49.6	49.6
China	49.0	49.2	51.6	50.0	49.5	50.9	50.5	49.2	51.0
USA	46.2	46.9	47.3	49.2	50.2	48.4	46.3	49.0	47.9
Brazil	44.2	47.5	49.2	47.0	44.3	47.1	46.6	47.8	50.1
PERU	45.3	47.0	49.3	47.9	47.8	47.1	46.5	45.3	43.0
France	49.2	50.5	47.4	47.3	45.6	45.7	46.0	45.1	46.0
Italy	48.5	50.4	52.0	51.1	46.8	45.9	43.8	44.5	45.4
Germany	47.1	47.3	46.3	44.7	44.5	43.2	40.6	38.8	39.1
PMI Services									
India	58.5	57.2	59.4	57.8	62.0	61.2	58.5	62.3	60.1
Japan	51.1	52.3	54.0	55.0	55.4	55.9	54.0	53.8	54.3
China	48.0	52.9	55.0	57.8	56.4	57.1	53.9	54.1	51.8
USA	44.7	46.8	50.6	52.6	53.6	54.9	54.4	52.3	50.5
Brazil	51.0	50.7	49.8	51.8	54.5	54.1	53.3	50.2	50.6
PERU	49.9	48.7	53.5	52.9	55.9	55.2	53.7	51.5	49.5
France	49.5	49.4	53.1	53.9	54.6	52.5	48.0	47.1	46.0
Italy	49.9	51.2	51.6	55.7	57.6	54.0	52.2	51.5	49.8
Germany	49.2	50.7	50.9	53.7	56.0	57.2	54.1	52.3	47.3

Source: PMI S&P.

Expansion > 1	Contraction < 50

Table 2
MAJOR ECONOMIES: QUARTERLY GROWTH
(% change of the seasonally adjusted series)

	Q1.22	Q2.22	Q3.22	Q4.22	Q1.23	Q2.23
USA*	-0.4	-0.1	0.8	0.6	0.5	0.5
Germany	1.0	-0.1	0.4	-0.4	-0.1	0.0
United Kingdom	0.5	0.1	-0.1	0.1	0.1	0.2
Japan	-0.5	1.3	-0.3	0.0	0.9	1.5
China	1.0	-1.9	3.2	0.5	2.2	0.8

Source: OECD.
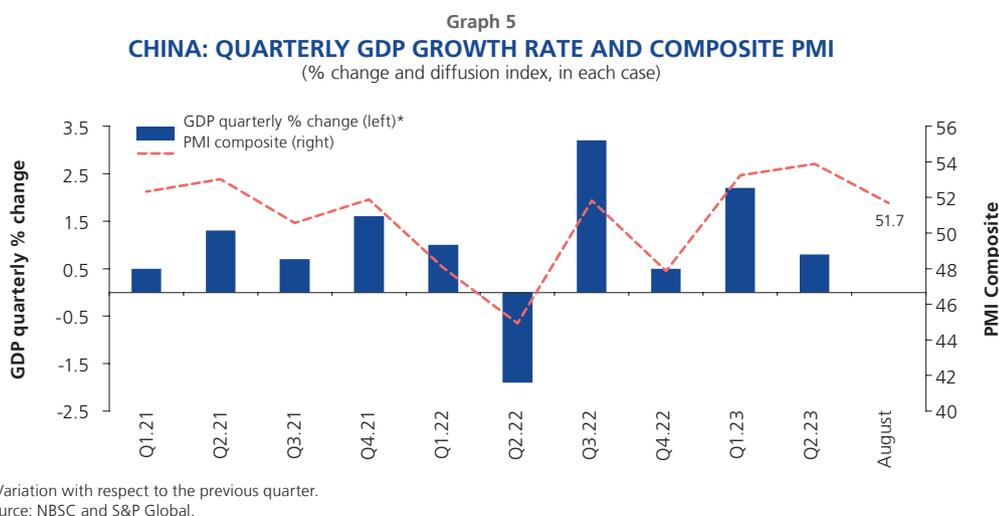* Implied quarterly growth rate with an annualized growth rate of 2.1% in 2Q.23.

4. In contrast with most developed economies, **China's performance** has been below expectations. After the dynamism observed at the beginning of the year, subsequent to the reopening of the economy, economic growth has slowed. By sector, services have experienced a significant slowdown, while industrial activity remains in the contraction zone.

This evolution reflects both lower external demand and sluggish domestic demand growth. External demand has been affected by the evolution of foreign trade and deteriorating manufacturing activity globally, hand in hand with lower foreign direct investment flows.

Slow domestic demand reflects weak domestic consumption -retail sales recorded the first monthly contraction of the year in July- and unfavorable investment, particularly in construction. The Chinese real estate market has been under increased stress, evidenced by falling sales, liquidity shortages and a series of defaults by developers. In addition to Evergrande's defaults, there have been recent financial problems at Country Garden and fears of possible contagion to the financial system.

Activity evolutions have been accompanied by low inflation rates, which even moved to negative terrain in July. In addition to lower domestic demand pressures and consumer confidence, some supply shocks reversed such as higher pork and other foodstuff prices.

Against this backdrop, the Chinese government announced stimuli aimed at boosting supply (credit, access to domestic goods, tax exemptions for companies) and, to a lesser extent, stimulating domestic demand. On the other hand, in August, China's central bank cut the 1-year interest rate (benchmark rate for consumption) by 10 basis points, but maintained the 5-year interest rate (which has a greater influence on the real estate market). It is estimated that these rate reductions would only have a marginal impact on consumption given the magnitude of these reductions and high household debt.

Graph 5
CHINA: QUARTERLY GDP GROWTH RATE AND COMPOSITE PMI
(% change and diffusion index, in each case)

* Variation with respect to the previous quarter.
Source: NBSC and S&P Global.

5.   Among **Latin American economies**, activity has shown a differentiated dynamism by country. In some countries, such as Brazil, Mexico, Colombia and Chile, indicators have been revised upwards in line with the data in a context of improved global growth (particularly in the United States), higher oil prices and reduced uncertainty associated with idiosyncratic shocks. On the other hand, Argentina's growth has been below expectations due to the measures taken in response to inflation, uncertainty regarding the October elections and the impact of weather conditions on the agricultural sector.

Mexico has been one of the countries most favored by the international environment. The performance of the United States and the country's trade tensions with China have favored its export sector. In addition, Brazil has been influenced by the evolution of its agricultural sector, with record crops in some products.

Graph 6
LATIN AMERICA: QUARTERLY GDP*
(Index 100 = Q4.19)

Legend: Brazil, Chile, Colombia, Mexico, Peru
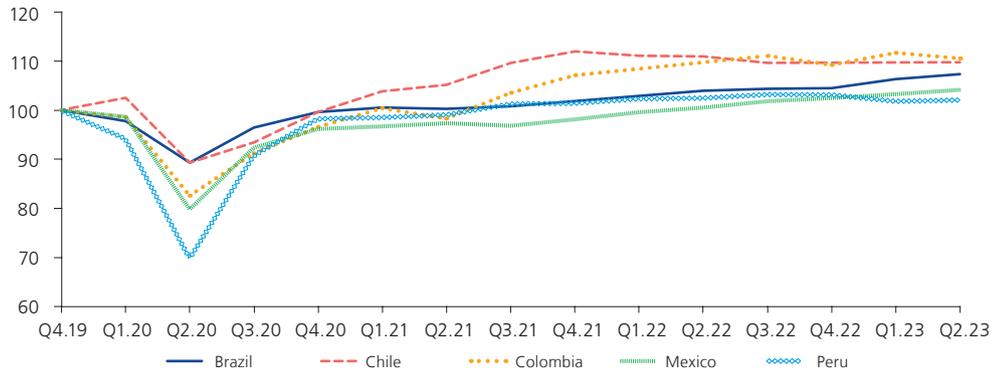
Seasonally adjusted series.
Source: Central banks and statistical institutes.

Recent inflation trends

6.   After the sustained reduction until June, **global inflation** showed a slight upward trend in July. This increase is explained by higher inflation in the United States and in some emerging economies (Turkey, Russia and Brazil), which was offset by falling prices in China and lower inflation in Germany and the United Kingdom.

Graph 7
INFLATION: GLOBAL, DEVELOPED COUNTRIES AND EMERGING ECONOMIES
(12 months % chg.)

Legend: Emerging, Global, Developed, Emerging (excl. China)
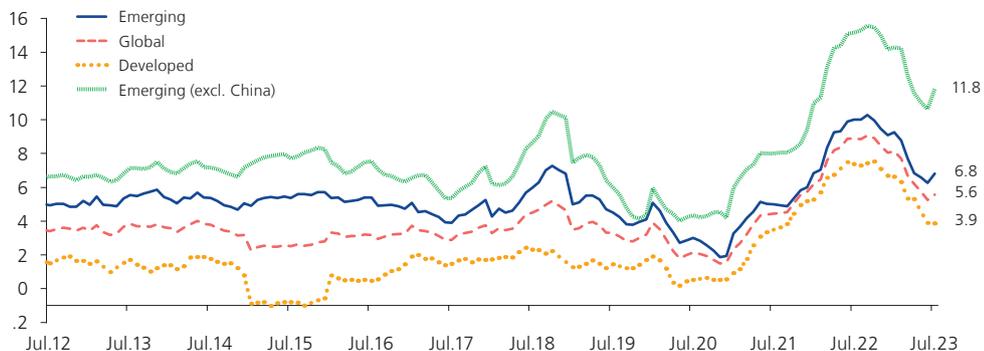
Inflation (12 months % chg)

	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
Global	9.1	8.9	8.5	8.1	8.1	7.7	6.7	6.2	5.8	5.3	5.6
Developed	7.4	7.5	7.1	6.7	6.6	6.3	5.3	5.3	4.6	3.9	3.9
Emerging	10.3	9.9	9.5	9.1	9.3	8.8	7.7	6.9	6.6	6.3	6.8
Developed (excl. USA)	6.9	7.4	7.1	6.9	6.8	6.5	5.6	5.6	5.1	4.6	4.4
Emerging (excl. China)	15.6	15.5	15.0	14.2	14.3	14.2	12.6	11.6	11.0	10.6	11.8

Source: Central banks and statistical institutes.

As in previous months, the greatest inflationary pressures were observed in the services sector due to the post-pandemic demand recomposition and labor shortages.

The components of the global manufacturing PMI, linked to prices and inputs, show a significant decrease in the last few months to around the 50 threshold. As for services, on the other hand, these indices are significantly higher, despite some slowdown in recent months.

Graph 8
GLOBAL PMI: FINAL PRICES AND INPUT COSTS
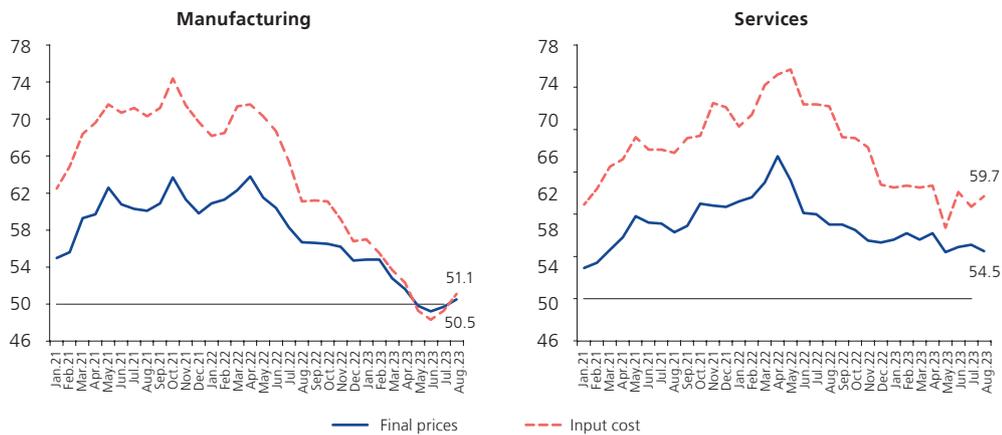
Source: S&P Global

This pattern is observed in most developed and emerging economies. Among the former, as shown in the following graph, inflationary pressures in services have been on an upward trend, counterbalancing the sharp fall in goods inflation (Eurozone, Japan and the United Kingdom), or have fallen much more slowly (United States and Canada).

Graph 9
DEVELOPED ECONOMIES: PRICES OF GOODS AND SERVICES
(% change last twelve months)
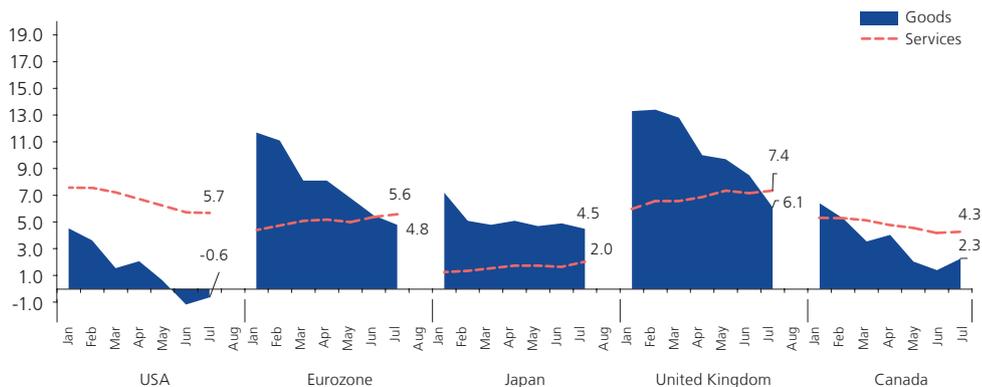
Source: Central banks and statistical institutes.

In contrast, food and energy prices slipped. As of August 2023, food and energy prices had dropped, over the last twelve months, 11.8 and 37.1 percent, respectively.

Graph 10
WORLD BANK ENERGY PRICE INDEX AND FAO PRICE INDEX
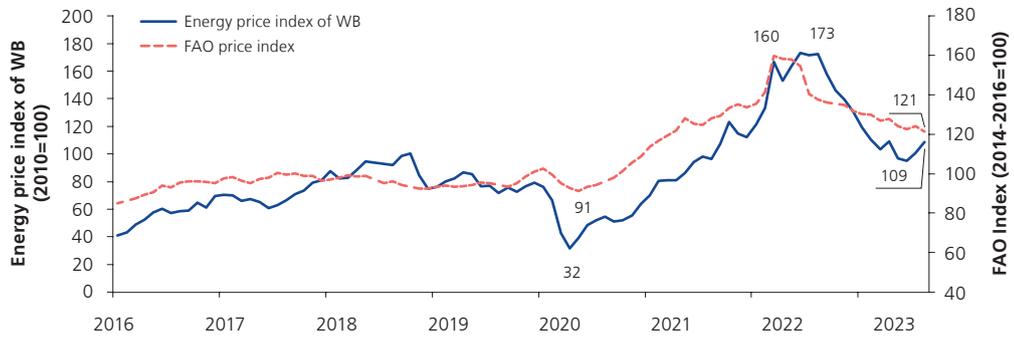
Source: World Bank and FAO.

This greater drop in total inflation has led total inflation to dropping below core inflation in several cases, in contrast with what was observed at the end of 2022. In the United States, for example, the total component has been below core inflation since March.

Graph 11

CORE INFLATION AND TOTAL INFLATION
(Dec.22)

CORE AND TOTAL INFLATION
(Last available data)
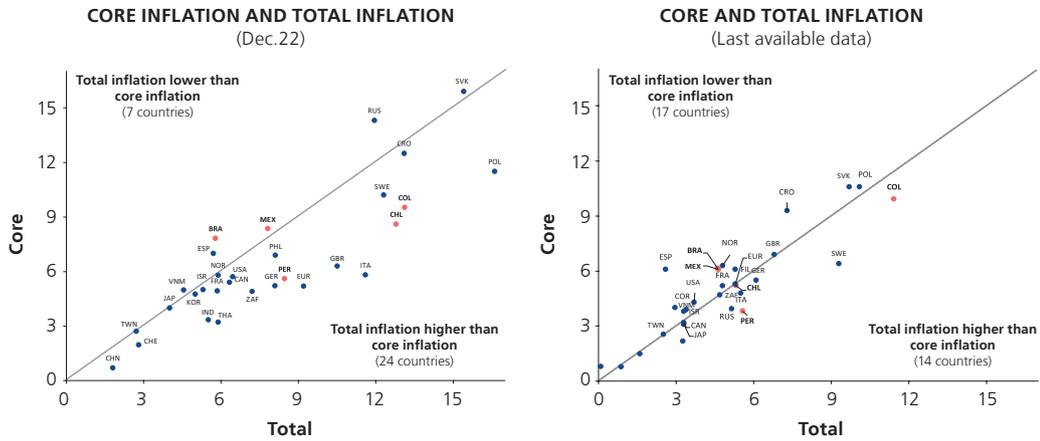
	Dec.22	Mar.23	Jul.23	Last disposable data
Total inflation higher than core inflation	24	18	11	14
Total inflation lower than core inflation	7	13	20	17

Note: sample of 31 countries (or regions): Brazil, Chile, Colombia, Peru, Canada, Mexico, United States, Eurozone, Croatia, Poland, Russia, Slovakia, France, Germany, Italy, Norway, Spain, Sweden, Switzerland, United Kingdom, China, Indonesia, Japan, Philippines, South Korea, Taiwan, Thailand, Vietnam, Israel, Iraq and South Africa.
Source: Central banks and statistical institutes.

A similar behavior was observed in the countries across the region. Total inflation has fallen more sharply than core inflation, although the latest data point to a generalized normalization. As noted in the June Report, in Brazil and Mexico, countries that

adopted specific measures to reduce energy prices, core inflation remains above total inflation.

Graph 12
INFLATION IN LATIN AMERICA 2020-2023
(Percentage)
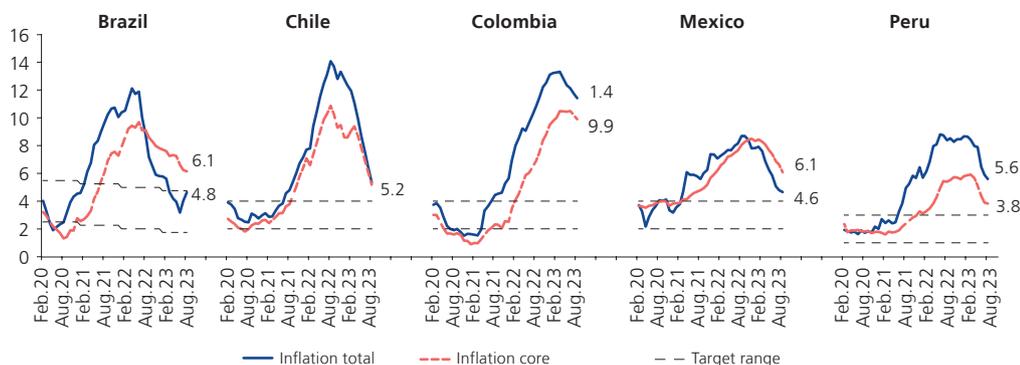
Source: Each country's central banks and statistical institutes

Monetary and fiscal policy responses

7. In recent months, the central banks of the main developed economies continued to **tighten monetary policy**, although less stringently than in previous months.

    In July, the Fed raised rates by 25 bps. for the fourth time this year, bringing the rate to a range between 5.25 and 5.50 percent. Rate hikes of 25 bps. were also made by the European Central Bank (ECB), the Bank of England and the Bank of Canada. The exception was the Bank of Japan, which kept the interest rate at -0.1 percent, but signaled some easing in the yield curve control policy.

Graph 13
CENTRAL BANKS: TOTAL ASSETS
(Billions of US$)
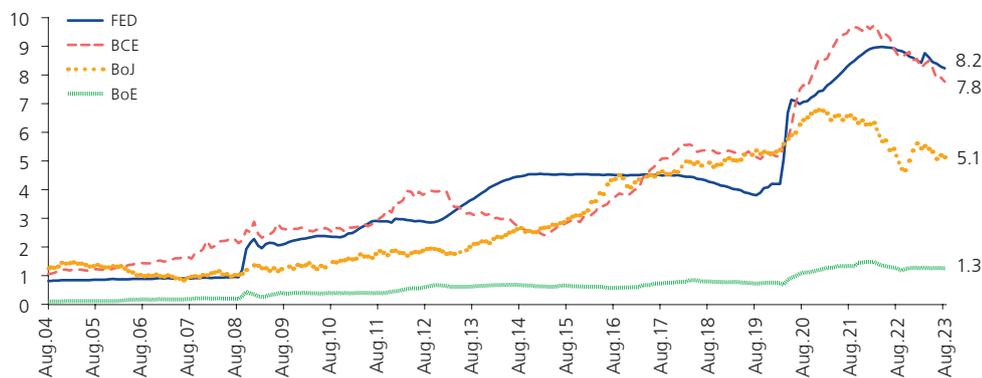
Fed = Federal Reserve, ECB = European Central Bank, BOJ = Bank of Japan, BoE = Bank of England.
Source: Central banks and IMF.

Likewise, central banks continued to shrink their assets by reducing their financial securities holdings. In all cases, the size of assets is much larger than that observed prior to the COVID-19 pandemic.

In line with tightening monetary policy, financial conditions continued to tighten, particularly in the eurozone and the United Kingdom. In the United States, there was some improvement compared to the first months of the year, at the time of the regional banking crisis. However, financial conditions are tighter than those observed at the end of 2021, prior to the Fed's monetary policy adjustments.

Graph 14
FINANCIAL CONDITION INDEXES
(January 1, 2019 =100)
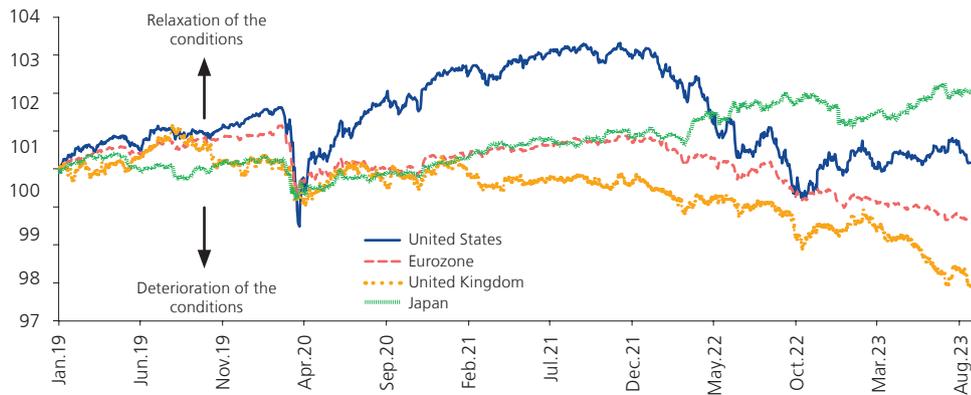
Source: Goldman Sachs.

Among emerging economies, most central banks kept interest rates high in the face of persistent inflation above the target range. Few cases of rate hikes were recorded in response not only to inflationary pressures but also to pressures on the exchange rate (Russia, Argentina and Turkey). On the other hand, in a context of economic slowdown and negative inflation, China reduced its rates, although below expectations. In Latin America, Colombia and Mexico maintained rates, while Brazil and Chile reduced them by 50 and 25 basis points, respectively, from their maximum levels.

Graph 15
MONETARY POLICY INTEREST RATES
(Percentage)
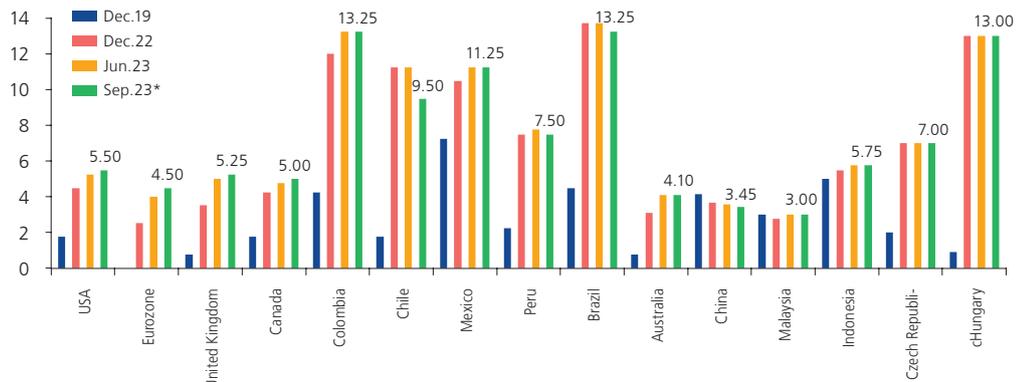
* As of September 14.
Note: For the United States, the data correspond to the upper band of the Fed's reference rate range.
Source: Central banks, Trading Economics.

8. In regards of **fiscal policy**, the solution to the debt limit issue in the United States stands out. Congress approved suspending the US$31.4 trillion debt limit until January 2025 and including spending caps for the 2024 and 2025 budgets. However, a standstill of federal agency operations (shutdown) after September 30 lurks, since Congress has not yet defined the budget for fiscal year 2024 (which begins in October). The lack of agreement on fiscal policy is one of the factors taken into account by the rating agency Fitch when reducing the government's credit rating, from AAA to AA+.

9. In the Eurozone, as mentioned in previous reports, during the 2020-2022 period, the fiscal stance was expansionary to face external shocks and protect the region's vulnerable sectors, creating an additional burden on public finances.

   So far this year, fiscal consolidation has already begun to mitigate higher fiscal borrowing costs and the effect of persistent inflation. The fiscal consolidation strategy aims at strengthening fiscal sustainability, rebuilding fiscal buffers, foster higher sustainable growth, and facilitate structural reforms (in sectors such as green and digital transition and defense capabilities).

   In this regard, in June, European Union authorities agreed on specific and differentiated fiscal recommendations for member countries for the remainder of the year and for next year. Thus, measures continued to be introduced to reduce support to the energy sectors and using the related savings to trim public deficits as soon as possible in 2023 and 2024. Likewise, several economies continued to enforce windfall taxes, a one-time tax levied on a company or industry when economic conditions result in large windfall profits. In this context, for example, in recent months, the Italian government announced a new tax on bank profits that initially generated uncertainty in the markets. The initially projected tax was 0.5 percent of assets, a rate that was later disproved when a tax of no more than 0.1 percent of assets was announced.

Global economic outlook

10. In line with better-than-expected executed data and signs of resilience in several developed economies, the **global growth forecast** is revised upward for 2023 (from 2.5 to 2.8 percent). Of note is the upward revision for the United States (from 1.0 to 1.8 percent), counterbalancing forecasts of slower growth in China.

    For next year, global growth forecasts were revised slightly down from 2.8 to 2.7 percent, under the assumption of a slower pace of expansion in emerging economies, especially China.

    Global activity is expected to slow down in line with the factors pointed out in the previous inflation report. These include slower pace in domestic demand due to the lagged impact of monetary policy, lower expected gains in the labor market and smaller surplus savings set aside during the pandemic. In addition to this, lower inventory build-up and the recent performance of the Chinese economy are compounded by less dynamic growth in domestic demand.

Table 3
GLOBAL GROWTH
(Annual percentage changes)

	PPP*	2022	2023		2024	
			IR Jun.	IR Sep.	IR Jun.	IR Sep.
Developed economies	**41.7**	**2.7**	**0.8**	**1.5**	**1.2**	**1.1**
Of wich						
1. USA	15.5	2.1	1.0	1.8	1.0	1.0
2. Eurozone	12.0	3.5	0.5	0.5	1.1	0.9
3. Japan	3.8	1.1	1.0	1.2	1.1	0.9
4. United Kingdom	2.3	4.0	-0.2	0.3	0.7	0.4
5. Canada	1.4	3.4	1.0	1.4	1.3	1.1
Dveloping economies	**58.3**	**4.0**	**3.7**	**3.7**	**4.0**	**3.9**
Of wich						
1. China	18.6	3.0	5.4	4.9	5.0	4.8
2. India	7.2	6.8	6.0	6.0	6.0	6.0
3. Russia	2.9	-2.2	-2.0	0.1	1.3	1.3
4. Latin America and the Caribbean	7.2	3.9	1.1	1.6	1.9	1.7
Argentina	0.7	5.2	-0.5	-2.0	1.8	0.6
Brazil	2.3	2.9	0.9	2.0	1.7	1.5
Chile	0.4	2.4	-0.8	-0.5	2.0	2.0
Colombia	0.6	7.5	0.5	1.0	1.7	1.7
Mexico	1.8	3.1	1.3	2.5	1.6	1.4
Peru	0.3	2.7	2.2	0.9	3.0	3.0
World Economy	**100.0**	**3.4**	**2.5**	**2.8**	**2.8**	**2.7**

*Percentage share of each country or region in 2022 Purchasing Power Parity (PPP) World GDP.
Source: IMF, Consensus Forecasts.

11. As in previous reports, the main **biases for this scenario** introduce a downside risk to the forecast, although the likelihood of a U.S. recession has been trimmed with respect to the June report forecast. One of the risks is the slower inflation convergence to its target, which would imply a tighter monetary policy than projected for 2024. Another risk is associated with a more severe adjustment in global financial conditions associated with potential deterioration of banks' balance sheets, mainly in the United States. Other risk factors are the potential aggravation of geopolitical tensions and an escalation of trade tensions, particularly between the United States and China.

In contrast with observations in the June inflation report, sharper slowdown in China is also a possibility if the problems in the real estate sector worsen and a deflationary process sets in. A severe global El Niño could also imply, especially for some cereals, an impact on prices that could renew inflationary pressures on the supply side.

International financial markets

12. Since the last inflation report, **financial markets** have been influenced by events in developed economies, particularly in the United States and China.

First, economic data from the United States reaffirmed the economy's greater resilience and a slower convergence of inflation towards its target, particularly in the services sector. This contributed to increased expectations that the Fed will keep rates higher for longer than expected, which favored the appreciation of the dollar (since July) and higher sovereign yields.

Moreover, equity markets were particularly affected by fears regarding China's growth. In addition to this, some credit events such as the downgrade of the US sovereign debt rating by Fitch and the subsequent downgrades of several medium-sized banks by S&P and Moody's compounded the situation. On the geopolitical front, tensions stemming from the war in Ukraine and trade tensions between the United States and China persisted, particularly regarding key technology sectors. However, US stock markets were the exception, recording gains on the back of better-than-expected second quarter corporate results and positive economic indicators.

As a result, risk aversion was contained. In the United States, the VIX remained at 13.6 points with spikes to 17.9 points. Likewise, the MOVE, an index that captures the volatility of US bond markets, declined slightly to 108 points –although it experienced temporary increases to 134 points–.

Graph 16
VOLATILITY INDEXES: VIX (U.S. STOCK MARKET)
AND MOVE (U.S. SOVEREIGN YIELDS)
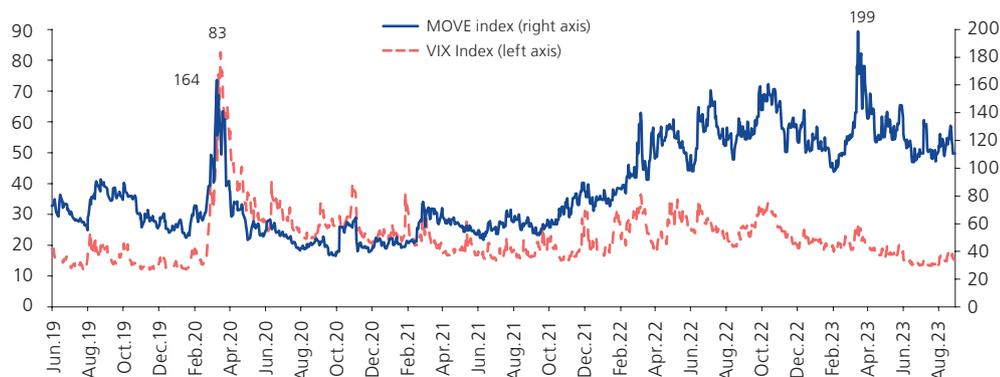
Source: Reuters.

For its part, capital flows to emerging economies, after recovering in June and July, recorded outflows again in August, particularly in the equity markets.

Graph 17
NON-RESIDENT CAPITAL FLOWS TO EMERGING MARKETS
(US$ billions)
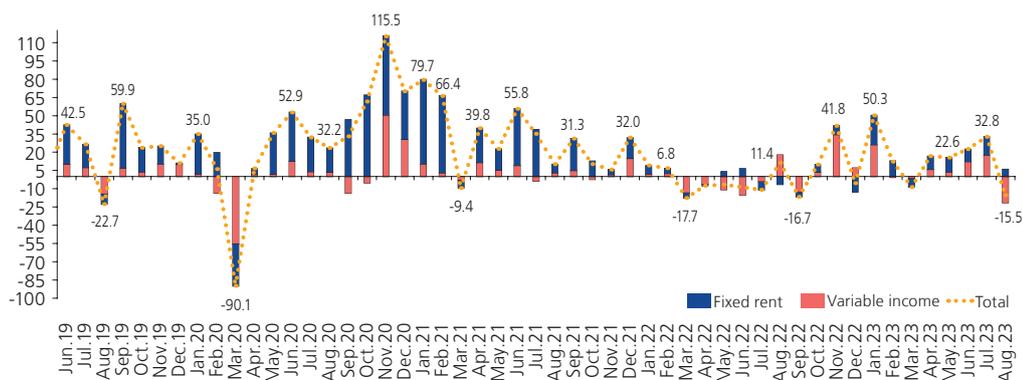
Note: Positive (negative) data implies a net inflow (outflow) of capital to emerging markets.
Source: IIF.

13. In **fixed income markets**, U.S. sovereign yields rose following renewed expectations of a longer Fed policy tightening, positive economic data, slowly falling inflation and a sovereign rating downgrade.

Graph 18
U.S. SOVEREIGN YIELDS
(Percentage)
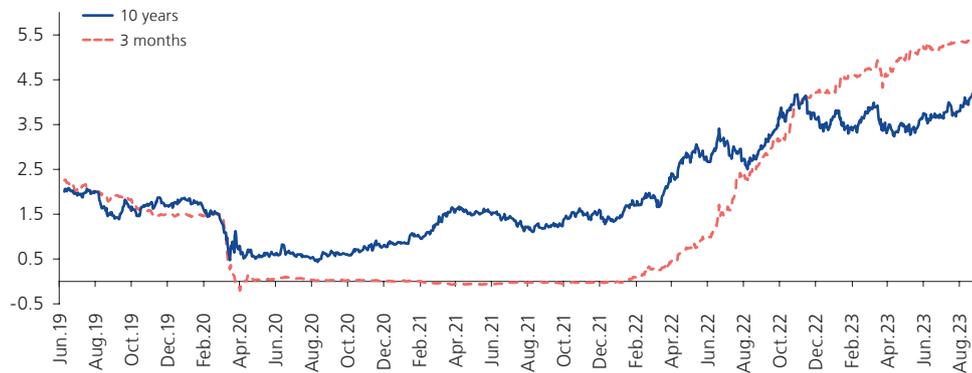
Source: Reuters.

A similar trend was observed in Europe, where additional rate adjustments were adopted by the ECB. In most emerging economies, yields also rose reflecting lower demand for these assets amid fears of China's growth and expectations of higher interest rates globally.

Table 4
10-YEAR SOVEREIGN BOND YIELDS*
(Percentage)

	Dec.22 (a)	Jun.23 (b)	Aug.23 (c)	Difference (pbs)	
				(c) / (b)	(c) / (a)
USA	3.88	3.84	4.11	27	23
Germany	2.57	2.39	2.46	7	-11
France	3.11	2.93	2.98	5	-13
Italy	4.70	4.07	4.12	5	-58
Spain	3.65	3.38	3.48	10	-17
Greece	4.57	3.65	3.77	12	-80
United Kingdom	3.66	4.38	4.36	-2	70
Japan	0.41	0.39	0.65	26	24
Brazil	12.69	10.63	11.17	54	-152
Colombia	13.01	10.25	10.63	38	-238
Chile	5.26	5.25	5.66	41	40
Mexico	9.02	8.67	9.28	61	26
Peru	**7.97**	**6.90**	**6.77**	**-13**	**-120**
South Africa	10.79	11.75	11.71	-4	92
India	7.33	7.12	7.16	4	-17
Turkey	9.60	16.21	18.45	224	885
Russia	9.28	9.68	10.52	84	124
China	2.84	2.64	2.58	-6	-26
South Korea	3.74	3.66	3.83	17	9
Indonesia	6.92	6.24	6.36	12	-56
Thailand	2.64	2.56	2.76	20	12
Malaysia	4.04	3.85	3.84	-1	-20
Philippines	6.67	6.21	6.24	3	-43

* Prepared as of August 31, 2023.
Source: Reuters.

14. In the **equity markets**, good performance in the U.S. stock markets in recent months was supported by better-than-expected corporate results and economic data evidencing a resilient economy. At sector level, energy stocks (favored by strong oil and gas price increases) and communications stocks advanced.

Graph 19
U.S. STOCK MARKET (S&P 500)
(In index)
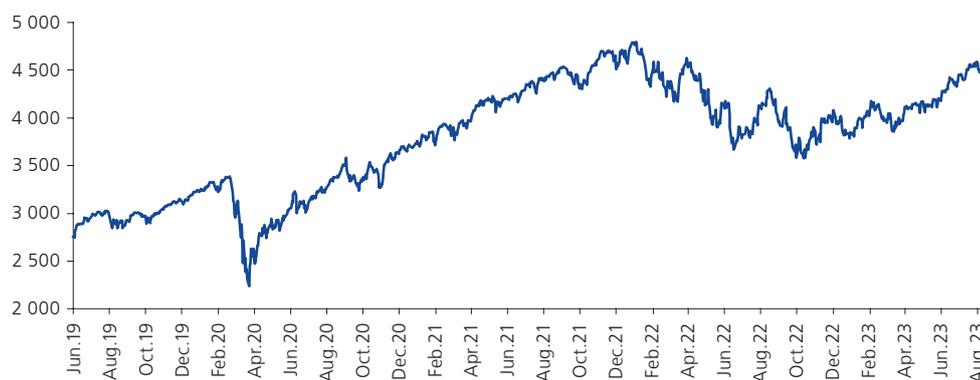
Source: Reuters.

European stock markets were particularly affected by the economic slowdown in China and Germany and by restrictive monetary policies of the main central banks.

Table 5
WORLD STOCK EXCHANGES*
(In indexes)

		Dec.22 (a)	Jun.23 (b)	Aug.23 (c)	% chg.	
					(c) / (b)	(c) / (a)
VIX**	S&P 500	21.67	13.59	13.57	0.0	-8.1
USA	Dow Jones	33,147	34,408	34,722	0.9	4.8
USA	S&P 500	3,840	4,450	4,508	1.3	17.4
USA	Nasdaq	10,466	13,788	14,035	1.8	34.1
Germany	DAX	13,924	16,148	15,947	-1.2	14.5
France	CAC 40	6,474	7,400	7,317	-1.1	13.0
Italy	FTSE MIB	23,707	28,231	28,832	2.1	21.6
Spain	IBEX 35	8,229	9,593	9,506	-0.9	15.5
Greece	ASE	930	1,279	1,312	2.6	41.1
United Kingdom	FTSE 100	7,452	7,532	7,439	-1.2	-0.2
Japan	Nikkei 225	26,095	33,189	32,619	-1.7	25.0
Brazil	Ibovespa	109,735	118,087	115,742	-2.0	5.5
Colombia	COLCAP	1,286	1,134	1,076	-5.1	-16.3
Chile	IPSA	5,262	5,787	6,009	3.8	14.2
Mexico	IPC	48,464	53,526	53,021	-0.9	9.4
Argentina	Merval	202,085	426,281	653,603	53.3	223.4
Peru	Ind. Gral.	21,330	22,330	23,134	3.6	8.5
South Africa	JSE	73,049	76,028	74,954	-1.4	2.6
India	Nifty 50	18,105	19,189	19,254	0.3	6.3
Turkey	XU100	5,509	5,759	7,918	37.5	43.7
Russia	RTS	971	983	1,059	7.8	9.1
China	Shangai C.	3,089	3,202	3,120	-2.6	1.0
South Korea	KOSPI	2,236	2,564	2,556	-0.3	14.3
Indonesia	JCI	6,851	6,662	6,953	4.4	1.5
Thailand	SET	1,669	1,503	1,566	4.2	-6.2
Malaysia	KLCI	1,495	1,377	1,452	5.5	-2.9
Philippines	Psei	6,566	6,468	6,175	-4.5	-6.0

* Prepared as of August 31, 2023.
** Data and variations are expressed in points.
Source: Reuters.

15. In the **foreign exchange markets**, the dollar appreciated against the main currencies. This appreciation trend has been recorded since July, matching statements by Fed officials on the need to maintain a tighter monetary stance than expected. In addition to this, there were concerns about China's slowdown. In addition, the yen was influenced by the Bank of Japan's monetary policy divergence.

Graph 20
DOLLAR INDEX DXY
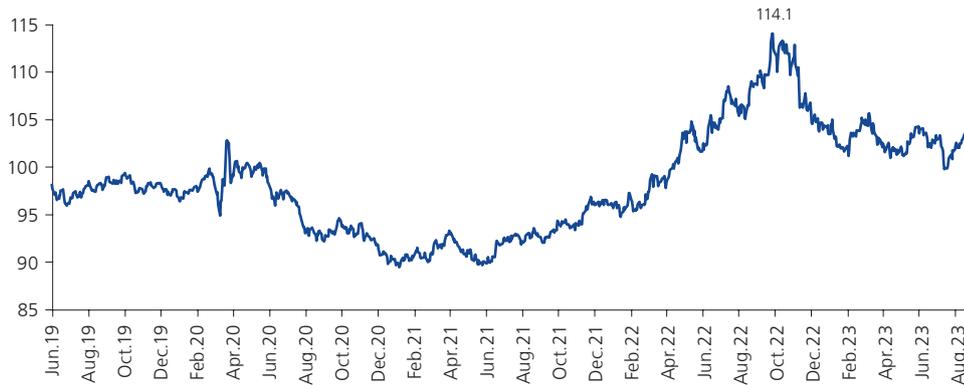
Source: Reuters.

Table 6
EXCHANGE RATES*
(In monetary units per dollar, except for euro and pound)

		Dec.22 (a)	Jun.23 (b)	Aug.23 (c)	% chg. **	
					(c) / (b)	(c) / (a)
Dollar index DXY***	US Dollar Index	92.124	103.52	102.91	103.62	0.7	0.1
Euro	Euro	1.1996	1.070	1.091	1.084	-0.6	1.3
United Kingdom	Pound	1.3512	1.210	1.270	1.267	-0.3	4.7
Japan	Yen	112.67	131.11	144.32	145.53	0.8	11.0
Brazil	Real	3.3121	5.286	4.786	4.954	3.5	-6.3
Colombia	Peso	2982	4847	4173	4088	-2.0	-15.7
Chile	Peso	614.65	848	801	852	6.4	0.5
Mexico	Peso	19.648	19.47	17.11	17.03	-0.5	-12.6
Argentina	Peso	18.594	176.74	256.70	349.95	36.3	98.0
Peru	**Sol**	**3.237**	**3.807**	**3.626**	**3.691**	**1.8**	**-3.0**
South Africa	Rand	12.3574	17.00	18.83	18.87	0.2	11.0
India	Rupee	63.83	82.72	82.09	82.70	0.7	0.0
Turkey	Lira	3.789	18.69	26.05	26.65	2.3	42.6
Russia	Ruble	57.6575	72.50	86.95	94.88	9.1	30.9
China	Yuan (onshore)	6.5063	6.897	7.251	7.258	0.1	5.2
South Korea	Won	1066.37	1261	1315	1325	0.8	5.1
Indonesia	Rupia	13565	15565	14990	15225	1.6	-2.2
Thailand	Bath	32.55	34.61	35.27	34.98	-0.8	1.1
Malaysia	Ringgit	4.044	4.400	4.665	4.637	-0.6	5.4
Philippines	Peso	49.977	55.67	55.26	56.62	2.5	1.7

* Prepared as of August 31, 2023.
** A rise (fall) implies an appreciation (depreciation) of the dollar, except for the euro and the pound.
*** A rise (fall) in the index implies an appreciation (depreciation) of the dollar against the basket of currencies comprising the euro, yen, pound, Canadian dollar, Swedish krona and Swiss franc.
Source: Reuters.

In line with the global trend, most emerging currencies depreciated against the dollar. Of note was the weakness of the Argentine peso and the Russian ruble, where pressures on domestic currencies led to higher policy interest rates.

However, the Colombian and Mexican pesos were exceptions to this trend due to high oil prices and better-than-expected economic activity.

Commodity prices

16. **Industrial metals'** prices were mostly high in recent months, supported by stimulus and expectations of stimulus from China, which counterbalanced the performance of manufacturing activity at the global level and lower-than-expected growth in China's real estate sector.

    Oil rose strongly supported by the decision of Saudi Arabia and Russia to make voluntary and unilateral production cuts, which are in addition to the cuts approved by OPEC+ until 2024.

    For its part, most **food** prices continued their downward trend, due to the normalization of supply after the impact of the war in Ukraine and drought problems in some of the main producing countries.

Graph 21
LME AND CRB COMMODITY INDEX

Source: Reuters.

Copper

17. The average price of copper fell from US$/pd. 3.80 in June to US$/pd. 3.79 in August 2023, roughly remaining at levels from December 2022.

    The average price of copper slipped slightly due to the deterioration of China's demand outlook and the weakening of the yuan, as well as a more restrictive policy than expected by the main central banks during this period. This downward trend was limited by the measures taken by the Chinese government, amid the real estate crisis, to support the completion of housing developments (a stage in building projects where copper consumption is most intense). Also supporting the price were low inventories in China and the use of renewable energy, which continues to grow at double-digit rates.

On the supply side, mine and smelter expansion projects are expected to go online in the remainder of this year and in 2024, ensuring a well-supplied market in the short term. In the same vein, the International Copper Study Group (ICSG) reported a market with a global supply surplus in the first half of the year.

Table 7
SUPPLY AND DEMAND FOR REFINED COPPER 1/
(Thousands of metric tons of copper)

	2019	2020	2021	2022	Jan./Jun. 2022	Jan./Jun. 2023	% chg. 2023/2022
Global Mine Production	20,672	20,743	21,279	21,953	10,597	10,817	2.1%
Global Refined Production (Primary and Secondary)	24,144	24,643	24,938	25,644	12,601	13,523	7.3%
Global Refining Utilization	24,321	24,945	25,204	26,069	12,797	13,310	4.0%
Refining Balance 2/	-177	-302	-266	-425	-196	213	

1/ ICSG monthly report for August 2023.
2/ The refined products balance is calculated as the subtraction between the global production of refined products (supply) and their utilization (demand).
Source: ICSG.

These developments have also been reflected in a drop in non-commercial demand. The number of non-commercial net purchase contracts for copper was again in negative territory. This reflected the worsening negative sentiment among non-commercial investors about the prospects for a recovery in China's copper demand in these two months.

Graph 22
COPPER: NON-COMMERCIAL CONTRACTS
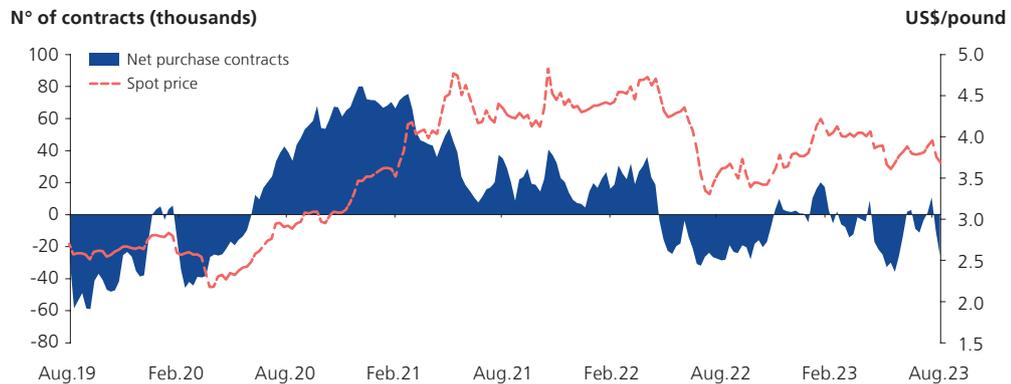
Note: The Commodity Futures Trading Commission's Speculative Net Copper Positions is a weekly report that reflects the difference between the total volume of long (or buy) and short (or sell) copper positions in the market held by non-commercial (speculative) traders. The report only includes the U.S. futures markets (Chicago and New York Exchanges).
Source: Comex.

In this regard, the copper price forecast has been revised slightly down from the June inflation report estimate. The risks to this forecast are balanced. On the one hand, further expansion of green energy infrastructure and the electrification of the global automotive fleet could push the price above the baseline scenario. Also, mine production disruptions related to El Niño are possible. On the other, a worsening of the crisis in China's real estate and financial sector, coupled with tighter environmental standards announced by the Ministry of Ecology and Environment, could reduce demand for the metal.

Graph 23
COPPER: JANUARY 2014 - DECEMBER 2024
(ctv. US$/pd.)

| | IR Jun.23 | | IR Sep.23 | |
	Avg.	% chg. anual	Avg.	% chg. anual
2020	280	2.7	280	2.7
2021	422	50.8	422	50.8
2022	400	-5.2	400	-5.2
2023	388	-3.1	386	-3.6
2024	383	-1.3	380	-1.4
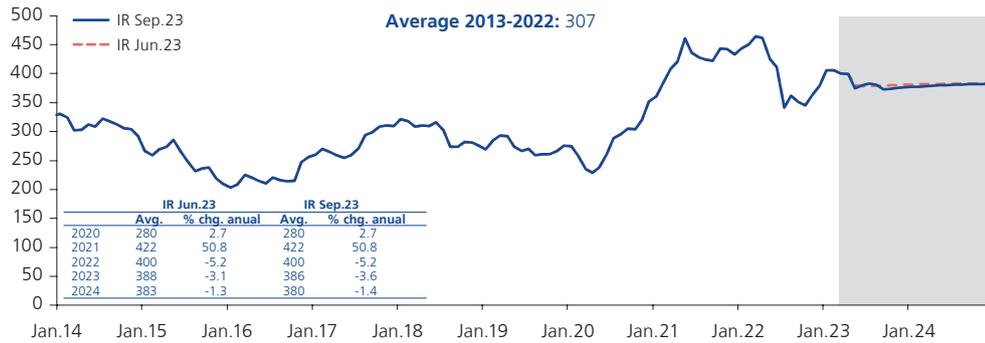
Source: Reuters and BCRP.

Zinc

18. The average international price of zinc rose to US$/pd. 1.09 in August 2023, a level 1 percent higher than recorded in June 2023. With this, the price of zinc accumulated a 23 percent drop with respect to December 2022.

The average price of zinc increased slightly supported by demand for galvanized steel in China, associated with policy measures to support the completion of ongoing real estate developments. Expectations that the Chinese government will implement new measures to avoid a crisis in the real estate sector and any related systemic risk also contributed.

However, upward pressures were counterbalanced by the release of indicators showing greater than expected weakness in China's real estate sector. There are also expectations that the market will record a global supply surplus in the years 2023-2024 in line with the recovery of refining production in Europe (due to lower energy costs) and the expected increase in China's production. Zinc inventories on the London Metal Exchange rose to levels not seen since February 2022, reflecting the recovery in refining production.

Graph 24
ZINC: JANUARY 2014 - DECEMBER 2024
(cts US$/pd.)

| | IR Jun.23 | | IR Sep.23 | |
	Avg.	% chg. anual	Avg.	% chg. anual
2020	103	-11.1	103	-11.1
2021	136	32.6	136	32.6
2022	158	16.1	158	16.1
2023	124	-21.8	119	-24.9
2024	117	-5.3	109	-8.0
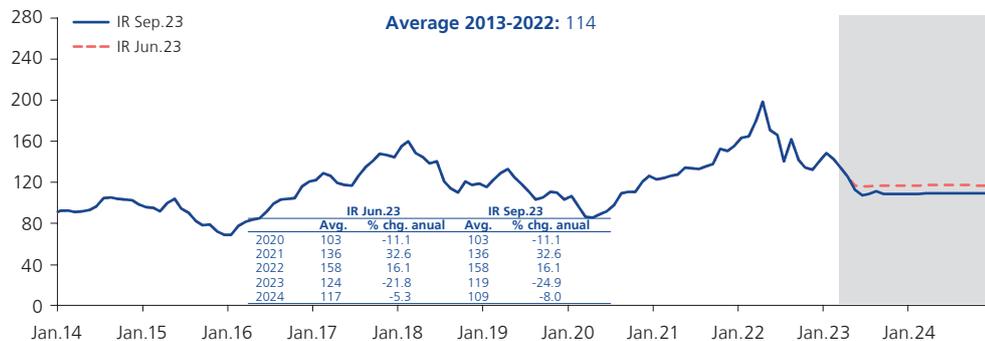
Source: Reuters and BCRP.

In line with these developments, the price of zinc is expected to correct downward over the forecast horizon relative to that predicted in the June Inflation Report. In the medium term, the normalization of smelter production and increased mine supply could generate downward pressure on the price.

Gold

19. The average gold price was US$/tr.ou. 1,918 in August 2023, 1 percent lower than in June 2023. With this, the gold price accumulated an increase of 7 percent over December 2022.

    Despite growth fears and the persistence of inflationary pressures, the price of gold declined in recent months due to a more restrictive monetary policy by the Fed. In addition to this, the better-than-expected performance of other assets favored portfolio switching, which was reflected in the high rate of gold ETF (*Exchange Traded Fund*) liquidation in recent months. The lower price of gold also contributed to the lower price of gold due to the lower demand from the central banks of emerging economies.

    In line with the executed data, the gold price forecasts for the June Inflation Report are revised downward. This revision reflects the resurgence of expectations of further tightening by the Fed and the persistently high levels of inflation rates at the global level.

Graph 25
GOLD: JANUARY 2014 - DECEMBER 2024
(US$/tr.ou.)

	IR Jun.23		IR Sep.23	
	Avg.	% chg. anual	Avg.	% chg. anual
2020	1,770	27.1	1,770	27.1
2021	1,799	1.7	1,799	1.7
2022	1,801	0.1	1,801	0.1
2023	1,999	11.0	1,933	7.3
2024	2,126	6.4	2,007	3.8

Average 2013-2022: 1,437
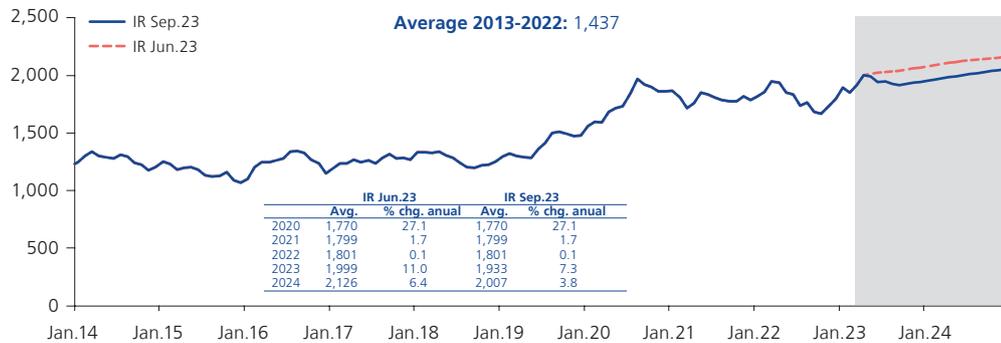
Source: Reuters and BCRP.

Gas

20. The average **Henry Hub natural gas** price increased 19 percent in August with respect to June 2023, accumulating a 53 percent drop with respect to December 2022.

    The quotation in the European market (*UK BNP*) rose only 1 percent in August 2023 with respect to the June 2023 level. As a result, the gas price accumulated a 69 percent drop with respect to December 2022. Remarkably, prices in the Europe market remain above the Henry Hub natural gas quotation.

    The recent price increase in the Henry Hub natural gas price is explained by higher-than-expected demand in the face of warmer than expected weather and higher

liquefied natural gas (LNG) exports to Europe. However, the Henry Hub gas price remains lower than in December 2022 due to high output in the United States, and the resulting rapid build-up of inventories (above the average levels of the last five years).

The price in Europe remained under slight upward pressure after the sharp correction in the first half of the year. The increase was due to longer-than-expected facility maintenance in Norway, which has limited supply to a greater extent than expected. Also putting upward pressure in recent weeks were fears of strike action in Australia. However, demand for heating and power generation from utilities has been lower than expected due to lower industrial demand. In addition, there was a high supply of LNG from the United States and Qatar, which allowed inventories in Europe to remain high.

By 2023, the average Henry Hub natural gas price has been revised slightly upward in line with a market exposed to unexpected production cuts already under tight global supply. Natural gas prices will remain at higher levels than at the beginning of the energy crisis, especially in Europe, where Russian gas substitutes are more expensive.

Graph 26
HENRY HUB NATURAL GAS: JANUARY 2014 - DECEMBER 2024
(US$/MBTU)

	IR Jun.23		IR Sep.23	
	Avg.	% chg. anual	Avg.	% chg. anual
2020	2.1	-15.9	2.1	-15.9
2021	3.7	74.6	3.7	74.6
2022	6.5	75.2	6.5	75.2
2023	2.7	-59.1	2.8	-57.4
2024	3.5	31.5	3.5	27.8

Average 2013-2022: 3.4
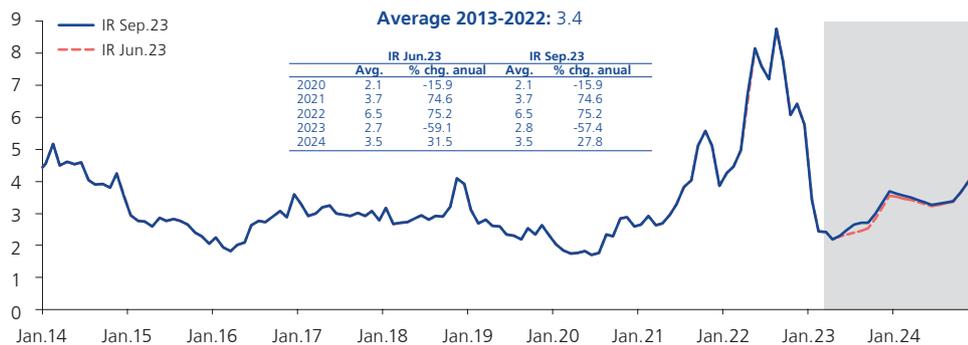
Source: Reuters and BCRP.

Oil

21. The average **WTI oil** price increased by 16 percent in the last two months, from a monthly average of US$/bl. 70 in June 2023 to US$/bl. 81 in August. The price of oil therefore recorded a cumulative increase of 6 percent with respect to December 2022.

Oil prices increased due to production cuts. OPEC+ decided to extend production cuts until 2024. Additionally, Russia and Saudi Arabia announced unilateral additional reductions. Saudi Arabia announced a unilateral production cut of one million barrels in July and August, and recently announced that it would extend the cut until September. In parallel, Russia announced a production cut of 500,000 barrels per day in February, in effect in the third quarter. There were unexpected supply disruptions in Libya and Nigeria, which could further tighten the market in coming months. At the same time, the United States announced crude oil purchases to begin replenishing its strategic reserves.

For the forecast horizon, the average oil price is revised upward with respect to the June report, due to higher expectations of a world market deficit in the second half of the year, reflecting the expected supply restrictions mentioned above.

Graph 27
WTI OIL: JANUARY 2014 - DECEMBER 2024
(US$/bl)

Average 2013-2022: 66

	IR Jun.23		IR Sep.23	
	Avg.	% chg. anual	Avg.	% chg. anual
2020	39	-30.9	39	-30.9
2021	68	72.8	68	72.8
2022	95	39.5	95	39.5
2023	73	-22.9	78	-17.7
2024	68	6.9	78	0.0
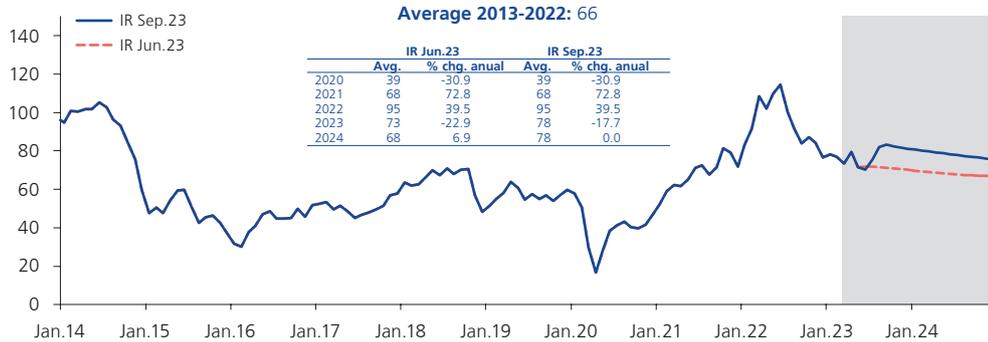
Source: Reuters and BCRP.

Food

22. Most **food** prices have continued their downward trend, due to the normalization of supply after the impact of the war in Ukraine and drought problems in some of the main producing countries. According to the FAO (Food and Agriculture Organization) index - which includes cereals, sugar, oil, meat and dairy products - food prices fell 1.0 percent in the last two months. As of August, they accumulated a 7.9 percent decrease with respect to December, although they remain above their historical averages; this correction was mainly explained by the fall in cereal prices.

Graph 28
FAO FOOD PRICE INDEX*
(Base 2014 - 2016 = 100)
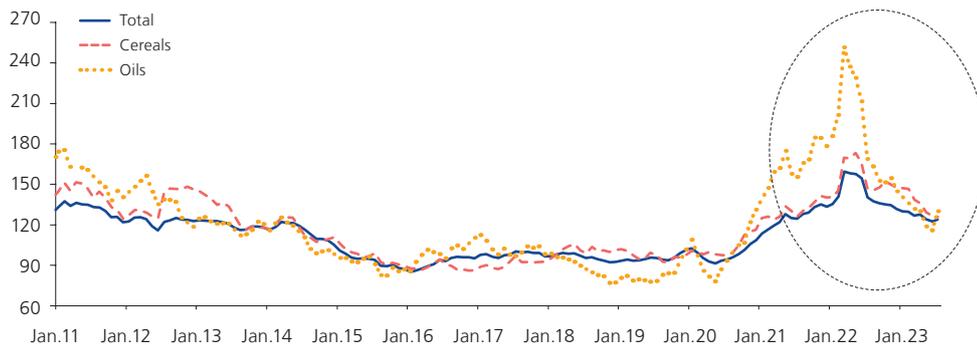
* The real price index is the nominal price index deflated by the World Bank's manufacturing unit value index.
Source: FAO.

In general terms, the reduction in the prices of most foodstuffs is explained by the normalization of global supply chains and high production levels in most countries. This trend was temporarily interrupted by the non-renewal of the Grain Export Agreement (a factor that, in addition, introduces an upside risk in the forecast's horizon). Likewise, lower fertilizer costs were recorded, although they remain at levels unseen since 2014.

Graph 29
GREEN MARKETS NORTH AMERICA FERTILIZER PRICE INDEX
(Index, Jan 07, 2002=100)
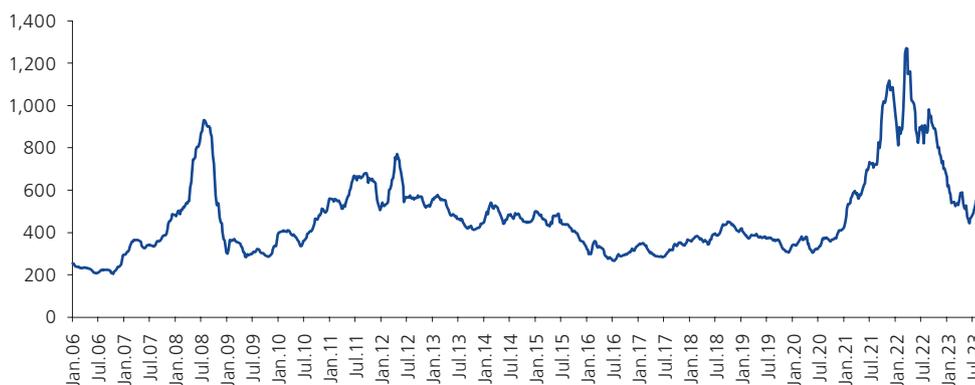
Source: Reuters.

(a) The price of **maize** fell 4 percent in the last two months, reaching an average monthly quotation of US$/MT 201 in August 2023. Maize price accumulated a 20 percent drop with respect to December 2022.

The price of maize declined on signs of a better supplied market due to the normalization of supply. The arrival of Brazil's second harvest (which accounts for two thirds of that country's total production) and Argentina's harvest, the world's largest and third largest exporters of the grain, respectively, contributed to the decline in corn prices.

On the demand side, concern was raised by the U.S. Environmental Protection Agency's (EPA) decision to announce lower ethanol blending mandates than expected by the industry, discouraging industrial demand for maize.

However, the fall in prices is limited by low world maize inventories and Russia's decision not to renew the Black Sea Grain Export Agreement, which had previously allowed grain exports from Ukraine. In addition, Russia initiated attacks on Ukrainian Black Sea ports and terminals on the Danube River, Ukraine's alternative means of continuing to export grain and agricultural by-products.

Forecasts are revised down over the forecast horizon due to the prospects of better U.S. production for the 2023/2024 marketing year and a higher-than-

expected seasonal inflow of the South American crop. A seasonal increase in Brazil's supply and subsequently the U.S. crop is expected to keep prices of maize on a slightly downward trend in the second half of 2023.

The main risks in this projection are linked to the renewal of the agreement on the export corridor through the Black Sea and the impact of the probable El Niño event later this year. While the impact of this event is already partially incorporated into current prices, there is a likelihood that a severe event would have a major impact on production in the United States, Europe and Latin America.

Graph 30
MAIZE: JANUARY 2014 - DECEMBER 2024
(US$/MT)

Average 2013 2022: 171

	IR Jun.23		IR Sep.23	
	Avg.	% chg. anual	Avg.	% chg. anual
2020	137	-3.4	137	-3.4
2021	226	65.4	226	65.4
2022	273	18.7	273	20.9
2023	235	-14.0	230	-16.0
2024	205	-12.9	199	-13.2
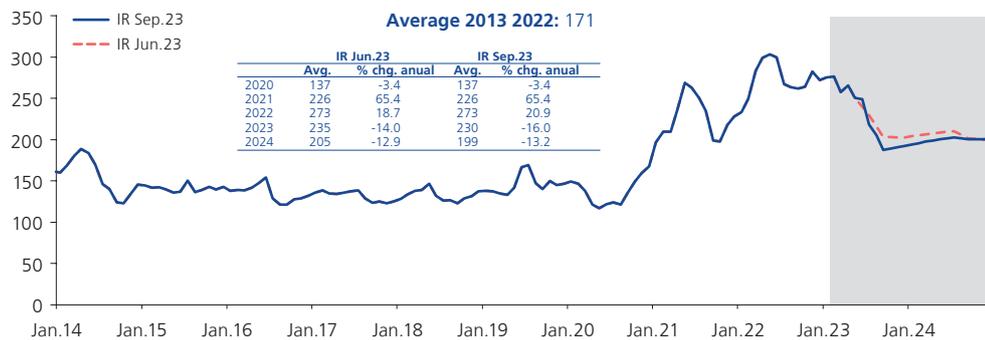
Source: Reuters and BCRP.

(b)   Since the last report, the **wheat** price fell by 11 percent, reaching US$/MT 291 in August 2023. Compared to December 2022, the wheat price accumulated a 13 percent drop.

Wheat prices declined due to the seasonal inflow of new supply in the main exporting countries, particularly due to strong competition from Russian exports benefiting from a depreciated ruble. The normalization of the world wheat market after the disruptions in the supply chain associated with the war in Ukraine and the reduction in fertilizer prices also contributed to declining prices.

For the forecast horizon, wheat prices are revised downward with respect to the forecasts made in the June report. This is a consequence of a better supplied market due to Russian exports and an improved wheat production outlook in the United States and the European Union.

As with maize, risks are skewed to the upside by possible disruptions in trade flows from the Black Sea region and the impact of a El Niño event. These risk factors could have a greater impact on prices given the tight supply and demand balance in the market (inventories in the main exporting countries are at eleven-year lows).

Graph 31
WHEAT: JANUARY 2014 - DECEMBER 2024
(US$/MT)

	IR Jun.23		IR Sep.23	
	Avg.	% chg. anual	Avg.	% chg. anual
2020	186	10.7	186	10.7
2021	259	39.6	259	39.6
2022	370	42.5	370	42.5
2023	317	-14.1	308	-16.7
2024	288	-9.3	274	-11.1

Average 2013 2022: 215
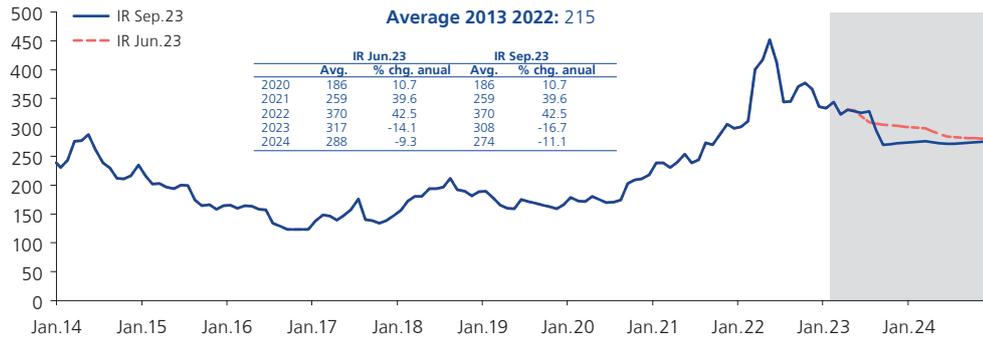
Source: Reuters and BCRP.

(c) **Soybean oil** prices averaged US$/MT 1,563 in August 2023, 22 percent higher than the US$/MT 1,285 price in June of this year and accumulated a 3 percent rise with respect to December 2022.

The average soybean oil price increased due to the sharp rise in oil prices, which increased the competitiveness of biodiesel made from soybean oil. Fears of lower sunflower oil supply due to the termination of the Black Sea export agreement and drought in soybean-producing areas in the United States also contributed. However, the rise was limited by regulatory changes in the United States, where the Environmental Protection Agency required less than expected use of soybean oil-based biodiesel.

Considering these recent developments, prices are projected to trade higher than projected in the previous inflation report. The main uncertainty in this projection lies in the evolution of oil prices. Other risk factors include the impact of the El Niño event on some substitute goods such as palm oil.

Graph 32
SOYBEAN OIL: JANUARY 2014 - DECEMBER 2024
(US$/MT)

	IR Jun.23		IR Sep.23	
	Avg.	% chg. anual	Avg.	% chg. anual
2020	696	8.1	696	8.1
2021	1 417	103.7	1 417	103.7
2022	1 635	15.3	1 639	15.6
2023	1 199	-26.6	1 377	-16.0
2024	1 080	-10.0	1 291	-6.3

Average 2013 2022: 889
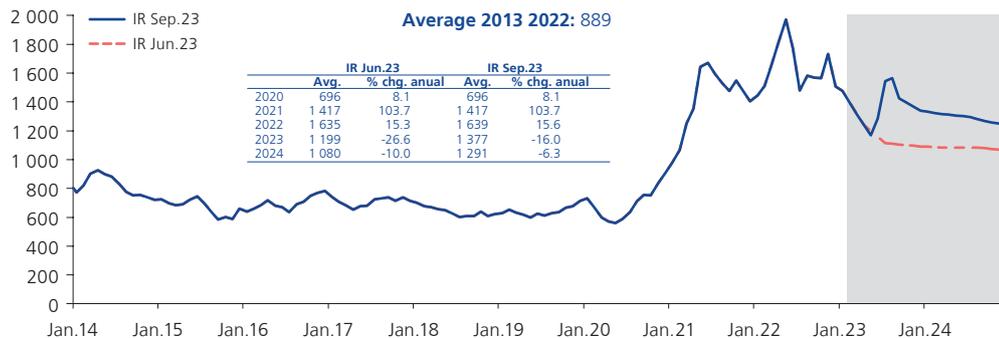
Source: Reuters and BCRP.

II. Balance of payments

23. The balance of payments remains on solid ground. Lower **current account deficit** between the end of 2022 and the first half of 2023 resulted from a higher trade balance surplus following the impact of lower domestic demand and input prices (particularly oil and industrial); and lower primary income deficit, accounted for by the effect of lower export prices on profits. This evolution was reinforced by the lower deficit in the services balance due to the gradual correction of freight prices; and higher secondary income, reflecting the higher inflow of remittances to the country.

Table 8
BALANCE OF PAYMENTS
(US$ millions)

	2022	2023*			2024*	
		S1.23 3/	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
I. CURRENT ACCOUNT BALANCE	**-9,908**	**-4,872**	**-5,274**	**-3,430**	**-3,760**	**-3,375**
% GDP	*-4.0*	*-1.9*	*-1.9*	*-1.3*	*-1.3*	*-1.2*
1. Trade Balance	10,333	12,953	14,260	15,771	15,659	16,402
a. Exports	66,235	65,382	66,131	65,438	68,824	68,301
Of which:						
i) Traditional	47,760	46,648	46,929	47,190	48,297	48,946
ii) Non-Traditional	18,221	18,489	18,993	18,032	20,329	19,138
b. Imports	55,902	52,429	51,872	49,667	53,165	51,899
2. Services	-8,642	-8,253	-6,626	-7,685	-5,403	-6,548
3. Primary income (factor income)	-17,373	-15,796	-18,980	-18,126	-20,035	-19,770
4. Secondary income (transfers)	5,773	6,224	6,072	6,610	6,018	6,540
Of which: Remittances	3,708	3,980	3,894	4,169	4,028	4,294
II. FINANCIAL ACCOUNT 1/	**-9,246**	**-10,175**	**-6,614**	**-4,124**	**-7,260**	**-6,875**
% GDP	*-3.8*	*-4.0*	*-2.4*	*-1.5*	*-2.5*	*-2.4*
1. Private Sector	-10,203	-11,383	-5,828	-3,087	-4,460	-3,689
a. *Long-term*	*-14,587*	*-9,806*	*-5,828*	*-3087*	*-4,460*	*-3,689*
b. *Short-term*	*4,385*	*-1,577*	*0*	*0*	*0*	*0*
2. Public Sector 2/	957	1,208	-786	-1,037	-2,800	-3,186
III. NET ERRORS AND OMISSIONS	*-4,427*	*-6,042*	*0*	*0*	*0*	*0*
IV. BALANCE OF PAYMENTS	**-5,089**	**-739**	**1,339**	**695**	**3,500**	**3,500**
IV= (I+III) - II = (1.2)						
1. Change in NIR balance	-6,612	-392	2,101	1,268	3,500	3,500
2. Valuation effect	-1,523	347	762	573	0	0

1/ The financial account and its components (private and public sector) are expressed as assets net of liabilities. Therefore, a negative sign implies an inflow of external capital.
2/ Includes the purchase and sale between residents and non-residents of government bonds issued abroad or in the local market.
3/ Shows the accumulated last two semesters to the first half of 2023.
IR: Inflation Report.
* Forecasts.
Source: BCRP.

This evolution should persist for the rest of the year while the 2023 current account deficit is expected to be lower than in 2022, mainly due to lower imports. Higher exported volumes of industrial minerals and a lower deficit in services -associated with lower maritime freight rates-would also contribute to this result. The deficit would narrow slightly in 2024, this time explained to a greater extent by the recovery of inbound tourism -thanks to higher inflows of non-resident travelers- and a recovery of our exports, following the partial normalization of adverse weather conditions expected for 2023.

Compared to the previous report, a lower current account deficit is expected for both 2023 and 2024. Firstly, a surplus in the trade balance may result from a decrease in the value of imports over the projection horizon, in line with lower private sector demand for capital goods and industrial inputs. Secondly, lower profits of companies holding FDI in the country are projected in 2023, consistent with a lower level of export prices. Finally, the higher inflow of remittances into the country -as of June 2023- and the indemnities expected for 2024 related to the high likelihood of El Niño, would favorably impact the secondary income surplus.

The current projection incorporates the impact of weather conditions on our exports -particularly agricultural and fishing exports- and a more gradual correction in the cost of maritime freight, as a consequence of congestion in the Panama Canal, which -as compared to shown in the previous report- implies a greater deficit of services in 2023 and 2024.

24. The accumulated **financial account** to the first half of 2023 showed a net capital inflow of US$ 10,175 million, US$ 929 million higher than the inflow recorded in 2022. Although there was less long-term financing of the private sector due to lower reinvested earnings and the resumption of purchases of external assets by AFPs and mutual funds, this was offset by a change from a creditor to a debtor position in the short-term capital account, reflecting the liquidation of assets in the non-financial sector.

A lower net inflow from the financial account is expected for 2023 compared to financing in 2022, a drop that is specifically explained by the greater purchase of external portfolio assets, the lower reinvestment of profits of companies with FDI operating locally, and lower disbursements. The flow of financing would recover in 2024, consistent with the gradual recovery of the reinvestment of profits by the private sector and growing private investment.

Compared to the June report, an even smaller increase in the net inflow to the financial account is expected for both 2023 and 2024, explained in both cases by a lower net financing flow to the private sector, following the projected drop in the reinvestment of profits of companies with FDI in 2023 and the higher pace of external asset purchases in 2024.

Terms of trade and goods trade balance

25. The **terms of trade** fell 0.7 percent year-on-year from January to June 2023 due to a larger drop in export prices -mainly copper and zinc- relative to lower import prices -basically foodstuffs such as wheat and maize, and oil-. The price of the main industrial metals declined in response to lower-than-expected growth in China's real estate sector, as well as deteriorating China demand outlook. To a lesser extent, this trend was reinforced by policy tightening by central banks.

    For its part, the year-on-year decline in food prices is explained by lower supply chain disruptions and high production levels in several countries. Although oil prices corrected in the last two months due to production cuts by OPEC, Russia and Saudi Arabia, as well as unexpected supply disruptions in some countries, in annual terms they still recorded a significant drop, reflecting a base effect due to the high prices reached in the first half of 2022.

    The terms of trade are expected to increase by 3.0 percent in 2023, which is lower than the 3.7 percent expected in the previous report. This revision is explained by a drop in the expected growth rate of export prices, slightly mitigated by the revision on the downside of import prices. Export prices, mainly for metals such as copper, zinc and gold, have been corrected downward for 2023, in line with China's growth outlook and the strengthening of expectations that the Fed will continue with the interest rate hike cycle.

    The terms of trade would continue to grow in 2024, although at a slower pace than projected in the June report (forecast from 2.5 to 1.3 percent). The change in the forecasts is explained by higher import prices, mainly for oil. The revision reflects expectations of a deficit in the world market, reflecting production cuts so far this year.

Table 9
TERMS OF TRADE: 2022-2024

	2022	2023*			2024*	
		S1.23	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
Terms of Trade						
Annual average % chg.	**-10.5**	**-0.7**	**3.7**	**3.0**	**2.5**	**1.3**
Price of exports						
Annual average % chg.	**1.8**	**6.9**	**-3.1**	**-3.6**	**1.9**	**2.2**
Copper (US$ cents per pound)	400	395	388	386	383	380
Zinc (US$ cents per pound)	158	129	124	119	117	109
Lead (US$ cents per pound)	98	97	96	96	96	96
Gold (US$ per troy ounce)	1,801	1,933	1,999	1,933	2,126	2,007
Price of imports						
Annual average % chg.	**13.7**	**-6.2**	**6.6**	**-6.5**	**0.6**	**0.9**
Oil (US$ per barrel)	95	75	73	78	68	78
Wheat (US$ per ton)	370	331	317	308	288	274
Maize (US$ per ton)	273	262	235	230	205	199

* Forecasts.
Source: BCRP.

Graph 33
TERMS OF TRADE, 2002-2024
(Index 100 = 2007)

	% chg.
2021	12.0
2022	-10.5
2023*	3.0
2024*	1.3
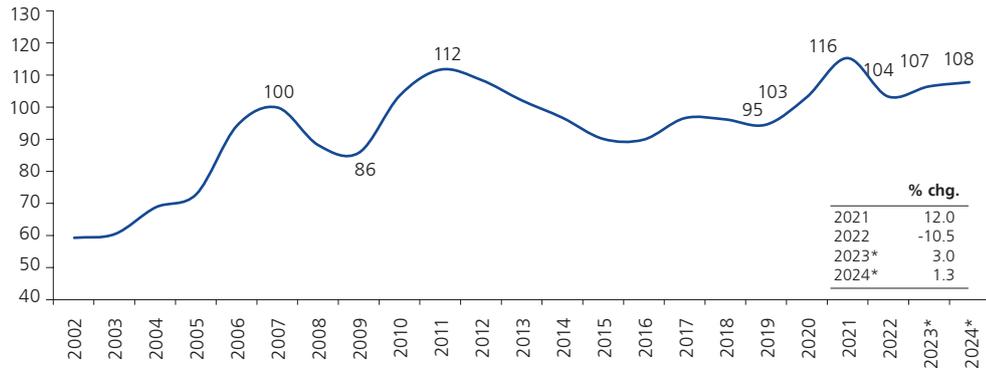
* Forecasts.
Source: BCRP.

26. The surplus in the **balance of trade in goods** reached US$ 8,355 million during the first half of 2023, US$ 2,619 million higher than the amount recorded in the same half of 2022 (US$ 5,736 million). The year-on-year expansion was due to the greater drop in imports (US$ 3,473 million) compared to the decrease recorded by exports during the same period (US$ 854 million).

The trade balance is projected to reach a surplus of US$ 15,771 million in 2023 and US$ 16,402 million in 2024, higher than the amounts forecast in the June report. The revision for both years is due to a downside correction in the volume of imports, mainly purchases of inputs and capital goods.

Graph 34
BALANCE OF TRADE IN GOODS, 2014-2024
(US$ millions)
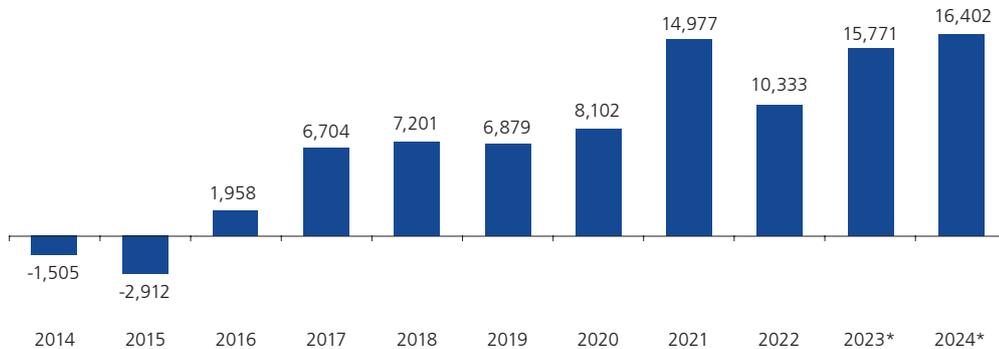
* Forecasts.
Source: BCRP.

27. **Exports** amounted to US$ 32,347 million between January and June 2023, US$ 854 million (-2.6 percent) lower than in the same period of 2022. This reduction is due to the lower value of shipments of traditional products (-4.5 percent year-on-year),

associated with the contraction of export prices (-9.4 percent), especially copper, zinc, lead, tin, among others. The increase in the volume of mining and non-traditional exports partially offset the drop in prices.

The forecasts for the value of exports for 2023 were revised downward, reflecting lower expected volume growth and a greater drop in prices. For its part, the forecast for 2024 remains relatively constant. The correction in volumes of shipments abroad for 2023 reflects weather conditions that have been affecting the agricultural and fishing sectors, both traditional and non-traditional. These conditions are expected to reverse by 2024.

28. **Imports** totaled US$ 23,992 million between January and June 2023, or a contraction of US$ 3,473 million (-12.6 percent) compared to the same period last year. This development is the result of lower volume of imports, specifically of inputs and capital goods, and of prices, particularly of industrial inputs and oil and petroleum products.

Imports were revised downward for 2023 due to a greater projected drop in imported volumes. This revision is explained by a lower expected dynamism in purchases of capital goods and industrial inputs, in a context of more moderate growth in private investment and income, as well as smaller inventories.

Current account

29. Compared to the previous report, a lower deficit in the current account is expected for both 2023 and 2024. The correction for both years responds to a higher trade surplus, mainly due to lower imported volumes of industrial inputs, and for 2023 to a fall in profits, given the revision on the downside of the terms of trade and economic activity. This revision also incorporates a more gradual recovery in freight rates, due, among other factors, to navigation complications in the Panama Canal; and to a greater impact of unfavorable weather conditions on agricultural and fishing exports associated with the El Niño event.

Graph 35
CURRENT ACCOUNT: 2014-2024
(Percentage of GDP)

Year	Value
2014	-4.2
2015	-4.6
2016	-2.2
2017	-0.8
2018	-1.2
2019	-0.6
2020	1.1
2021	-2.2
2022	-4.0
2023*	-1.3
2024*	-1.2
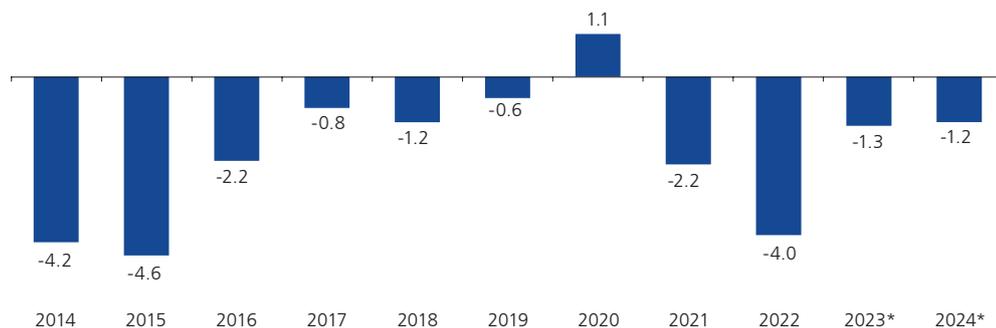
* Forecasts.
Source: BCRP.

30. The year-on-year variations in the current account deficit can be broken down into two main factors, namely, one attributed to domestic absorption (higher nominal demand

for goods and services from abroad) and another related to the return paid to the factors of production (capital) and to Peru's liabilities abroad (debt instruments).

The reduction in the 2023 deficit would respond to lower domestic absorption (2.3 p.p.), mainly due to a lower demand for imported goods, while the decline in prices related to goods (terms of trade) and services (freight) would contribute to a lesser extent. The lower deficit expected for 2024 is mostly supported by the expected recovery in the terms of trade.

Graph 36
CURRENT ACCOUNT, BY ITEM, 2021-2024
(Percentage of GDP)
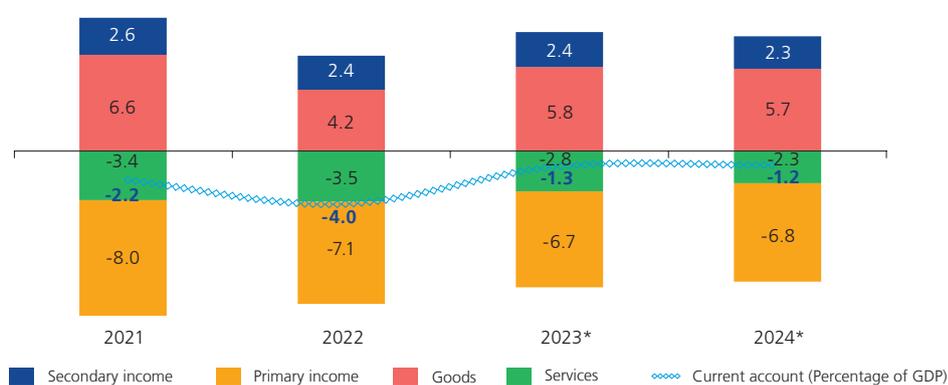
Table 10
DETERMINANTS OF THE VARIATION IN THE RESULT OF CURRENT ACCOUNT, 2022-2024
(p.p. of GDP)

	2022/2021	2023/2022*	2024/2023*
A. Domestic absorption	**-2.5**	**2.3**	**0.4**
1. Price Effect	**-2.8**	**1.0**	**0.5**
1.1 Terms of Trade	-2.3	0.4	0.4
1.2 Freight	-0.5	0.6	0.1
2. Volume effect	**0.3**	**1.3**	**-0.1**
2.1 Goods	-0.1	1.2	-0.5
2.2 Services**	0.4	0.1	0.4
B. Yield paid to external liabilities	**0.4**	**-0.7**	**-0.3**
1. Foreign Direct Investment	**0.5**	**-0.4**	**-0.4**
2. Medium- and long-term debt	**-0.1**	**-0.3**	**0.1**
C. Rest***	0.2	1.2	0.0
TOTAL (A + B + C)	-1.8	2.8	0.1

* Forecasts.
** Includes changes in the volume of transportation and changes in the volume and price of services other than transportation.
*** Includes the variation in current transfers and the yield received on external assets.
Source: BCRP.

31.   According to data as of the second quarter of 2023, the current account deficit of most of the countries in the region has narrowed. In the countries under review, this result is explained by the improvement in the trade balance and the lower deficit in the primary income account (factor income). In Mexico and Chile, the increase in current transfers due to higher remittances from abroad also contributed to this result.

Table 11
LATIN AMERICA: BALANCE OF PAYMENTS' CURRENT ACCOUNT
(Annualized, in % of GDP)

	2019	2020	2021	2022	Q1.23	Q2.23	2023*
Brazil	-3,6	-1,9	-2,8	-2,8	-2,7	-2,6	-2,3
Chile	-5,2	-1,7	-6,6	-9,0	-6,9	-4,5	-3,7
Colombia	-4,6	-3,4	-5,6	-6,2	-5,7	-5,7	-4,1
Mexico	-0,3	2,5	-0,7	-1,3	-1,4	-0,8	-1,5
Peru	-0,6	1,1	-2,2	-4,0	-3,0	-1,9	-1,3

* Forecasts.
Source: Central banks of each country.

Financial account

32. The annualized **financial account** as of June 2023 showed a net capital inflow of US$ 10,175 million, or 4.0 percent of GDP. This inflow was US$ 929 million higher than in 2022, as a result of higher short-term capital inflows from the non-financial sector and banks. This evolution was partially counterbalanced by the lower level of profit reinvestments, the resumption of purchases abroad by AFPs and mutual funds, and slower flow of portfolio investment liabilities.

The lower flow of external financing projected for 2023 -basically from the private sector- is consistent with the evolution in the first half of the year and the projected contraction of domestic investment, while a slight recovery of this flow is expected for 2024, but mostly oriented to the public sector.

A lower net capital inflow is expected for 2023 and 2024 compared to expectations in the previous report. The current scenario contemplates lower FDI liabilities due to smaller profits' reinvestment in 2023, a more dynamic restart of portfolio investments abroad by AFPs and mutual funds, and the revision on the downside in private investment.

33. **Long-term external financing of the private sector's external financing** in cumulative terms totaled US$ 9,806 million as of the first half of 2023, US$ 4,781 million lower than in 2022. This result is mainly explained by lower flows of FDI liabilities -mainly from reinvestment of profits- and by the accumulation of assets for the same concept -in contrast with the sales recorded in 2022 for US$ 448 million-, in addition to lower sales of assets, net of portfolio.

Private financial inflows in 2023 would be below those observed in 2022 due to the resumption of portfolio investments abroad by AFPs and mutual funds, smaller FDI liabilities, following the projected terms of trade and private investment, as well as lower disbursements of long-term loans. In 2024, private capital inflows would increase slightly in response to the higher pace of FDI inflows, following the projected recovery of domestic investment.

Compared to the previous report, the long-term private financial account includes lower FDI and portfolio liabilities in 2023, and a higher pace of external asset purchases.

Table 12
PRIVATE SECTOR FINANCIAL ACCOUNT 1/
(US$ millions)

	2022	2023*			2024*	
		S1.23 /5	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
PRIVATE SECTOR (A + B)	**-10,203**	**-11,383**	**-5,828**	**-3,087**	**-4,460**	**-3,689**
% GDP	-4.2	-6.7	-2.1	-1.1	-1.5	-1.3
A. LONG-TERM (1-2)	**-14,587**	**-9,806**	**-5,828**	**-3,087**	**-4,460**	**-3,689**
1. ASSETS	**-2,906**	**-1,012**	**3,577**	**4,016**	**5,126**	**6,004**
Direct investment	-448	1,046	1,250	1,343	1,525	1,575
Portfolio investment 2/	-2,458	-2,058	2,326	2,674	3,601	4,429
2. LIABILITIES 3/	**11,682**	**8,794**	**9,404**	**7,103**	**9,586**	**9,693**
Direct investment	10,848	7,817	9,778	7,740	11,523	11,620
Portfolio investment 4/	-760	-900	556	-411	0	4
Long-term loans	1,594	1,877	-930	-226	-1,936	-1,931
B. SHORT-TERM	**4,385**	**-1,577**	**0**	**0**	**0**	**0**

1/ Expressed in terms of assets net of liabilities. Thus, an inflow of capital has a negative sign. An increase (a fall) in an external asset has a positive (negative) sign.
2/ Includes equities and other foreign assets of the financial and non-financial sector. Includes financial derivatives.
3/ A positive sign points to an increase in net external liabilities.
4/ Includes the net placement of bonds and similar securities, as well as the net purchase of shares and others by non-residents through the Lima Stock Exchange, recorded by CAVALI.
5/ Shows the accumulated last two semesters as of the first half of 2023.
* Forecasts.
Source: BCRP.

34. The public sector continued to reduce its net foreign liabilities, US$ 957 million in 2022 and US$ 1,208 million in the last four quarters to the second quarter of 2023.

Table 13
PUBLIC SECTOR FINANCIAL ACCOUNT 1/
(US$ millions)

	2022	2023*			2024*	
		S1.23 4/	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
I. ASSETS	**-145**	**248**	**154**	**179**	**140**	**140**
II. LIABILITIES (1+2) 2/	**-1,102**	**-960**	**940**	**1,217**	**2,940**	**3,326**
1. Portfolio investment	-1,880	-2,350	-897	-658	1,909	1,909
Issuance	600	0	0	0	0	0
Amortizations	-658	-1,801	-1,801	-1,801	-404	-404
Other operations (a-b) 3/	-1,822	-549	904	1,144	2,313	2,313
a. Sovereign bonds purchased by non-residents	-1,888	-771	1,008	1,008	2,313	2,313
b. Global bonds purchased by residents	-66	-223	104	-135	0	0
2. Loans	**779**	**1,390**	**1,837**	**1,874**	**1,031**	**1,418**
Disbursements	1,838	2,482	2,931	2,977	2,081	2,481
Amortizations	-1,060	-1,092	-1,094	-1,103	-1,050	-1,063
III. TOTAL (I-II)	**957**	**1,208**	**-786**	**-1,037**	**-2,800**	**-3,186**

1/ Medium and long-term debt. An inflow of capital has a negative sign. An increase (a fall) of an external asset has a positive (negative) sign.
2/ A positive sign corresponds to an increase in external liabilities.
3/ For the purchase and sale between residents and non-residents of government bonds issued abroad or in the local market.
4/ Shows the accumulated last two semesters to the first half of 2023.
* Forecasts.
Source: BCRP.

The flow of external financing to the public sector is projected to rise in 2023 and 2024. This reflects the resumption of sovereign bond purchases by non-residents, higher projected loan disbursements, and the reduction in General Government amortizations expected in 2024.

35. The private sector's medium- and long-term external debt stock is projected to decline from 13.4 percent in 2022 to 10.4 percent of GDP at the end of the projection horizon, thus reaching its lowest level in the last 10 years. For its part, public external debt would fall by a similar proportion, from 24.6 to 22.6 percent, over the same period.

Graph 37
BALANCE OF MEDIUM- AND LONG-TERM EXTERNAL DEBT
(Percentage of GDP)
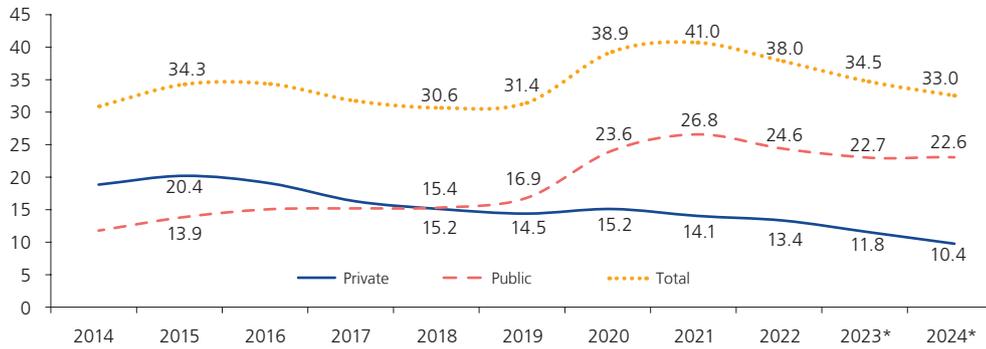
* Forecasts.
Source: BCRP.

Net International Reserves

36. As of August 31, the Net International Reserves (NIRs) stood at US$ 71,853 million. Additionally, Peru has, since May 27, 2022 and for a term of two years, a successor agreement to the IMF's Flexible Credit Line (FCL) with contingent access for up to approximately US$ 5,300 million.

Graph 38
NET INTERNATIONAL RESERVES
(US$ billions)
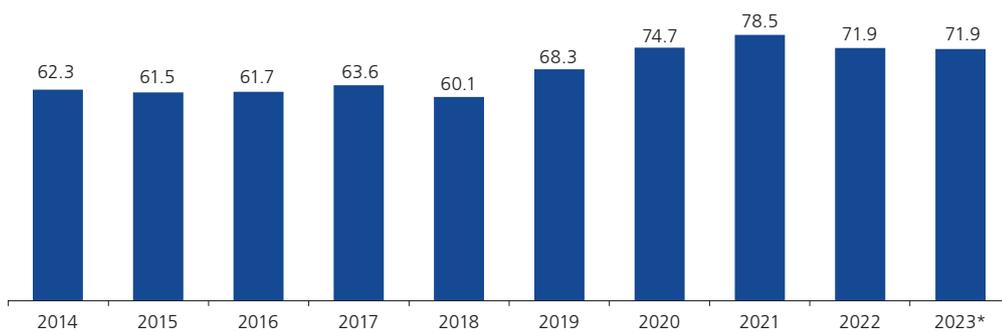
* As of August 31, 2023
Source: BCRP.

Table 14
INTERNATIONAL COVERAGE INDICATORS

	2019	2020	2021	2022*	2023*
International Reserves as a percentage of:					
a. GDP	29.4	36.3	34.8	29.4	26.9
b. Short-term external debt 1/	498	538	578	463	519
c. Short-term external debt plus current account deficit	455	642	421	283	418

1/ Includes the balance of short-term debt plus one-year amortizations of the private and public sector.
* Forecasts.

III. Economic activity

Sectoral GDP

37. Economic activity in the first half of 2023 contracted 0.5 percent year-on-year, due to adverse events such as social conflicts, deteriorating business confidence, and unfavorable weather events. These events caused all primary activities, with the exception of metal mining, to contract in the first half, while the downturn in private spending affected activity in non-primary sectors such as construction, manufacturing and services.

   The monthly seasonally adjusted GDP indicator rose 1.9 percent in June with respect to May, mainly due to the recovery of most economic sectors, in particular construction, fishing and manufacturing. In the second quarter, a seasonally adjusted GDP growth of 0.3 percent is estimated, after 2 consecutive falls in the previous quarters (-1.3 and -0.1 percent in the first quarter 2023 and fourth quarter 2022, respectively).

Graph 39
SEASONALLY ADJUSTED ECONOMIC ACTIVITY INDICES
(Base 100 = 4Q-2019)
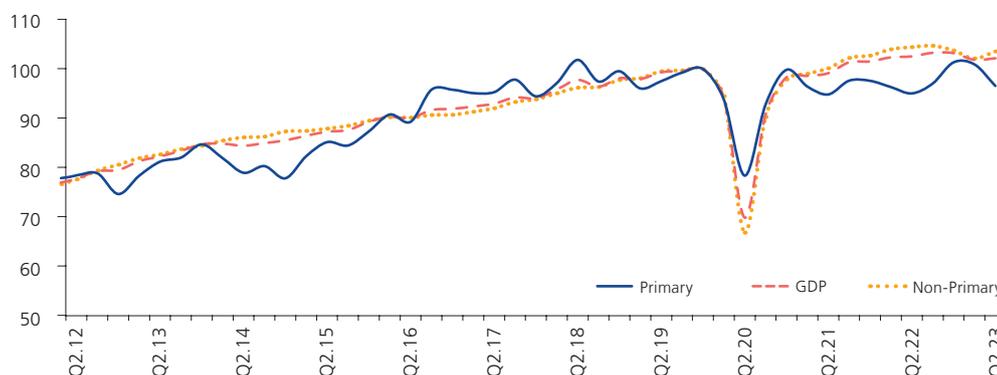
38. Economic growth is expected to slow down with respect to the previous year, at a rate of 0.9 percent in 2023. The slowdown is accounted for mainly by a 0.4 percent growth in non-primary sectors, affected by sluggish private consumption and declining

private investment, mainly residential. The most affected non-primary sectors would be non-primary manufacturing and construction. For its part, production in the primary agriculture and livestock, fishing and associated manufacturing industries is also expected to fall, affected by adverse weather events, the avian flu outbreak and road blockades. Mining is expected to record an 8.8 percent increase, following the start of operations in Quellaveco mine and the lower number of days of mining activity interruptions.

GDP is projected to grow 3.0 percent in 2024, in a scenario in which supply shocks partially reverse their negative effects on primary production and business, and consumer confidence recovers.

Growth forecasts for 2023 are 1.3 percentage points lower than in June (2.2 percent). The adjustment responds both to the observed performance, 0.7 percent higher than expected in the second quarter followed by a 0.5 percent decrease, and to a lower-than-expected recovery in business confidence, and persistent and more intense weather anomalies. These anomalies have affected some food prices, which, despite moderating growth rate, have had a negative impact on consumption, especially in lower-income segments.

The revision for the rest of the year is mainly derived from non-primary activities, particularly in the manufacturing, construction and services sectors, due to the lower forward outlook given the slower expected recovery in private agents' confidence. In addition, the lower growth forecast is explained by a lower projected expansion of the primary sectors, due to negative circumstances affecting the agriculture and livestock supply, such as the persistence of avian flu and abnormal weather and anomalous sea temperatures that could imply a lower quota in the second anchovy fishing season.

Table 15
GDP BY ECONOMIC SECTOR
(Real percentage changes)

	2022	2023*			2024*	
		S1.	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
Primary GDP	**0.9**	**3.0**	**4.0**	**2.5**	**2.9**	**2.8**
Agriculture and livestock	4.5	-3.4	0.4	-2.0	2.7	2.6
Fishing	-11.4	-31.7	-15.0	-26.4	10.5	10.5
Metallic mining	0.0	11.9	8.3	8.8	2.4	2.4
Hydrocarbons	4.0	-1.5	4.7	2.2	4.9	3.6
Manufacture	-2.5	-2.0	0.0	-4.2	3.3	3.2
Non-Primary GDP	**3.2**	**-1.4**	**1.7**	**0.4**	**3.1**	**3.1**
Manufacture	2.0	-7.7	0.0	-3.5	3.0	2.9
Electricity and water	3.9	5.2	4.3	4.3	3.9	3.9
Construction	3.0	-9.0	0.0	-3.7	3.2	3.2
Commerce	3.3	2.7	2.5	3.0	3.5	3.5
Services	3.4	-0.4	1.9	1.0	2.9	2.9
GDP	**2.7**	**-0.5**	**2.2**	**0.9**	**3.0**	**3.0**

IR: Inflation Report.
* Forecasts.
Source: BCRP.

39. The baseline scenario of the current report assumes the occurrence of a global **El Niño (ENSO)** and a **Coastal El Niño**, both of moderate magnitude, in the first quarter of 2024. In the June report, the most likely scenario was a weak coastal El Niño, followed by a moderate one.

The previous report included the information published on May 31 by the committee in charge of the National Study of the El Niño Phenomenon (ENFEN), which predicted the presence of warm conditions in the Niño 1+2 region for the summer of 2024, with a 77 percent probability. This report considered that, for that horizon, the event would reach weak to moderate magnitude. However, in the August 31 and September 14 releases, the presence of a coastal El Niño for the summer of 2024 is considered almost certain, now of moderate to strong magnitude.

Similarly, for the Central Pacific area, the expected magnitude of the event also intensified, and the most likely magnitude rose from weak to moderate, as shown in the following table:

Table 16
ESTIMATED CHANCES OF EL NIÑO DURING THE SUMMER OF 2024
(Percentage)

Date of communiqué ENFEN	Region	Probability	Of which:		
			Weak	Moderate	Strong or very strong
May 31		77	35	33	9
August 31	Eastern Pacific (Niño 1+2)	99	15	58	26
September 14		98	16	56	26
May 31		82	39	35	8
August 31	Central Pacific (Niño 3.4)	99	25	56	18
September 14		100	16	67	17

Note: the shaded number indicates the most likely scenario.

In addition, the June report assumed moderate coastal El Niño conditions for the winter and spring (July-December), based on available information. However, the September 14 ENFEN release mentions coastal El Niño conditions would remain strong until December 2023.

A longer duration of strong warm conditions would have impacts on the agricultural sector, by damaging the flowering and normal growth of fruit trees, favoring the presence of pests and causing crop losses due to heavy rains. In addition, it would have repercussions on the second anchovy fishing season in the north-central zone in 2023 and even on the first season in 2024.

40. Regarding forecasts for each economic sector:

    a) **Agriculture and livestock activity** during the second quarter of 2023 recorded low agricultural yields due to weather anomalies and the continuation of the avian flu emergency.[1] Agriculture sector GDP in that period fell 5.7 percent, the lowest rate since the third quarter of 1992 (-12.2 percent).

       Until June, the agricultural season in the highlands[2] was impacted by extreme drought and frosts, the most severe since 2022; and on the coast, by excess

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1 On 19/11/2022 the first case was confirmed in wild birds and on 28/11/2022 in backyard poultry. The sanitary emergency remains in force until December 2023 (RJ 0028-SENASA-MIDAGRI).

2 The agricultural season from January to June in the highlands includes 78 percent of potato crops, 90 percent of quinoa, 95 percent of forage crops, and 65 percent of alfalfa; on the coast it includes 57 percent of rice crops, 63 percent of lime, 43 percent of sugar cane, and the high season of organic banana crops.

rainfall and warm temperatures due to El Niño and cyclone Yaku. A sharp drop was recorded in potato, alfalfa, and fodder, and to a lesser extent, rice and sugarcane. In addition, poultry (meat and eggs) and dairy declined due to alfalfa and fodder shortages.

Given this scenario, and that coastal El Niño conditions would be stronger[3], the forecasts for the second half of the year were revised downward. This led to a downward adjustment of the 2023 forecasts from 0.4 to -2.0 percent, with lower rice and fruit production, affected by warm anomalies on the northern coast; coffee, due to the presence of rust in some coffee-growing areas; and poultry production, due to avian flu.

The 2024 forecasts were adjusted downward from 2.7 to 2.6 percent, given extended warm anomalies on the coast. This result would be mitigated by the 6.5 percent increase in the corresponding intended planting with respect to the average of the areas planted in the last five crop years. High prices in the domestic market during 2023 are among the factors encouraging such expansion.

As of August 29, water storage with respect to the average of the last five years is higher in several northern Peru reservoirs (Poechos, Gallito Ciego and Tinajones), and higher than 77 percent of their total useful volume. For its part, in the south, storage is lower than average (Chili and Condoroma systems) and greater than 63 percent of its total useful volume.

Graph 40
STORED VOLUME OF MAIN RESERVOIRS 1/
(In million cubic meters)
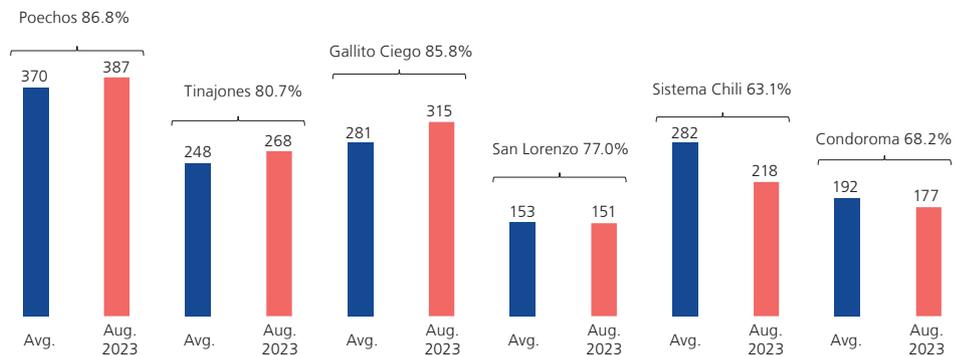
1/ August 2023 with data as of the 29th. The average column comprises the last five years (2018-2022) of the same date. The percentage listed in each reservoir is the volume in storage as of August 2023 as a percentage of the total usable volume.
Source: Junta de Usuarios y Proyectos Especiales de Irrigación.

b) The **fishing sector** slipped 61.0 percent year-on-year in the second quarter of 2023, mainly due to the lower catch of anchoveta (97.3 percent) resulting from the longer fishing ban. Also contributing to the quarter's result were lower landings of scallops (Argopecten purpuratus), due to the death of specimens from the Piura River overflow; and of shrimp, as a result of lower external demand.

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3   In the June inflation report, moderate coastal El Niño conditions were assumed for the winter and spring, but these would be strong, according to observed data and the latest ENFEN release of August 31.

Graph 41
ANCHOVETA CATCH FOR INDUSTRIAL CONSUMPTION IN NORTH-CENTRAL ZONE
(Thousands of tons)

| | 1st season 2021 Start*: April 23 | 2nd season 2021 Start*: November 15 | 1st season 2022 Start*: May 4 | 2nd season 2022 Start*: November 23 |
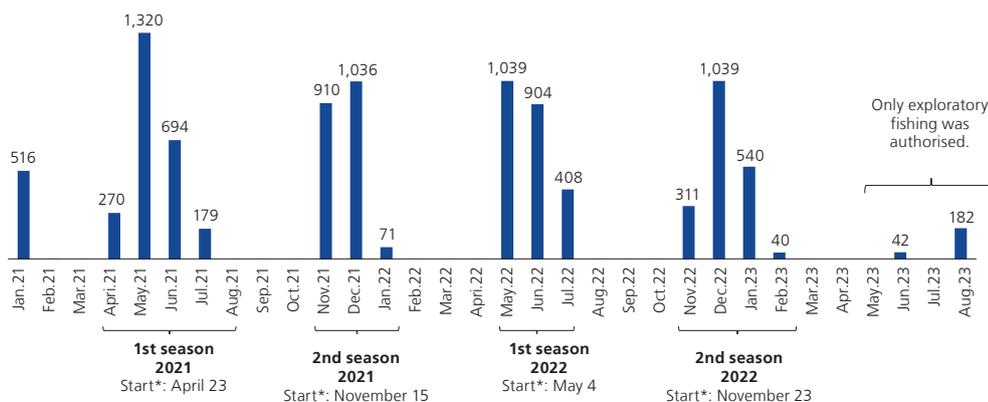
* Date of beginning of exploratory fishing in the seasons when actually occurring.
Note: Information as of August 28.
Source: IMARPE, Ministry of Production.

Exploratory fishing authorized at the beginning of June found a high incidence of juveniles (92 percent by number and 82 percent by weight), resulting in the decision to postpone the first anchoveta fishing season in the north-central zone. In August another exploration in that area led to catching 0.2 million MT of anchoveta.

Because of the suspended opening fishing season, and forecasts of continued strong warm anomalies in Peruvian sea temperature until December this year,[4] the sector's activity is expected to slip by 26.4 percent in 2023, and to increase by 10.5 percent in 2024.

c) In the second quarter of 2023, **metal mining** grew 20.3 percent, due to the higher extraction of most metals, particularly copper (29.7 percent) after Quellaveco mine started operations in the third quarter of 2022.[5] Additionally, Southern and Las Bambas increased their production after they stopped their operations since in 2022 due to issues with their communities. The quarter also saw higher zinc production (23.1 percent), from increased processing by Antamina, Volcan, Shouxin and Raura mines. The latter resumed operations in April 2022, after having been paralyzed since April 2020 due to the COVID-19 health emergency. Finally, there was more molybdenum production (9.1 percent) after Quellaveco started operations in May 2023 and also from increased extraction at Las Bambas.

On the other hand, gold production fell due to lower processing by Poderosa, because of illegal mining and organized crime attacks on its mining operations.

For 2023, the sector's forecasts are revised from 8.3 to 8.8 percent, due to better execution in the first half of the year. This forecast assumes an environment of socio-political stability that does not affect companies' production plans. By 2024, the sector is projected to grow 2.4 percent.

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4   ENFEN release N°14-2023 notes most likely strong warm conditions in the Peruvian coast (Niño 1+2 region) will continue until December 2023 and decrease in the following months.

5   Company output reached 78 thousand metric tons of copper this quarter.

d) **Hydrocarbons sector'**s activity in the second quarter decreased 1.9 percent due to lower oil and natural gas liquids extraction. Oil production decreased 5.7 percent due to lower production in the lots located in the continental shelf (Z-2B) and on the coast (X, VI- VII, among others). On the other hand, production from lot 95 (east) increased due to more well drilling. Likewise, the lower extraction of natural gas liquids is due to lower production in lot 56.

In July and August 2023, the production of natural gas and natural gas liquids was affected by maintenance operations at the Melchorita Plant, which affected the production of lots 56, 57 and 88. Moreover, lots 192 and 8 are still out of operation, after they ceased operations in 2020. Likewise, operations in lot 67 are suspended since October 2022 due to social conflicts.

Therefore, in 2023 the growth forecast for this sector is revised from 4.7 to 2.2 percent, mainly due to the lower production expected during the third quarter in view of planned maintenance. In 2024, the sector would grow 3.6 percent, associated with a normalization of oil extraction in the Amazon lots.

e) Activity in the **primary manufacturing subsector** fell 18.9 percent in the second quarter of 2023, mainly due to lower production of canned, frozen, and fishmeal and fish oil, as the first fishing season was suspended.

The forecasts for the subsector in 2023 are revised downward from zero growth to a drop of 4.2 percent, mainly due to lower fishing activity. An increase of 3.2 percent is expected for 2024.

f) **Non-primary manufacturing** ouput fell 8.8 percent in the second quarter of 2023, affected by falling private investment and sluggish consumption. The branches recording lower production were inputs, such as processed wood and plastics; investment-oriented goods, including metal products and cement; mass consumer goods, like furniture, beer and malt, and oils and fats; and goods sold abroad, such as clothing, yarn and fabrics, and canned food.

Non-primary manufacturing is projected to fall 3.5 percent in 2023; however, the subsector's output would continue to be above pre-pandemic levels. Likewise, in 2024 year-on-year growth of 2.9 percent is expected.

g) **Construction** declined 6.7 percent in the second quarter of 2023, due to lower private and self-construction projects.

Construction activity is revised from zero growth to a 3.7 percent decline in 2023, as self-construction may recover more slowly during the second half of the year. Growth of 3.2 percent is projected in 2024, driven by recovering public and private investment.

h) **Trade** grew 3.1 percent in the second quarter of 2023, driven by higher wholesale (3.0 percent), retail (3.5 percent) and motor vehicles and motorcycles (2.6 percent) sales.

By 2023, the sector's activity is expected to increase 3.0 percent. Likewise, in 2024, the sector is expected to grow 3.5 percent.

i) **Services** recorded zero growth during the second quarter of the year. Lower activity in the telecommunications, financial, and falling import duties and taxes were offset by higher activity in the other branches. Telecommunications was affected by lower fixed and mobile telephone call services, as well as by the slowdown in internet consumption due to the return to face-to-face activities.

On the other hand, the transportation and storage (2.4 percent), and accommodation and restaurants (5.5 percent) sectors accelerated slightly compared to the first quarter, when social conflicts and rains hit these industries.

By 2023, the sector should grow 1.0 percent, with activity recovering in the second half of the year. By 2024, growth should reach 2.9 percent.

Expenditure-side GDP

41. On the expenditure side, the contraction of output in the first half of 2023 is mainly explained by (i) smaller private investment due to adverse weather, social unrest and a decrease in residential investment; and (ii) sluggish private consumption, affected by agents' low confidence and the impact of inflation on the purchasing power of households. These events resulted in the use of accumulated inventories, mainly in manufacturing and mining.

Considering the performance in the first half of the year and a scenario of gradual recovery of consumer and business confidence in the second half of the year, GDP growth is projected at 0.9 percent in 2023. For 2024, the growth projection is maintained (3.0 percent) in a scenario of socio-political and macroeconomic stability encouraging the recovery of business confidence.

Table 17
EXPENDITURE-SIDE GDP BY EXPENDITURE TYPE
(Real percentage changes)

	2022	2023*			2024*	
		S1	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
Domestic demand	**2.3**	**-2.5**	**1.5**	**-0.3**	**2.9**	**3.0**
Private consumption	3.6	0.3	2.6	1.2	3.0	3.0
Public consumption	-3.4	-1.6	2.0	2.0	3.0	2.0
Private investment	-0.4	-10.1	-2.5	-5.3	1.8	1.8
Public investment	7.7	2.1	1.5	1.5	4.0	4.0
Change on inventories (contribution)	0.1	-0.5	0.0	-0.3	0.0	0.2
Exports	**6.1**	**5.0**	**3.4**	**2.8**	**3.3**	**3.3**
Imports	**4.4**	**-3.1**	**0.8**	**-2.0**	**2.9**	**3.4**
GDP	**2.7**	**-0.5**	**2.2**	**0.9**	**3.0**	**3.0**

IR: Inflation Report.
* Forecasts.
Source: BCRP.

42. Some **lagging and leading indicators related to private consumption show** a slowdown in recent months. Consumer credit showed less dynamism with respect to the last report, mainly in the use of credit cards; the volume of consumer durables' imports contracted in July although it expanded in August; and consumer confidence, measured through agents' expectations about their future household economic situation, fell in August, moving it to the pessimistic range this last month.

Graph 42
INDICATORS RELATED TO PRIVATE CONSUMPTION

Labor Market

Formal employment positions at the national level
(Var. % y-o-y)

Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
6.6	7.7	8.5	9.6	7.1	6.4	6.2	6.2	5.4	5.1	4.5	4.6	2.9	2.9	3.6	3.0	3.7	3.3	2.7

Formal wage mass at national level
(Var. % y-o-y)

Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
9.7	13.5	29.6	11.8	9.2	8.9	10.4	12.5	10.4	9.2	7.2	7.1	7.0	7.5	3.5	8.5	6.2	6.6	7.0

Employed EAP of Metropolitan Lima
(Var. % y-o-y)

Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
9.5	15.2	19.5	22.9	16.0	11.2	8.6	7.9	7.0	5.9	4.6	3.6	4.8	4.6	4.1	2.7	1.0	2.5	3.1

Metropolitan Lima wage bill
(Var. % y-o-y)

Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
15.5	26.0	30.1	31.0	25.3	19.8	17.4	18.3	19.8	18.0	19.5	17.5	20.9

Formal private sector jobs at national level
(Var. % y-o-y)

Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
7.6	9.3	10.5	11.9	8.9	7.8	7.4	7.5	6.3	6.1	5.8	6.1	5.2	5.3	6.0	4.6	5.4	4.8	4.0

Credit

Consumer credit
(Var. % real year-on-year)

Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
0.0	3.3	7.2	7.8	10.3	11.4	12.4	13.5	14.2	14.4	13.2	12.3	11.9	10.8	8.6	7.7	6.5	6.8	7.1

Imports

Volume of imports of consumer durables
(Var. % y-o-y)

Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23
-0.2	-4.2	-8.5	-6.9	-17.4	10.0	6.1	12.1	1.8	-12.9	10.7	-16.9	7.6	3.2	-7.6	-9.1	32.2	1.8	-18.2	14.9

Confidence

12-month family situation expectation
(Diffusion index)

Optimistic Side

Pessimistic Side

| Jan.22	Feb.22	Mar.22	Apri.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23	Aug.23
52	53	44	44	51	40	39	37	44	54	52	59	60	51	55	47	60	53	57	49

Source: BCRP, INEI, SUNAT and Apoyo Consultoría.

National level jobs in the formal sector and the wage bill continued to increase with respect to 2022, although at lower rates. Metropolitan Lima saw lower expansion rates among the working population, according to INEI's Permanent Employment Survey.

43. **Lagging and leading indicators related to private investment** show an unfavorable evolution. Domestic cement consumption contracted since the beginning of the year due to the lower dynamism of private residential construction, highway blockades and the slow progress of public investment compared to the previous year. The volume of imports of capital goods, excluding construction materials and cell phones, grew in June, but contracted in July and August. For its part, although 12-month economic expectations have recovered in the last 3 months, 3-month expectations declined again in August and are still in the pessimistic range since April 2021, accumulating 29 months in negative territory.

Graph 43
INDICATORS RELATED TO PRIVATE INVESTMENT

Domestic cement consumption
(Var. % y-o-y)

Volume of imports of capital goods*
(Var. % y-o-y)

* Excluding construction materials and cellphones.

3- and 12-months economic outlook
(Diffusion index)
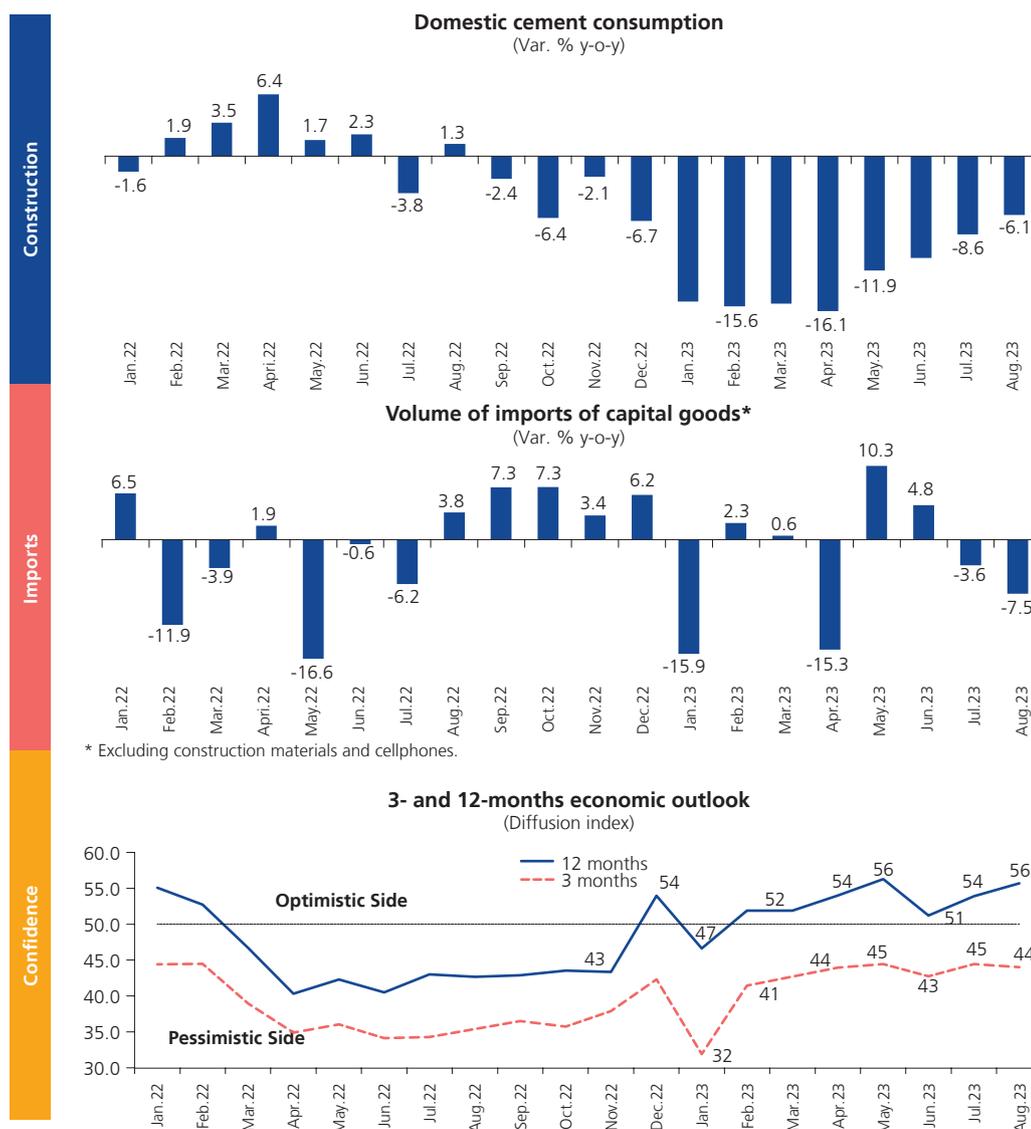
Source: BCRP, SUNAT and cement companies.

44. The August **Survey on Macroeconomic Expectations** shows that agents project growth between 1.0 and 1.9 percent for the current year, and a range between 2.3 and 2.6 percent for 2024.

Table 18
SURVEY ON MACROECONOMIC EXPECTATIONS: GDP GROWTH
(Percentage changes)

	IR Mar.23	IR Jun.23	IR Sep.23*
Financial entities			
2023	2.2	1.9	1.1
2024	2.7	2.5	2.3
Economic analysts			
2023	2.0	1.9	1.0
2024	2.6	2.7	2.6
Non-financial firms			
2023	2.6	2.3	1.9
2024	3.0	3.0	2.6

* Survey conducted as of August 31.
Source: BCRP.

45. The **output gap**, calculated as the difference between GDP and potential GDP, is estimated at -1.1 percent for 2023. This negative gap is the result of the aforementioned factors that deteriorated domestic demand (lower business confidence, lower income and spending due to the indirect effects of supply shocks), driving the observed GDP temporarily below its potential. With the partial reversal of these effects, the negative output gap is expected to narrow to 0.5 percent in 2024 and close by 2025.

Graph 44
OUTPUT GAP
(Percentage of potential GDP)
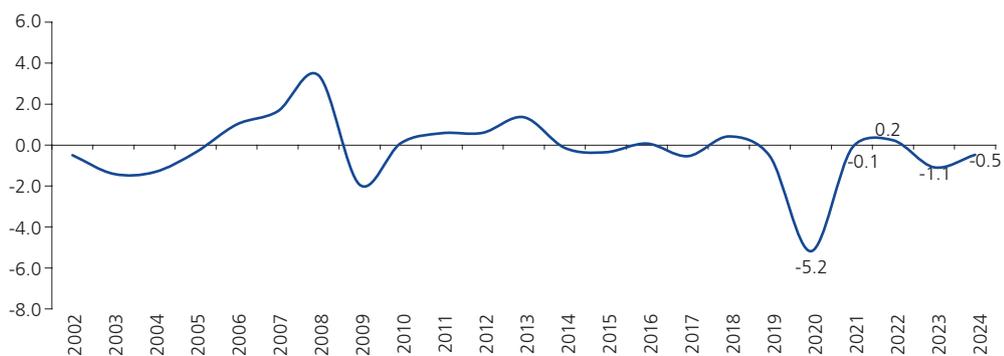
Source: BCRP.

46. **Private consumption** in the first half of 2023 increased by 0.3 percent: the loss of dynamism is explained by the slow recovery of consumer confidence and the effect of inflation on household purchasing power.

Private consumption is expected to slow down in 2023 due to slow recovery of consumer confidence after the social conflicts that took place in the first months of

the year and the lower dynamism of the labor market observed in recent months. Compared to the forecasts made in the previous report, the private consumption growth forecast is cut from 2.6 to 1.2 percent, while for 2024 the projection remains at 3.0 percent.

47. **Private investment** in the first half of the year contracted 10.1 percent as a result of the fall and slow recovery of business expectations, derived from social conflicts and adverse weather. The absence of new mega-projects and lower residential investment also played a role.

Private investment is expected to contract 5.3 percent in 2023, in a scenario of adverse weather and low business confidence in the first half of the year, with a negative impact on new investment project decisions. In 2024, expectations should pick up and investment may grow 1.8 percent, mainly due to expected disbursements in non-mining sectors.

Compared to the June forecasts, projected investment for 2023 is cut from -2.5 to -5.3 percent, due to a slower recovery in business confidence and lower observed investment execution. For 2024, the growth forecast remains unchanged at 1.8 percent.

Graph 45
PRIVATE INVESTMENT
(Real annual % change)

* Forecasts.
Source: BCRP.
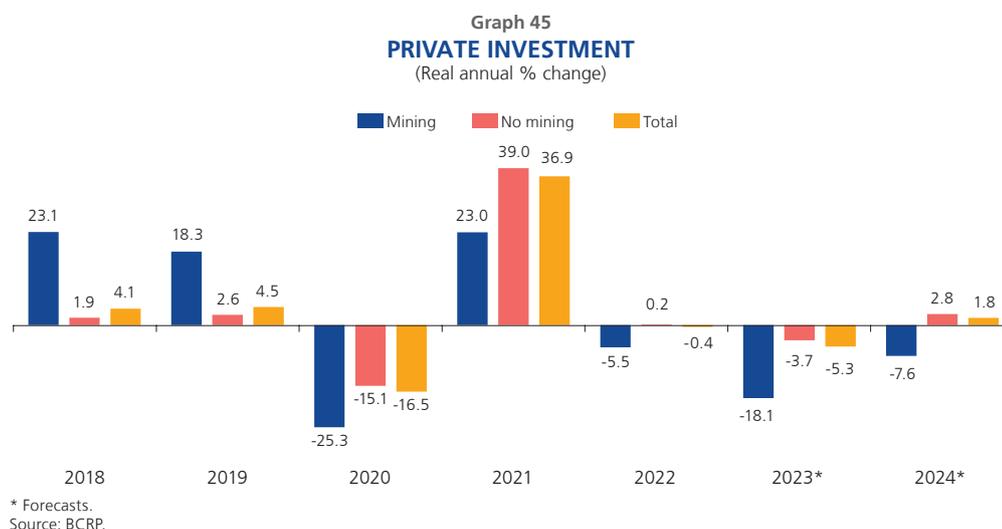
a. In the **mining sector**, investments in 2022 totaled US$ 5,364 million, mainly from Anglo American Quellaveco (US$ 1,067 million), Antamina (US$ 459 million) and Yanacocha (US$ 422 million). The forecasts for the 2023-2024 period comprise the start of the San Gabriel construction phase (US$ 0.4 billion) in 2023. For 2024, the start of the construction phase of the Antamina Repositioning project (US$ 2 billion) is considered.

b. Regarding **non-mining sectors**, the progress of the Jorge Chávez International Airport project stands out at an investment of US$ 2 billion. The second runway and the new control tower are expected to start operating this year.

Construction of the new passenger terminal would be completed by the end of 2024.

The first phase of the construction of the Chancay Port Terminal continued to advance in recent months and is expected to be commissioned by the end of 2024 with an investment of US$ 1,300 million. Progress has also been made on Line 2 of the Lima Metro, where Section I -connecting Lima's Santa Anita borough to Evitamiento beltway- has been completed (test runs are scheduled for year-end) and work has begun on Line 4 (which connecting Line 2 to Jorge Chávez Airport). Viettel Peru won the concession of the 2.3 GHz and AWS-3 bands for mobile and internet connection with 4G technology, having committed investments of US$ 600 million. Over 3,800 locations (mainly in the interior of the country) will have available this technology within two years.

Table 19
ANNOUNCEMENTS OF MAJOR INVESTMENT PROJECTS: 2023-2024

SECTOR	INVESTOR	PROJECTS
MINING	Antamina	Replacement of Antamina
	Chinalco	Expansion of Toromocho Mine stage 2
	Buenaventura	San GApriel
HYDROCARBONS	Cálidda Gas Natural del Peru	Wide-Scale Use of Natural Gas
	Promigas Peru	Wide-Scale Use of Natural Gas
ELECTRICTY	Huallaga Hydro	Hydropower plant Huallaga I
	ISA Peru	500 kV Mantaro - Carapongo
	Luz del Sur	Hydropower plant Santa Teresa II
	Hydro Global Peru	Hydropower plant San Gaban III
INDUSTRY	Siderperu	Plant capacity expansion
	Unacem	Environmental Sustainability Program
	Arca Continental Lindley	Environmental Sustainability Program
TRANSPORT	Consorcio Nuevo Metro de Lima	Line 2 of the Metro network of Lima and Callao
	Cosco Shipping Ports Chancay	Chancay I Port Terminal
	Lima Airport Partners	Expansion of International Airport (Jorge Chavez)
	Shougang Hierro Peru	Marcona Port Terminal
	APM Terminals	Modernization of Muelle Norte
	DP World Callao	Expansion of Muelle Sur
TELECOMUNICATIONS	Viettel Peru	Mobile Services with 4G technology
	América Móvil Peru	Fibre optic networks

Source: Information from companies, newspapers and specialized media.

c. For the 2023-2024 period, Proinversión reports at the end of August 2023 a portfolio of US$ 10,500 million in **investment projects to be awarded**.

Table 20
INVESTMENT PROJECTS FOR CONCESSION ANNOUNCED FOR 2023-2024+
(US$ millions)

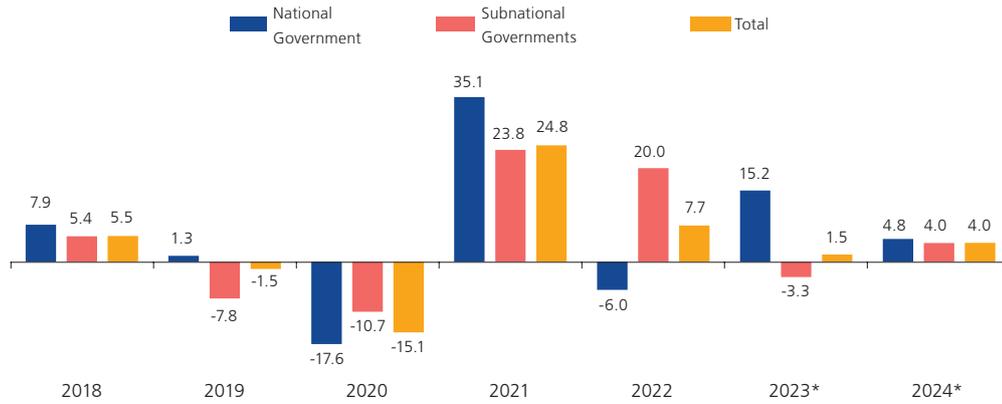|	Estimated investment
To be called	**10 537**
Peripheral Ring Road	2 380
Longitudinal of the Sierra road project Section 4	914
Group 1: Transmission Line Huanuco –Tocache - Celendín - Trujillo link and Transmission Line Celendín - Nueva Piura link	883
Ancon Industrial Park	762
Integral Water System Chancay Valley - Lambayeque	619
IPC- Wastewater Treatment for effluent dumping or reuse - Trujillo	409
Marcona Port Terminal	405
Headworks (1st stage)	330
Group 1: Transmission Plant Projects 2023 - 2032	307
Group 2: Transmission Plant Projects 2023 - 2032	290
Huancayo - Huancavelica Railway	263
Schools in risk: Metropolitan Lima	258
National Hospital Hipólito Unanue	250
Choquequirao Tourism Project	190
Maintenance of the Cajamarca hospital	176
Group 3: Transmission Plant Projects 2023 - 2032	175
Chimbote International Terminal	172
Treatment system for wastewater Huancayo	172
Treatment system for wastewater Tarapoto and San Jose de Sisa	152
Treatment System for wastewater - Desalination Plant Paita and Talara	150
Schools in Risk: Ate-San Juan de Lurigancho	140
Central Military Hospital	116
Hospital Villa El Salvador - HEVES	113
Ilo desalination plant	110
Group 4: Transmission Plant Projects 2023 - 2032	98
Schools at Risk: Comas - San Martín de Porres	91
IPC -Wastewater Treatment System for Puerto Maldonado	89
Lima Convention Centre	78
IPC -Wastewater Treatment for effluent dumping or reuse Chincha province Ica Peru	70
Schools at Risk: Villa María del Triunfo	69
Co-financed Private Initiative - Cusco	58
IPC- Wastewater Treatment System in Cajamarca	56
Desalination Plant - Lambayeque	49
IPC -Wastewater Treatment for effluent dumping or reuse Cusco	44
IPC -Wastewater Treatment for effluent dumping or reuse Cañete	33
Rural Sanitation Loreto	26
Solid waste Treatment in Minsa	24
Cable Car - Historic Centre of Lima - Cerro San Cristobal	16

Source: Proinversión

48. **Public investment** increased 2.1 percent year-on-year in the first half of 2023, mainly due to the results in the second quarter. Disbursements by the national (central) government increased in infrastructure projects and risk prevention works under the *Con Punche Peru* program. Likewise, the regional governments of Cusco, Puno and Junín increased investments.

The projection of 1.5 percent growth in public investment for 2023 remained unchanged. The estimate continues to assume that the growth in national government investment will be greater than the drop in subnational government investment that is usually observed in the first year of local authorities' term of office. For 2024, the forecasts for public investment are maintained at 4.0 percent.

Graph 46
PUBLIC INVESTMENT
(Real annual % change)

- National Government
- Subnational Governments
- Total

Year	National Government	Subnational Governments	Total
2018	7.9	5.4	5.5
2019	1.3	-7.8	-1.5
2020	-17.6	-10.7	-15.1
2021	35.1	23.8	24.8
2022	-6.0	20.0	7.7
2023*	15.2	-3.3	1.5
2024*	4.8	4.0	4.0

Note: Public investment includes investment by the national and subnational governments, and investment by non-financial state-owned enterprises.
* Forecasts.
Source: BCRP.

49. **Gross fixed investment** is expected to decline from 25.3 to 23.3 percent of GDP between 2022 and 2023 due to sliding private investment. A further contraction is expected in 2024, to 22.8 percent of output in that year. For investment to recover, it is necessary to preserve economic and financial stability, consolidate an adequate business environment, and carry out reforms to increase the economy's productivity.

Graph 47
GROSS FIXED INVESTMENT: PRIVATE AND PUBLIC, 1962-2024
(Percentage of GDP)

- Private
- Public
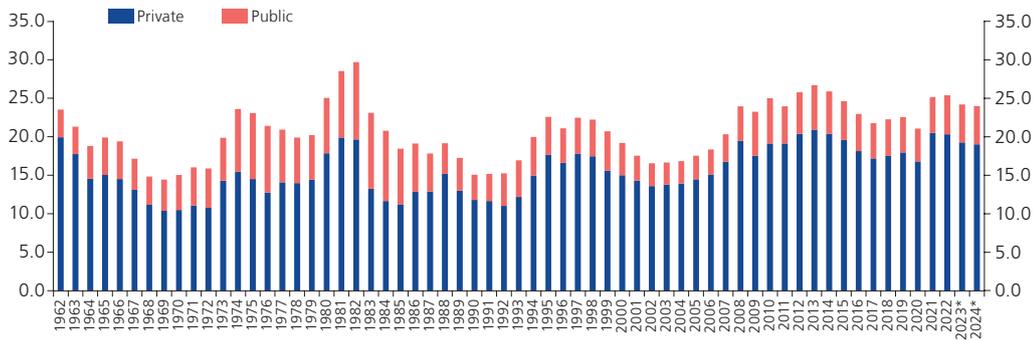
* Forecasts.
Source: BCRP.

Box 1
IMPACT OF SOCIAL INSTABILITY
ON ECONOMIC ACTIVITY IN RECENT YEARS

In recent years, the Peruvian economy has been hit by two major shocks: COVID-19 and political uncertainty. Recently, a coastal El Niño has compounded the scenario. The COVID-19 pandemic sharply contracted activity mostly in the second quarter of 2020, with Peru being one of the most affected countries with an unprecedented drop in one quarter (-30 percent) due to extreme social lockdown measures to reduce the rate of infections (with sectors with a high degree of personal interaction being the most affected). By the fourth quarter of 2020, most of the output had recovered with the gradual lifting of the confinement measures and extraordinary monetary and fiscal policy measures to avoid disruption of the economy's chain of payments. Since 2021, political uncertainty has exacerbated and the pace of quarterly (seasonally adjusted) recovery has slowed, despite highly favorable terms of trade ever since. More recently, social protests impeding the free movement of people and goods further deteriorated already waning confidence of consumers and businesses, further compounded by adverse weather. Thus, the level of economic activity as of the second quarter of this year is still only 2.2 percent above the pre-pandemic level (fourth quarter of 2019).[6]

As indicated by the IMF (2022),[7] both political uncertainty and social discontent (which typically manifest themselves as social unrest) can negatively affect private investment, undermine market confidence and increase a country's risk premium. This box reviews both the short- and long-term effects of political uncertainty and social unrest on economic activity. One of the main channels of transmission in the case of Peru has been the negative effect on business confidence.

The relationship between social instability and economic activity: transmission mechanisms and impacts.

Barrett and Chen (2021)[8] define social instability as the actions of demonstrations, riots and other forms of civil disorder and conflict. Such episodes differ according to the objectives they pursue, the levels of violence they present or the political context in which they take place. In addition, they can generate a wide variety of political and economic consequences.

There are two directions of causality between social instability and economic activity. On the one hand, some studies find that economies with poor economic growth tend to generate an environment conducive to fostering discontent among the population (Barrett et al., 2021 and Hadzi-Vaskov et al., 2021).[9] However, other authors argue that the direction of the effect is more likely to operate from social instability to activity. The following table summarizes the various channels through which social instability can end up affecting a country's activity levels.

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6   Calculated on the basis of seasonally adjusted GDP at quarterly frequency.
7   International Monetary Fund (2022). Peru: Article IV Consultation. IMF Country Report No. 22/137.
8   Barrett and Chen (2021). The Economics of Social Unrest. International Monetary Fund.
9   Barrett, Bondar, Chen, Chivakul and Igan (2021). Pricing Protest: The Response of Financial Markets to Social Unrest. IMF Working Paper.

Channel	Effects
Deterioration of the physical capital stock and labor force	The destruction and looting may cause damage to productive infrastructure such as roads, airports and hospitals. In addition, the population may be injured or die during these events or may resort to displacement to other regions or safer areas.
Interruption of production chains	Road blockades impede the free movement of products and workers. Difficulty in the supply of products can lead to price increases and supply shortages. Production reductions and/or interruptions result.
Increased risk and uncertainty	Social instability leads to a higher level of uncertainty. Consumer and business confidence suffers, and consumers postpone their consumption and investment decisions. Likewise, it affects the hiring decisions of companies, thus curtailing employment.
Reforms and changes in institutions	Social demands can lead to important reforms and major changes in institutions. Such changes can be positive and/or negative depending on whether they represent an improvement or not on institutions and, therefore, on long-term growth.

Source: Diakonova, Molina, Mueller, Perez, and Rauh (2022). The information content of conflict, social unrest and policy uncertainty measures for macroeconomic forecasting. Bank of Spain. Working Paper No. 2232. Hadzi-Vaskov, Pienknagura and Ricci (2021). The Macroeconomic Impact of Social Unrest. IMF Working Paper. Appleton, Bleaney, and Matta (2016). The Impact of the Arab Spring on the Tunisian Economy. World Bank Group. Policy Research Working Paper. Khandelwal and Roitman (2013). The Economics of Political Transitions: Implications for the Arab Spring. IMF Working Paper. Bernal-Verdugo, Furceri and Guillaume (2013). The Dynamic Effect of Social and Political Instability on Output: The Role of Reforms. IMF Working Paper. Barrett, Bondar, Chen, Chivakul and Igan (2021). Pricing Protest: The Response of Financial Markets to Social Unrest. IMF Working Paper.

Existing literature shows the ultimate effect on activity will depend on the duration of the event (Barrett et al., 2021) and the degree of development of the institutions (Hadzi-Vaskov et al., 2021 and Bernal-Verdugo et al., 2013).

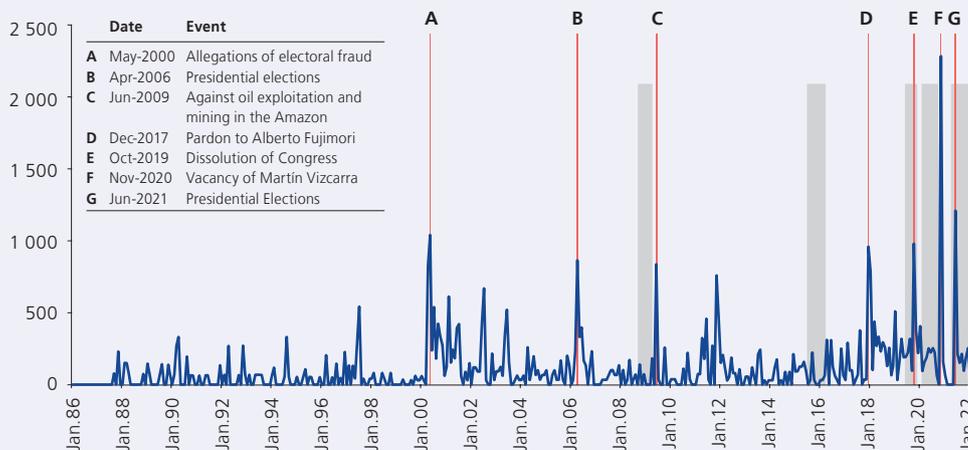## EMPIRICAL EVIDENCE OF THE ECONOMIC IMPACT OF SOCIAL UNREST

Author(s)	Sample	Period	Results
Hadzi-Vaskov et al. (2021)	89 countries	1990-2019	• Unrest has a negative effect on GDP: a one standard deviation increase in the social unrest index causes on average a 0.2 percentage point drop in GDP in the six quarters following the shock. • If social unrest is widespread, GDP declines on average by 1 percentage point up to six quarters after the event. • The impact varies by motive: events motivated by socioeconomic reasons have a greater impact than those motivated by political reasons. • At the expenditure component level, the effect is greater on consumption though limited on investment.
Appleton et al. (2016)	Tunisia	2011-2013	• The loss in GDP was 5.5, 5.1 and 6.4 percent for the years 2011, 2012 and 2013, respectively, with investment being the hardest hit component.
Khandelwal and Roitman (2013)	11 countries	1980-2010	• GDP declines in the year in which a social instability event occurs, falling in the range of 1 to 7 percent and remaining below potential for four to five years after the event. • The employment rate falls by 1 to 1.5 percent during the two years following the date of the event and takes 4 to 5 years to return to previous levels. • The effects on consumption are limited, while investment may fall by 10 to 40 percent in the year of the event, taking 5 years to return to its pre-crisis level. Bernal-Verdugo et al. (2013)
Bernal-Verdugo et al. (2013)	183 countries	1980-2010	• GDP takes 2 to 3 years to recover after an episode of social instability.

Source: Barrett et al. (2021), Hadzi-Vaskov et al. (2021), Appleton et al. (2016), Khandelwal and Roitman (2013), Bernal-Verdugo et al. (2013).

Most studies use as a proxy for social instability a measure to approximate the existence and intensity of riot actions. To be precise, one of the most widely used measures is the Reported Social Unrest Index (RSUI) proposed by Barrett (2022). This index measures the degree of social instability in different countries of the world, using news related to issues such as demonstrations and riots for

each country. For the Peruvian case, the available RSUI data covers the period from January 1986 to March 2022. Based on this index, it is possible to identify 7 events of great social instability (where the RSUI takes very high values), most of which have been related to events of political instability as can be seen in the following graph.

PERU: SOCIAL INSTABILITY EVENTS BY RSUI AND BUSINESS CONFIDENCE

	Date	Event
A	May-2000	Allegations of electoral fraud
B	Apr-2006	Presidential elections
C	Jun-2009	Against oil exploitation and mining in the Amazon
D	Dec-2017	Pardon to Alberto Fujimori
E	Oct-2019	Dissolution of Congress
F	Nov-2020	Vacancy of Martín Vizcarra
G	Jun-2021	Presidential Elections

Notes:
(1)   An increase in RSUI reveals increased social instability. The index has been normalized using the average for the period Jan86-Dec19.
(2)   The bars indicate periods where the 3-month economic confidence index has been in the pessimistic range (level below 50) for 5 consecutive months or longer.
Source: Barrett (2022) and BCRP.

The literature review shows that an important channel through which social instability operates is uncertainty. This is important because it has real effects on the economy in both the short and long term. First, an increase in uncertainty can lead to a reduction in confidence. This lower confidence leads firms and households to wait longer to make their decisions. For example, companies will postpone their investment plans or delay hiring workers, while consumers will be more cautious in their purchases, mainly of durable goods. All this will be reflected in reduced investment and consumption and, therefore, activity. The previous graph shows the periods where confidence has remained longest in the pessimistic range (level below 50) matching periods of very high RSUI. This is relevant because the evolution of business confidence is in turn closely related to investment and output[10] (Box 3 of the June 2023 inflation report includes a detailed analysis of the relationship between confidence and economic activity in the short term).

Second, an increase in uncertainty influences risk premia to the extent that it increases the likelihood of tail events (such as corporate bankruptcy). This effect may be reinforced by the first and amplify the reduction in private spending (mainly on the investment side).

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10   The correlation coefficient of two periods lagged business confidence with the percentage change in private fixed investment is 0.78 (period 2008-2019, quarterly frequency). For its part, the three periods lagged correlation coefficient of business confidence with the percentage change in GDP is 0.63 (period December 2007-December 2019, monthly frequency).

The Peruvian economy shows signs of slowing down since the second half of 2022, a period that coincides with increased social instability, which peaked in January 2023. Ombudsman's Office data points out collective actions such as road blockades, mobilizations, strikes, among others, reached their peak in January 2023, recording 1,261 actions and far outweighing their highest marks of the last 5 years (in November 2020 it was 351).

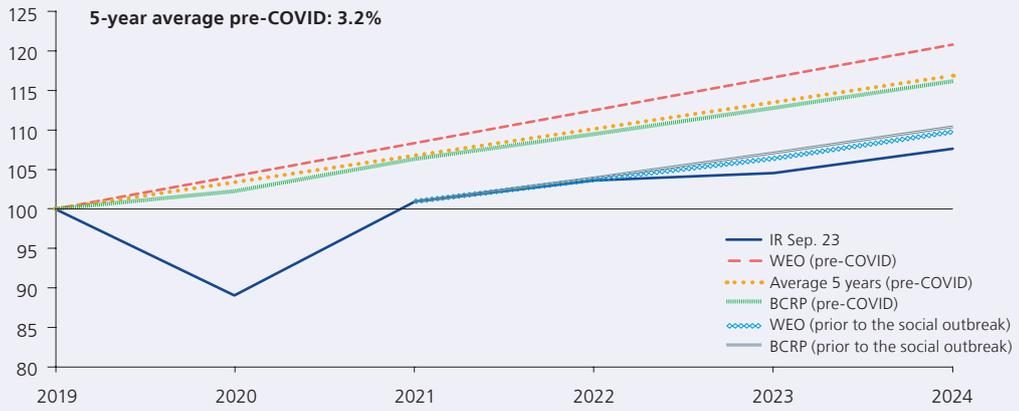**COLLECTIVE PROTEST ACTIONS**
(January 2018 - July 2023)

Source: Ombudsman's Office.

Long-term effects

One way to quantify the cost of the double shock (COVID-19 and recent social outburst) is to compare the observed level of activity with that which would have been achieved in a counterfactual scenario without shocks. Following the methodology used in Box 4 of the December 2021 inflation report, the forecasts of the *World Economic Outlook* (WEO) and the BCRP prior to the COVID-19 shock and prior to the December 2022-January 2023 social outbursts[11] are used. The graph shows that the GDP level has experienced persistent output losses and has not been able to recover the levels it would have reached had these shocks not occurred. Considering only the forecasts of the inflation reports, it is estimated that the level of GDP by 2024 (solid purple line) is 7.3 percent below the level it would have reached in the absence of COVID-19 (dashed line with square marker). That loss in turn can be decomposed by considering that, if it had expanded at the growth rates projected in the September 2022 inflation report, the GDP level (dashed line with round marker) would be 5.0 percent below. Therefore, this methodology estimates that the difference (2.3 percentage points) reflects the cost of having lower growth rates by 2024 after the recent social unrest and adverse weather events. However, the methodology does not control for other shocks to which the Peruvian economy has been exposed.

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11   GDP growth forecasts for Peru from the October 2022 WEO and the September 2022 Inflation Report are used.

**PERMANENT EFFECTS OF COVID-19 AND THE RECENT SOCIAL OUTBURST
ON PERU'S GDP**
(Index 2019 = 100)

5-year average pre-COVID: 3.2%

Legend:
- IR Sep. 23
- WEO (pre-COVID)
- Average 5 years (pre-COVID)
- BCRP (pre-COVID)
- WEO (prior to the social outbreak)
- BCRP (prior to the social outbreak)

Source: IMF (World Economic Outlook) and BCRP.

Box 2
CHALLENGES TO INCREASE THE POTENTIAL GROWTH
**OF THE PERUVIAN ECONOMY**

Peru is a country with great potential for economic growth and development. However, although the Peruvian economy grew at high rates during the first decade of this century, growth has been on a downward trend that even worsened in recent years. This box examines the evolution of Peru's potential GDP growth, as well as the challenges that the country must urgently face, to leverage GDP growth.

Potential growth slowing down

Potential GDP is the level of aggregate output that can be sustained without generating upward or downward pressure on inflation. So far this century, Peru's potential GDP reached its highest growth rates in 2002-2008 (6.0 percent per year on average), coinciding with the boom of the commodity price's super cycle. In contrast, a decreasing trend in the growth rate of potential GDP followed, slipping first to 5.3 percent per year on average in 2009-2015 and then to 2.3 percent in 2016-2022.

Potential GDP growth depends on the accumulation of productive factors and their productivity. On the one hand, factor accumulation (labor and capital) results mainly from investment and the growth of the working age population. On the other, productivity measures the capacity to produce more from the accumulated factors, and depends on the efficiency with which labor and capital are combined, which is associated with technological, regulatory and institutional elements, among others. A potential growth accounting exercise shows that the slowdown in the 2016-2022 period is explained by the lower contribution of capital and lower total factor productivity (TFP).

POTENTIAL GDP GROWTH ACCOUNTING
(Growth rates and percentage contributions)
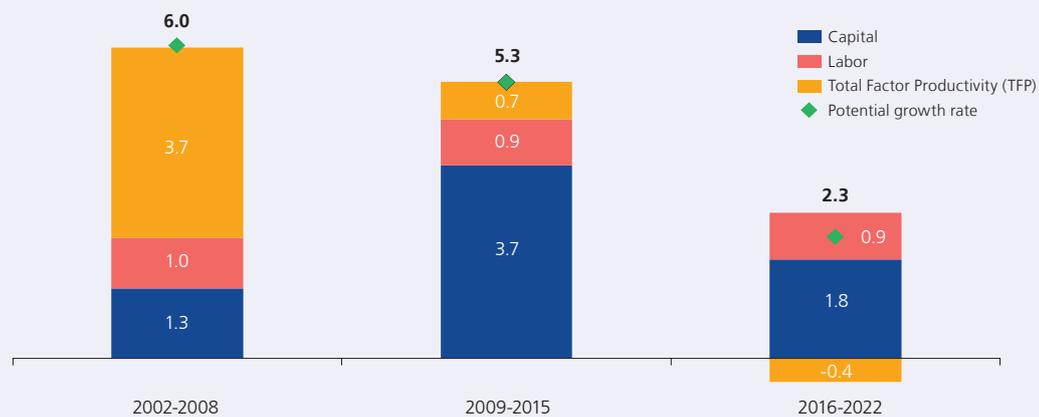
The average potential growth rate in bold font. The capital contribution excludes investments in unfinished megaprojects, as it is infrastructure that is not operational or partially usable, an estimated adjustment for unfinished public works, and the effect of capital destroyed as a result of the 2017 ENSO. Labor's contribution includes the trend in the working age population and the effect of Venezuelan immigration since 2018.
Source: BCRP.

A warning sign is the downward trend in the aggregate productivity of the Peruvian economy, and moreover, its negative contribution in recent years. While it is true that investing in more capital and increasing the labor force can generate growth, this is true only up to a certain limit.

Slowdown in GDP growth

Average annual GDP growth declined from 4.7 percent in 2009-2015 to 2.3 percent in 2016-2022. This slowdown in growth has occurred even in the context of high international prices. The average terms of trade for 2016-2022 have been at similar levels to those of 2009-2015 and 29 percent above the prices in 2002- 2008.

**EXPENDITURE-SIDE GDP GROWTH CONTRIBUTIONS
AND TERMS OF TRADE (2007 = 100)**

Source: BCRP.
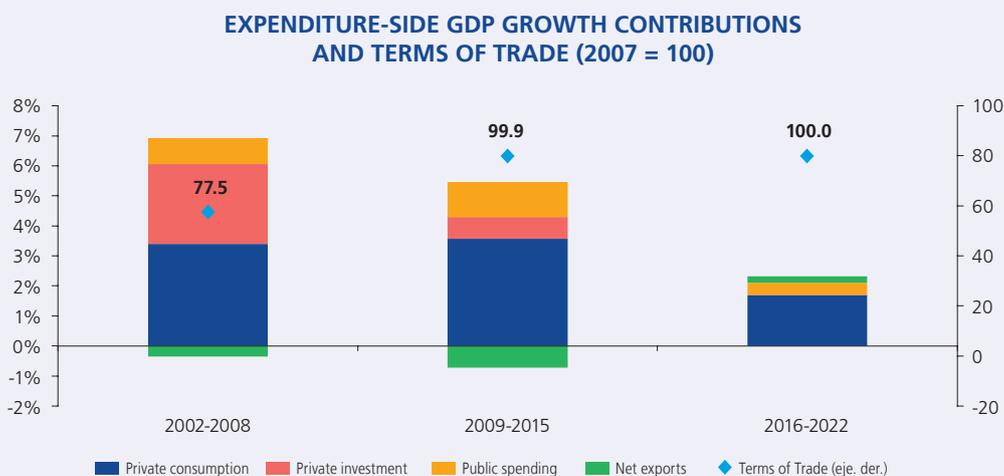
Lower economic growth rates are reflected in people's feeling of stagnation. For example, the progress perception indicator prepared by Apoyo Consultoría recorded in June 2022 its lowest level in the last 30 years and still shows no signs of improvement. In addition, in periods of economic slowdown, companies are more likely to decide not to hire more workers, as they do not expect a significant increase in the returns on their investments. In this regard, business expectations regarding the state of the economy in coming months remain pessimistic. For its part, an economic slowdown means fewer resources for the government to finance its expenditures, such as education, health, infrastructure, or public safety, among others. The indicators of citizens' perception of progress and business expectations about the economy show a downward trend, which is more marked in recent years, a period that coincides with greater political instability in the country.

Negative perceptions of progress have economic and social repercussions because agents postpone their spending and investments, which in turn further reduces economic pace. The persistence of this situation could challenge social cohesion.

ECONOMIC AGENTS' PERCEPTION OF PROGRESS
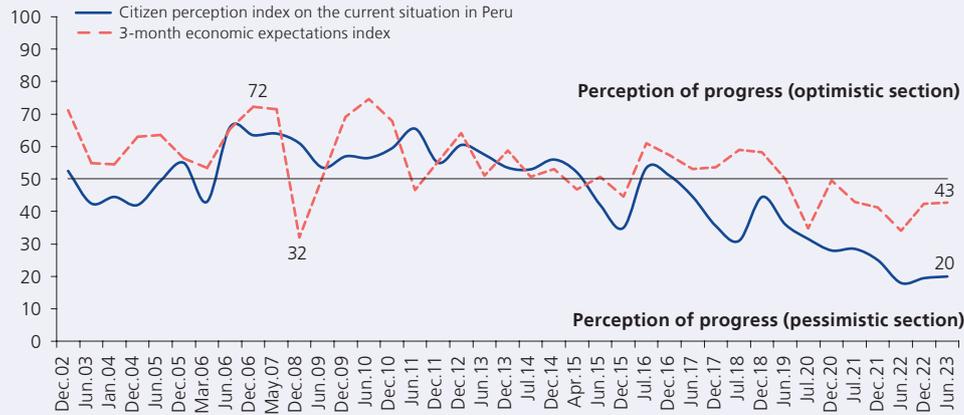
The index of citizen perception of Peru's current situation is calculated based on the question "Do you consider that Peru is moving forward, is stagnant, or is going backwards?" using the following formula: Index = (M-P+1)*50, where M is the percentage of people who responded "moving forward" and P represents the percentage of people who indicated "going backwards". National survey (urban and rural) of people between 18 and 70 years of age, prepared by Apoyo Consultoría.
Source: BCRP, Ipsos.

Structural reforms to reactivate potential growth

Taking advantage of the country's potential and relatively favorable global conditions is hampered by weak institutional capacity (underscored by political instability), lack of public policy coordination, excessive bureaucratic barriers, labor market rigidities and infrastructure deficiencies, among others. Therefore, it is essential to introduce reforms to reduce these constraints and increase the potential growth of our economy.

In line with the recommendations presented by the BCRP in previous reports,[12] the following aspects, among others, would allow progress towards this objective: (i) improve the quality of education; (ii) administrative simplification; (iii) improve and modernize the regulatory framework; (iv) reform the judiciary; (v) close the infrastructure gaps with an efficient execution of the National Competitiveness and Productivity Plan; (vi) reduce logistic costs, (vii) improve the provision and quality of public spending and services; (viii) foster process digitalization across government; (ix) strengthen public institutions and governance; (x) promote formal employment through greater labor market flexibility.

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12   Previous report boxes are as follows Determinants of potential growth (September 2018), Governance and macroeconomic stability (December 2021), The role of competitiveness in attracting private investment and generating formal employment (June 2022), or Quality of public spending and potential GDP (March 2023).

Box 3
PERSISTENCE OF POVERTY AND EMPLOYMENT DYNAMICS

In 2020, the monetary poverty rate rose to 30.1 percent in the wake of the pandemic, up from a low of 20.2 percent in 2019. Since then, the incidence of poverty has not returned to its pre-pandemic levels. Against this backdrop, this box explores the persistence of monetary poverty in the post-pandemic period (2020-2022), linking household mobility to employment dynamics in a context of slow economic recovery. For this purpose, we use data from the panel version of the National Household Survey (ENAHO).

Characterization of the persistence of poverty

The starting point for exploring poverty persistence is to quantify what percentage of households remain poor from one year to the next. This measure could be called the short-term persistence of poverty (an inverse indicator of household social mobility). In biannual periods, prior to the pandemic, more than half of poor households remained poor the following year. Between 2020 and 2021, this percentage drops transitorily, after a significant reversal in the poverty rate that year (it declined from 30.1 to 25.9 percent), but rises again between 2021 and 2022, following the increase in the number of poor households (the rate rises from 25.9 to 27.5 percent).

PERCENTAGE OF HOUSEHOLDS REMAINING IN MONETARY POVERTY IN BIANNUAL PANELS
(Relative to households that were poor in the previous year)

Period	2018/2019	2019/2020	2020/2021	2021/2022
Estimate	53.9	59.9	47.7	58.2
Confidence interval	[50.7; 57.1]	[56.5; 63.2]	[44.1; 51.3]	[54.7; 61.7]

Source: INEI - ENAHO Panel 2018-2022.

Another way to analyze the transience of poverty is to calculate how many times a household has been classified as poor over a given timeframe. In the 2018-2020 and 2020-2022 periods, most households in the bottom quintile of per capita expenditure had been poor more than once during those three-year periods. For example, in the bottom quintile, 7 in 10 households were poor more than once, and nearly 40 percent were poor for three consecutive years.

NUMBER OF TIMES A HOUSEHOLD CLASSIFIED AS POOR BY EXPENDITURE QUINTILE
(In percentages of total households in each decile and for each timeframe)
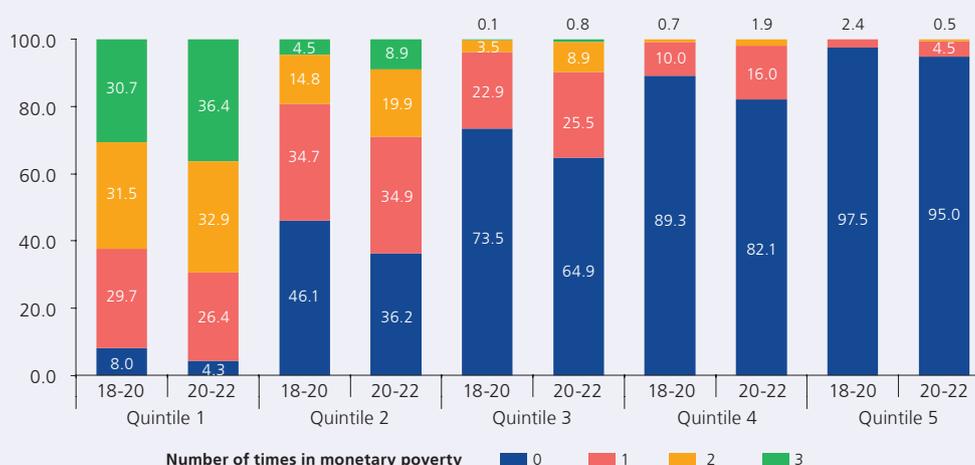
Note: Per capita expenditure decile is calculated with information from the first year.
Source: INEI - ENAHO Panel 2018-2022.

A greater propensity to become poor across all expenditure quintiles in the wake of the pandemic is verified by observing the drop in the percentage of households that did not experience poverty among the top quintiles in the 2020-2022 period.

Persistence of poverty and socioeconomic characteristics

The poverty transition can also be analyzed according to various household and head of household characteristics. The persistence of poverty in the short term is greater in rural households than in urban households, although the gap between the two types of households narrowed in the post-pandemic period. In addition, the probability of remaining poor is higher in those households where the head has only primary education, and if he/she is between 18 and 29 years old (younger). The family burden also plays an important role, with persistence being significantly higher among households with children under 15 years of age.

HOUSEHOLDS REMAINING POOR BY CHARACTERISTICS OF THE HOUSEHOLD HEAD
(As a percentage of the total number of households in each group that were poor in the previous year)

Period	2018/2019	2019/2020	2020/2021	2021/2022
Geographic Area				
Rural	61.4	59.7	55.4	**64.6**
Urban	47.2	60.0	44.4	55.0
Sex				
Women	51.2	61.7	46.8	55.3
Man	56.6	59.5	48.2	**59.2**
Education level				
Primary	57.7	58.4	51.7	**60.5**
Secondary	49.4	64.8	44.8	52.8
Superior	39.3	64.8	24.0	59.8
Age				
18 to 29 years	66.1	70.6	45.2	**62.1**
30 to 64 years	55.0	61.6	48.2	58.3
65 years to more	49.4	52.1	46.4	57.0
Familiar burden				
Childless	49.5	52.1	42.7	52.6
Children from 0 to 15 years	63.0	75.2	72.2	**63.5**

Source: INEI - ENAHO Panel 2018-2022.

HOUSEHOLDS REMAINING POOR BY HOUSEHOLD HEAD EMPLOYMENT
(As a percentage of the total number of households in each group that were poor in the previous year)

Period	2018/2019	2019/2020	2020/2021	2021/2022
Occupation				
Employer	53.0	49.7	52.9	44.6
Salaried	46.4	62.0	42.1	52.2
Independent	58.2	60.0	52.8	**60.9**
Formality				
Informal	56.7	60.7	49.5	**59.0**
Formal	34.2	45.7	26.4	46.1
Sector				
Extractive	59.8	59.2	53.3	61.0
Manufacture	62.7	61.9	50.1	**66.2**
Services	51.8	57.4	46.9	54.0
Construction	37.2	70.3	54.9	50.9
Commerce	39.7	67.4	32.6	49.6

Source: INEI - ENAHO Panel 2018-2022.

In a context of low economic growth, it also becomes relevant to analyze how the persistence of monetary poverty is related to employment variables. For the sake of simplicity, we explore here the employment of the head of household, revealing that poor households where the head of household is self-employed show a higher likelihood of remaining poor compared to households where the head of household is an employer or salaried worker. The same is true for heads of household employed in the informal sector. In addition, the persistence of poverty is also greater when the head of household works in the extractive and manufacturing sectors.

Determinants of the transition to poverty in the post-pandemic period.

To identify the variables that affect the probability of a Peruvian household being poor in the post-pandemic period (2020 to 2022), we use a probabilistic model where the dependent variable Y_{it} takes the value of 1 if the household is poor in the year t and 0 otherwise.

The Probit specification models the conditional average probability to be equal to 1 with the standard normal cumulative distribution function Φ:

$$\Pr(Y_{it} = 1 | X_t, X_{t-1}, z_{t-1}) = \mathbb{E}[Y_{i,t}/X_t, X_{t-1}, z_{t-1}] = \Phi(X'_{it}\beta + X'_{it-1}\beta + \alpha z_{t-1})$$

In this specification, the main explanatory variable z_{t-1} takes the value of 1 if the household was poor in the previous year, and the parameter α quantifies the persistence of monetary poverty in the short term. It then α determines how much more likely it is that a household will be poor in a specific period given that it was poor in the previous year. For its part, the vector X contains several control variables·[13]

Dynamic variables related to the household's labor situation are included among the explanatory variables. Specifically, we measure the relationship of the household's poverty situation to: (i) an increase in the total number of working household members; (ii) an increase in the number of members with a formal job; (iii) whether the head of household remains formally employed; (iv) whether the head of household gets a formal job given that he/she had informal employment; and (v) whether the head of household gets a job given that he/she was unemployed. This specification also includes a demographic variable that measures whether the household had an additional member between 0 and 5 years of age.

The estimates use biannual panels (two-year periods) and total years (three-year period) for each proposed specification due to potential selection bias in a longer panel.[14] This strategy is used as a robustness test of the results and the three specifications differ in the set of control variables.

The results show a significant persistence of monetary poverty for Peruvian households, as indicated in the descriptive section. According to the regressions, poor households in one year would be about 25 points more likely to be poor the following year compared to non-poor households.

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13   The characteristics of the head and of the household itself are included, as well as three variables that quantify whether the households suffered any economic (loss of employment or business failure), health or natural (plagues, droughts, floods, among others) adverse events. Fixed effects by year and area are also incorporated.

14   A household's exit from the sample for long periods may be related to its probability of falling into monetary poverty or not, such that there is a selection bias. For example, a household may cease to be locatable (not recorded in the panel in a subsequent year) because poverty forced the family to migrate.

DETERMINANTS OF THE FALL OR PERMANENCE IN MONETARY POVERTY, 2020-2022
(Marginal effects)

	Specification 1		Specification 2		Specification 3	
	Biannual Panel	Total Panel	Biannual Panel	Total Panel	Biannual Panel	Total Panel
Persistence of poverty						
Poor $_{(t-1)}$	0.270***	0.257***	0.268***	0.256***	0.252***	0.239***
Demographic characteristics						
Age (years)$_{(t-1)}$	0.001***	-0.001***	-0.001***	-0.001***	-0.001**	-0.001**
Man $_{(t-1)}$	0.015*	0.007	0.014*	0.007	0.017*	0.009
Members in the household $_{(t-1)}$	0.026***	0.021***	0.026***	0.021***	0.026***	0.021***
Number of children between 0 and 5 years $_{(t-1)}$	0.058***	0.046***	0.058***	0.045***	0.061***	0.050***
Number of children between 6 and 15 years old $_{(t-1)}$	0.035***	0.031***	0.035***	0.030***	0.037***	0.032***
Human capital						
Busy household head	-0.017	0.013	-0.017	-0.014	-0.015	0.003
Years of schooling$_{(t-1)}$	-0.013***	-0.013***	-0.013***	-0.013***	-0.010***	-0.010***
Physical disability$_{(t-1)}$	0.037**	0.025	0.036**	0.024	0.032*	0.021
Shock						
Economic shock$_{(t)}$			0.018	0.027*	0.022	0.030*
Health shock$_{(t)}$			-0.014	-0.001	-0.013	-0.001
Natural shock$_{(t)}$ a/			0.026*	0.032*	0.02	0.027*
Demographic changes						
Increases the number of household members between 0 and 5 years old$_{(t)}$					0.087***	0.090***
Dynamic employment improvements						
Busier at home$_{(t)}$					-0.021*	-0.018*
Busier formals at home$_{(t)}$					-0.054***	-0.053***
Boss maintains formality$_{(t)}$					-0.113***	-0.097***
Boss goes to formality$_{(t)}$					-0.074***	-0.056**
Boss gets a job$_{(t)}$					-0.027	0.006
Fixed effects b/	✓	✓	✓	✓	✓	✓
Observations	28 093	21 014	28 093	21 014	28 093	21 014

a/ Includes pests, droughts, floods, among others.
b/ Includes dichotomous variables by year, by geographic area (urban and rural) and by natural region (coast, highlands and jungle).
* p.value<0.05; ** p.value<0.01; *** p.value<0.001.

The demographic characteristics of the head of household are significant in determining the persistence of poverty. It highlights that an additional year of education of the head of household reduces by more than 1 percentage point the likelihood of remaining or falling into poverty. The size of the household, the number of children between zero and five years of age -including if the household has an additional member from one year to another under 5 years of age-, and the age of the head of household would be other relevant characteristics in explaining the persistence of poverty.

From the marginal effects, it is possible to calculate how the likelihood of households being poor varies according to their characteristics, the shocks they face, and the labor changes experienced by household members. This calculation results from replacing the regressors (independent variables) with their mean value and computing the change in the probability that would arise from changing a given variable. For the purposes of this exercise, the coefficients of Specification 3 are used, since it includes all the regressors analyzed, and uses the estimation with the full panel database.

The usefulness of this exercise is to identify the importance of the employment status of household members. We find that if there are more employed household members from one year to the next, the average probability of being in poverty decreases from 18.6 to 16.8 percent. Similarly, with more formal workers in the household, the probability decreases from 18.5 to 14.4 percent. Finally, if the head of household becomes or remains formal, the probability drops from 19.4 to 9.7 percent, and from 18.4 to 12.8 percent, respectively.

**PREDICTED PROBABILITY OF FALLING INTO POVERTY ACCORDING
TO DYNAMIC EMPLOYMENT EVENTS**
(In percentages)
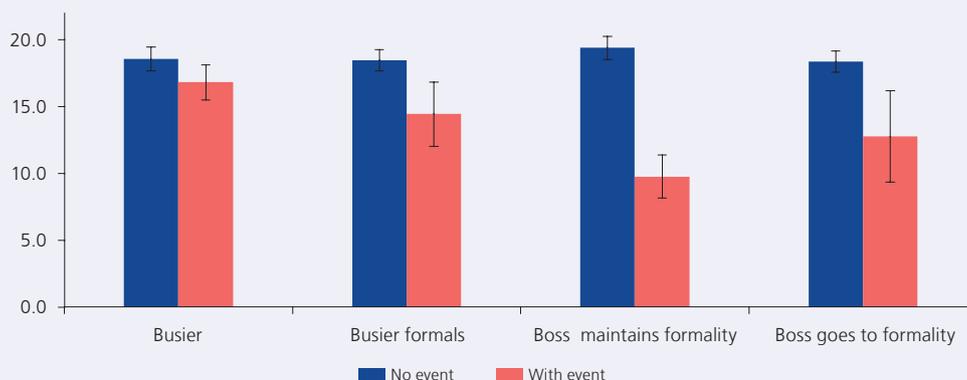
Note: In the graph, the average probability of being in poverty is calculated for households that experience or do not experience: (i) an increase in the number of employed persons, (ii) an increase in the number of formal employed persons, and (iii) a head of household who maintains a formal job, and (iv) a head of household who moves from a formal to an informal job.
Source: INEI - ENAHO.

This can also be calculated for other explanatory variables. For example, in a household where the head of household only has 4 years of education (incomplete elementary school), the average probability would be more than 23 percent, in contrast to a probability of 11 percent when the head of household has 16 years of education. Finally, the average probability goes from 13 to 21 percent among households with 1 and 5 members, respectively.

Concluding remarks

In characterizing the dynamics of poverty in Peru, we find that the mobility of poor Peruvian households is moderately low. Specifically, less than half of poor households cease to be poor from one year to the next in the period 2018-2022. However, it has been possible to identify key factors that help reduce the persistence of poverty. Among these factors, the role of formal employment stands out. This reinforces the need to focus on increasing potential GDP growth in order to strengthen the generation of formal jobs.

Box 4
EFFECT OF THE NEW HOLIDAYS
ON THE ECONOMY

Legal rest periods, such as holidays or non-working days,[15] have important repercussions on individuals and the economy. On the one hand, holidays can have positive impacts on work-family balance, productivity,[16] and consumption in sectors such as tourism.[17]However, too many holidays can have negative impacts on economic activity.[18] This box presents evidence on the effects of holidays on the economy.

International comparison

In Peru, formal workers have 30 days of vacation and 16 holidays, making it the country with the most paid days off compared to OECD and Pacific Alliance countries. In contrast, Peru has the lowest labor productivity in that group of countries. In the last 2 years, non-working days in Peru have increased by 33 percent, increasing from 12 to 16 holidays. This increase could have differentiated, and in some cases undesirable, effects on economic activities, in addition to raising labor costs, affecting formal hiring. According to Peruvian law, workers who work on a non-working holiday earn 2 additional daily remunerations in addition to the ordinary remuneration for that day: one for the extraordinary work performed, and the other for the 100 percent surcharge. However, the law also indicates that, instead of the payment, the right to a day off in lieu of the holiday not taken may be taken. In either case, non-wage labor costs increase.

COUNTRIES WITH MORE PAID TIME OFF IN OECD AND PACIFIC ALLIANCE,
VS. LABOR PRODUCTIVITY
(Number of days)
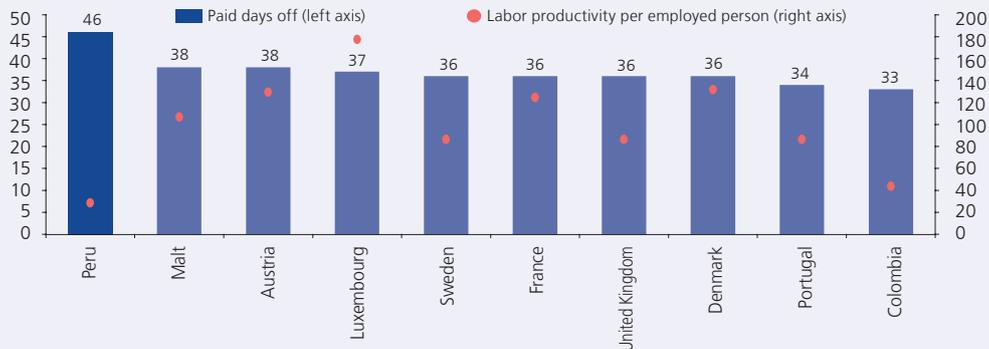
Notes:
1/ Days off: Peru 2023; remainder 2021. Labor productivity per person employed: 2022, thousands of 2022 international dollars. Source: MEF. The Conference Board: Total Economy Database.
2/ Holidays (paid rest days) in Peru are as follows (Legislative Decree N° 713): New Year's Day (01-Jan), Maundy Thursday (movable), Good Friday (movable), Labor Day (01-May), Battle of Arica and Flag Day (07-Jun)*, San Pedro and San Pablo (29-Jun), Commemoration of the heroic sacrifice of Captain FAP José Abelardo Quiñones Gonzales (23-July), Fiestas Patrias (28-Jul), Fiestas Patrias (29-Jul), Battle of Junín (06-Aug)*, Santa Rosa de Lima (30-Aug), Combate de Angamos (08-Oct), All Saints (01-Nov), Inmaculada Concepción (08-Dec), Battle of Ayacucho (09-Dec)*, and Navidad del Señor (25-Dec). (*) New holidays.

15   Holidays are days on which workers are entitled to paid rest (Legislative Decree No. 713; may be paid or compensated with rest on another day), while non-working days are rest days for which hours not worked must be compensated (DS No. 151-2022-PCM).
16   Kong, Hassan & Abdullah Bandar (2020). The Mediating Role of Leisure Satisfaction between Work and Family Domain and Work-Life Balance. Journal of Cognitive Sciences and Human Development, 6(1), 44-66. https://doi.org/10.33736/jcshd.1603.2020.
17   Ramasamy, Yeung & Au (2008). Can holidays boost consumption? The case of Hong Kong. Journal of Public Affairs, 8(4), 281-287. https://doi.org/10.1002/pa.299.
18   Barrera & Garrido (2018). Public holidays, tourism, and economic growth. Tourism Economics, 24(4), 473-485. https://doi.org/10.1177/1354816617749340.

Estimated effect of holidays on economic activities

The effect of non-working days, in general terms, will depend on various factors, such as labor participation, the variation in remuneration for work performed on holidays, the transience or permanence of the establishment of new holidays, among others. An increase in holidays falling on working days reduces labor supply and GDP, although it could also increase motivation and productivity on the rest of the working days of the week.

A recent study by Rosso & Wagner (2022) estimates the effect of holidays on annual GDP growth, using data on national holidays determined by law (national, federal or public) for a broad sample of countries.[19] The authors estimate a regression of GDP growth on the number of working days, using the following control variables: fiscal aggregates, trade balance, sectoral output, and labor market indicators, among others. The holidays, which in some years fall outside the working week and in others do not, introduce an exogenous variation that allows us to estimate their causal effect. The results of the research indicate that each additional holiday would reduce annual GDP growth by 0.08 percentage points on average for the 96 sampled countries.[20] The effects differ by economic sector: the effect is greater in activities that are more likely to be interrupted during holidays (manufacturing), but the authors do not find a significant effect in activities that usually are not interrupted (mining, agriculture).

The Rosso and Wagner (2022) estimate, however, does not consider the peculiarities of the Peruvian economy, such as high labor informality. As a complementary exercise, the equivalent impact is estimated using the TRAMO-SEATS methodology developed by Gómez and Maravall (1996)[21]. The TRAMO-SEATS algorithm identifies the best univariate specification of a time series and controls for the effects of some exogenous variables, such as the number of holidays per month, leap years, length of months, among others.

ESTIMATED EFFECT OF A HOLIDAY ON GDP GROWTH

	An additional holiday		95% Confidence Int.	
			Lower	Upper
GDP	**-0.04 ***	**(0.02)**	**-0.071**	**-0.002**
Non-primary GDP	**-0.04 *****	**(0.01)**	**-0.07**	**-0.01**
Manufacture	-0.05 ***	(0.02)	-0.09	-0.01
Electricity and water	-0.03 ***	(0.01)	-0.04	-0.01
Construction	-0.12	(0.08)	-0.28	0.03
Commerce	-0.04 **	(0.02)	-0.07	-0.01
Services	-0.02	(0.01)	-0.04	0.00
Other	-0.06 ***	(0.02)	-0.09	-0.02
Primary	**-0.02**	**(0.04)**	**-0.10**	**0.05**
Agriculture and livestock	0.03	(0.02)	-0.02	0.07
Fishing	0.36	(0.52)	-0.66	1.39
Metallic mining and hydrocarbons	-0.01	(0.03)	-0.07	0.05
Manufacture	-0.08	(0.13)	-0.35	0.18

Note: Effect in percentage points on one-time annual GDP growth in the year of implementation of the holiday, according to the TRAMO-SEATS methodology. Values in parentheses correspond to the standard deviation of the estimated effect. The estimate is made using the logarithm of the monthly GDP levels; however, this table reports the approximate impact in percentage points on the annual growth rate consistent with the estimate. The non-primary GDP item "other" corresponds to "import duties and product taxes".

19   Rosso & Wagner (2022). Causal Effect of Public Holidays on Economic. SSRN Electronic Journal. https://dx.doi.org/10.2139/ssrn.3845129.

20   After several technical criteria (such as including only countries with more than 300 thousand inhabitants in 2019 or the availability of control variables), the sample is reduced from 222 to 96 countries.

21   Gómez, Victor & Maravall H. Agustín, "Programs TRAMO and SEATS: instructions for the user (beta version: September 1996)." Banco de España. Servicio de Estudios, 1996.

The TRAMO-SEATS methodology estimates the impact in percentage points on the annual GDP growth rate for the year in which the holiday is added.[22] As shown in the following table, a lower GDP response (0.04 percentage points) results, compared to Rosso & Wagner (2022). Although the response is smaller, it is significant at 5 percent confidence. Thus, the 4 additional non-working days recently approved could reduce GDP growth by 0.16 percentage points in the first year of implementation with respect to the growth that would occur in the absence of these holidays. It should be noted that this estimated effect is a one-time effect on the GDP level, i.e., in subsequent years economic growth would not be affected. Also note that this effect ranges between 0.28 and 0.01 percentage points, considering a 95 percent confidence interval.

Estimates indicate that the non-primary sector is particularly susceptible to the additional holidays (with an impact of -0.04 p.p.). Of note are the significant impacts in the non-primary manufacturing (-0.05 p.p.), commerce (-0.04 p.p.) and electricity and water (-0.03 p.p.) sectors. The primary sectors recorded medium, albeit not significant, impacts. These results are consistent with the sectoral heterogeneity identified in Rosso & Wagner (2022).

Final comments

Therefore, it is important to periodically evaluate -with the participation of all parties- the effects of establishing national holidays versus other alternatives such as the commemoration of holidays without mandatory rest or the implementation of "floating holidays" (in which the companies together with the workers decide autonomously the distribution of rest days per year, as in some Canadian provinces), or holidays that can be moved to a Friday or Monday,[23] complemented with policies to promote domestic tourism on those days.

On the other hand, there are experiences of countries that have reduced non-working holidays, such as Cambodia in 2019, the Philippines in 2021 and Denmark in 2023[24]. In short, it is important to evaluate holidays beforehand to seek a balance between their economic, social and cultural aspects.

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22   For the estimation, GDP levels in logarithms (per hundred) are used for each of the productive sectors. The impact on annual growth consistent with each estimate is then calculated. Data from January 1994 to December 2019 are used.

23   For example, in the United States, there are holidays that are not tied to a fixed calendar date, but to a specific day of the week in a given month. These are often referred to as "moving holidays" and the idea behind them is to provide citizens with long weekends, which is expected to benefit both workers and industries related to tourism and commerce.

24   Cambodia: Subdecree No. 112 SD.P; Philippines: Proclamation 1107; Denmark: Minasyan (2023) Cancellation of Public Holiday in Denmark. Selected Issues Papers, 2023(053). In August 2019, Cambodia approved the reduction of public holidays for civil servants and employees from 28 to 22 days, with the aim of improving work efficiency and ensuring economic competition with regional neighbors. The Philippines amended the 2021 regular holidays and special non-working days (3 days), which became "special working days" and do not involve any additional remuneration. The Proclamation notes that, in order to recover from the adverse economic effects of the COVID-19 pandemic, there is a need to boost productivity through, among other measures, reducing work stoppages and commemorating some holidays as special working days. Finally, in Denmark, the parliament approved the cancellation of the Great Day of Prayer "Store Bededag" (third Friday after Easter), with the aim of increasing labor supply, boosting GDP and tax revenue; and through an agreement between government, business and employees. Minasyan (2023) estimates that this measure would increase Denmark's labor supply by 0.14 to 0.34 percent.

IV. Public finances

50. The cumulative fiscal deficit over the last twelve months increased from 1.7 to 2.6 percent of GDP between December 2022 and August 2023, mainly due to the General Government's lower current income.

Graph 48
ECONOMIC BALANCE OF THE NON-FINANCIAL PUBLIC SECTOR: 2018-2023
(Cumulative last 12 months - Percentage of GDP)

Note: The economic balance is calculated as current income - Non-financial expenditure + other (capital income and primary result of state-owned enterprises) - interest payment on debt.
Source: MEF, SUNAT and BCRP.

The reduction in current income in terms of output resulted mainly from lower tax revenues, and to a lesser extent from the contraction of non-tax revenues. The reduction in tax revenues is explained by slower private spending and the correction of export mineral and hydrocarbon prices. By component, income tax collection also fell, particularly due to income tax regularization during the March-April campaign; as well as the value added tax (IGV), on imports. Non-tax revenues fell after lower collection of canon and oil and gas royalties, as well as mining royalties.

Non-financial expenditures decreased as a percentage of GDP, but increased in nominal terms. The nominal increase in non-financial expenditures reflects higher

expenses for (i) remunerations, mainly due to increases granted to the different labor regimes of the public sector and payments related to judicial rulings, particularly in the regional governments; and (ii) gross capital formation, due to higher execution for public order and security, education and communications, mainly by the national government.

51. The **fiscal deficit** is expected to increase from 1.7 to 2.4 percent of GDP between 2022 and 2023 due to the impact on current income of falling export prices, lower imports and slower private spending. Likewise, revenues were affected by the lower back income tax in 2023, which fell a real 41.4 percent in the first half this year.

Non-financial expenditures as a percentage of GDP are expected to decrease, particularly other capital expenditures, which would partially counterbalance the upward trend of the fiscal deficit.

By 2024, the deficit in terms of output is expected to narrow to 2.0 percent of GDP, in line with recovering domestic demand, as well as higher forecasts for average export prices. These factors would drive a recovery in the government's current revenues compared to the previous year; in parallel, a decline in non-interest spending as a percentage of GDP is expected, reflecting the dissipation of extraordinary expenditures. To a lesser extent, a recovery in the primary result of state-owned companies would also contribute (explained, in part, by the completion of the Talara Refinery and beginning commercial operation). Both forecasts are in line with the ceiling established by the fiscal rule (Law No. 31541).

Table 21
NON-FINANCIAL PUBLIC SECTOR
(Percentage of GDP)

	2022	2023*			2024*	
		August [1]	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
1. General government current revenues	**22.1**	**20.3**	**20.7**	**20.2**	**20.7**	**20.3**
Real % change	*4.7%*	*-10.0%*	*-3.1%*	*-7.1%*	*3.6%*	*3.6%*
2. General government non-financial expenditure	**22.0**	**21.4**	**21.0**	**20.9**	**21.0**	**20.8**
Real % change	*-1.5%*	*-3.7%*	*-1.0%*	*-3.1%*	*3.8%*	*2.3%*
Of which						
Current expenditure	*15.9*	*15.6*	*15.6*	*15.6*	*15.6*	*15.4*
Real % change	*-7.7%*	*-8.3%*	*1.5%*	*-0.6%*	*3.9%*	*2.1%*
Gross capital formation	*4.7*	*4.5*	*4.6*	*4.6*	*4.7*	*4.6*
Real % change	*9.9%*	*6.7%*	*3.3%*	*1.1%*	*4.9%*	*3.1%*
3. Other [2]	**-0.2**	**0.1**	**0.0**	**-0.1**	**0.2**	**0.1**
4. Primary balance (1-2+3)	**-0.1**	**-1.0**	**-0.3**	**-0.8**	**-0.2**	**-0.3**
5. Interests	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.7**
6. <u>Overall Balance</u>	**<u>-1.7</u>**	**<u>-2.6</u>**	**<u>-1.9</u>**	**<u>-2.4</u>**	**<u>-1.8</u>**	**<u>-2.0</u>**

1/ Ratios as a percentage of GDP and real percentage changes represent the cumulative figure for the last twelve months through August.
2/ Includes general government capital revenues and primary results of state-owned companies.
* Forecasts
IR: Inflation Report

Compared to the June report, the fiscal deficit projection increased from 1.9 to 2.4 percent of output by 2023. This revision considers the negative impact on revenues

of lower GDP growth estimates, lower imports, and the downside revision on average export prices.

For 2024, the fiscal deficit projection is revised upward from 1.8 to 2.0 percent of GDP with respect to the previous report, mainly explained by a lower comparison base of current income of the general government in 2023.

Graph 49
ECONOMIC BALANCE OF THE NON-FINANCIAL PUBLIC SECTOR: 2014-2024
(Percentage of GDP)

Note: The economic balance is calculated as current income - Non-financial expenditure + other (capital income and primary result of public enterprises) - interest payment on debt.
* Forecasts.
Source: BCRP.

Current income

52. **Current income** would show a real contraction of 7.1 percent in 2023 and as a percentage of GDP would reach 20.2 percent, 1.9 percentage points lower than at the end of 2022.

This decrease in revenues is due, in the first place, to the fall in the prices of export minerals and hydrocarbons (mainly, natural gas, oil and oil derivatives, copper and zinc), which would affect the collection of revenues from the mining and hydrocarbon sectors. Secondly, the lower economic growth will translate into a lower real expansion of corporate income tax, which would also be influenced by the lower coefficients of payments on account and balances in favor of the previous year, while the slowdown in the value of imports would cause a contraction of the IGV applied to imports. In addition to these factors, there will be a lower income tax regularization collection, after reaching a historical high in 2022.

The revision on the downside of the forecasts for 2023 -from 20.7 to 20.2 percent of GDP- considers the lower growth recorded up to August with respect to the June report forecast. In addition, this revision on the downside reflects the downward correction of export mineral prices, together with a lower growth of economic activity, which translates into a lower forecast in income tax revenues and VAT (Value Added Tax). Likewise, the lower projection in the value of imports, particularly in inputs and capital goods, would have a negative effect on VAT collection.

In 2024, current income would increase by 3.6 percent in real terms with respect to the previous year to 20.3 percent of GDP. This evolution is mainly explained by the expected recovery of economic activity and growing imports, which would translate into higher VAT and ISC (excise tax) collections. Higher revenues from social contributions are expected among non-tax revenues, reflecting greater job creation. Meanwhile, the downside revision, as a percentage of GDP, from 20.7 to 20.3 percent, responds to a lower starting point in 2023.

Table 22
CURRENT REVENUES OF THE GENERAL GOVERNMENT
(Percentage of GDP)

	2022	2023*			2024*	
		August 1/	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
TAX REVENUES	**17.2**	**15.6**	**16.2**	**15.5**	**16.2**	**15.6**
Income tax	7.5	6.5	6.6	6.5	6.3	6.3
Value Added Tax (VAT)	9.4	8.7	8.8	8.4	9.0	8.6
Excise tax	1.0	1.0	1.0	1.0	1.1	1.0
Import duties	0.2	0.2	0.2	0.2	0.2	0.2
Other tax revenues	1.9	1.8	1.8	1.9	1.8	1.9
Tax returns	-2.7	-2.6	-2.3	-2.4	-2.1	-2.3
NON-TAX REVENUES	**4.9**	**4.7**	**4.6**	**4.7**	**4.5**	**4.7**
Contributions to social security	2.0	2.0	1.9	1.9	2.0	2.1
Own resources and transfers	1.4	0.8	1.3	1.3	1.3	1.4
Royalties and likely	1.0	0.7	0.8	0.9	0.7	0.8
Other	0.5	1.2	0.6	0.6	0.5	0.5
TOTAL	**22.1**	**20.3**	**20.7**	**20.2**	**20.7**	**20.3**

1/ Represents the cumulative figure for the last twelve months through August.
* Forecasts
IR: Inflation Report.

Non-financial expenditure

53. **Non-financial expenditures** would record a real reduction of 3.1 percent in 2023, and as a percentage of GDP would stand at 20.9 percent, 1.1 percentage points lower than in 2022. This decrease mainly reflects a reduction in COVID-19 expenses, the lower honoring of credit guarantees, lower expenses accrued by the Fuel Price Stabilization Fund and by the capital contribution to Petroperú in 2022. This evolution would be partially offset by higher payroll expenses (in line with the increase recorded in the first half of the year), as well as in gross capital formation.

Expenditure is expected to grow by 2.3 percent in real terms in 2024 to 20.8 percent of GDP, 0.1 percentage points lower than projected for 2023. This real growth includes an increase in current expenditures, especially in goods and services and gross capital formation, following the learning period of new subnational authorities and the prioritization of public investment within the budget.

The expenditure projection for 2023 is reduced in terms of output from 21.0 to 20.9 percent of GDP, compared to the previous report. This drop is explained by lower expenditures on transfers and goods and services. For 2024, the forecasts slip from 21.0 to 20.8 percent of GDP, due lower forecast transfers. Expenditures are projected to remain higher than before the pandemic (average level 2015-2019: 20.2 percent of GDP).

Table 23
NON-FINANCIAL EXPENDITURES OF THE GENERAL GOVERNMENT
(Percentage of GDP)

	2022	2023*			2024*	
		August [1]	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
CURRENT EXPENDITURE	**15.9**	**15.6**	**15.6**	**15.6**	**15.6**	**15.4**
National Government	10.6	10.1	10.4	10.1	10.7	10.4
Regional Governments	3.6	3.7	3.5	3.7	3.2	3.4
Local Governments	1.8	1.7	1.7	1.8	1.7	1.7
CAPITAL EXPENDITURE	**6.1**	**5.8**	**5.4**	**5.4**	**5.4**	**5.3**
Gross capital formation	**4.7**	**4.5**	**4.6**	**4.6**	**4.7**	**4.6**
National Government	1.5	1.6	1.7	1.7	1.7	1.7
Regional Governments	1.0	1.0	1.0	1.0	1.0	1.0
Local Governments	2.2	2.0	1.9	1.9	2.0	1.9
Other	**1.4**	**1.3**	**0.7**	**0.7**	**0.7**	**0.7**
TOTAL	**22.0**	**21.4**	**21.0**	**20.9**	**21.0**	**20.8**
National Government	13.5	13.0	12.9	12.5	13.1	12.7
Regional Governments	4.6	4.7	4.5	4.8	4.2	4.4
Local Governments	4.0	3.7	3.7	3.7	3.8	3.7

1/ Represents the cumulative figure for the last twelve months through August.
* Forecasts
IR: Inflation Report.

Fiscal stance

54. The **structural primary balance** excludes the effects on government revenues and expenditures of discretionary fiscal policy decisions and cyclical and transitory components affecting the economy. The structural primary deficit is estimated at 0.8 and 0.4 percent of potential GDP for 2023 and 2024, respectively, both higher than the estimated deficit of 0.1 percent for 2019. The trend in the structural primary deficit reflects a slight reduction in the expansionary fiscal stance, in line with a nominal expansion in spending and a negative output gap.

Graph 50
CONVENTIONAL AND STRUCTURAL PRIMARY RESULT
OF THE NON-FINANCIAL PUBLIC SECTOR: 2014-2024
(Percentage of GDP and potential GDP)
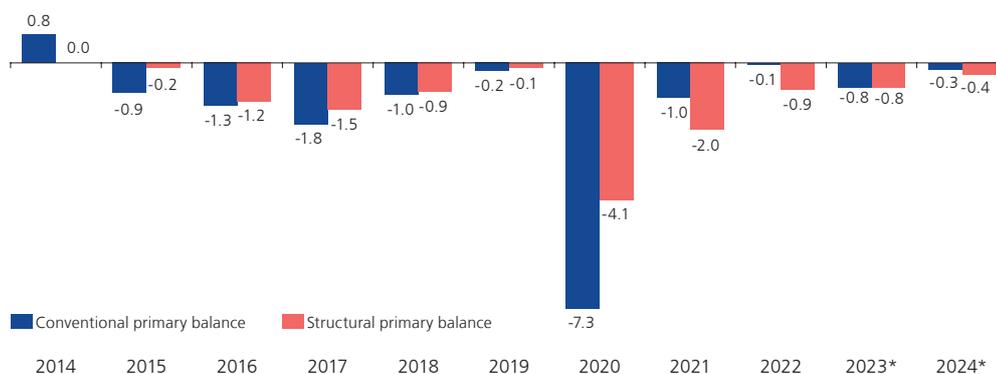
* Forecasts.
Note: For 2020, the structural primary result is calculated using trend GDP.
Source: BCRP.

Financing and debt

55. Compared to the June report, the forecasts for **financing requirements** for 2023 and 2024 have been increased, mainly in consideration of the higher nominal fiscal deficit

expected for both years. Regarding the **sources of financing**, issuance of sovereign bonds is expected to increase.

Between 2022 and 2023, financing requirements are expected to increase, due to the projected increase in the amortization of domestic and external debt, as well as the fiscal deficit.

Table 24
FINANCIAL REQUIREMENT AND FINANCING OF THE NON-FINANCIAL PUBLIC SECTOR
(Millions of Sol)

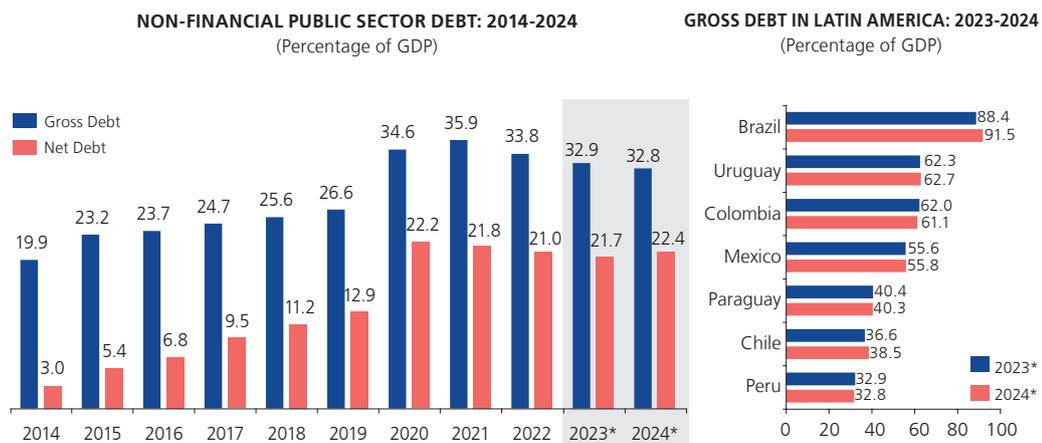|	2022	2023*			2024*	
		Jan.-Aug	IR Jun.23	IR Sep.23	IR Jun.23	IR Sep.23
I. USES	**20,639**	**26,597**	**45,075**	**49,493**	**29,882**	**31,939**
1. Amortization	4,680	22,933	25,342	25,285	10,359	10,375
a. External	3,893	8,130	9,972	9,876	3,737	3,746
b. Domestic	788	14,804	15,370	15,409	6,622	6,630
Of which: recognition bond	*553*	*406*	*533*	*565*	*550*	*550*
2. Economic Balance 1/	15,959	3,663	19,732	24,209	19,522	21,564
II. SOURCES	**20,639**	**26,597**	**45,075**	**49,493**	**29,882**	**31,939**
1. Disbursements and others	14,974	31,395	40,557	45,209	26,033	31,017
a. External credits	7,066	5,166	10,682	10,851	7,533	9,017
b. Global and Sovereign bonds	7,908	26,229	29,875	34,358	18,500	22,000
2. Variation in deposits and others 2/	5,665	-4,798	4,518	4,284	3,848	922
Note:						
% GDP						
Gross public debt balance	33.8	32.3	32.1	32.9	31.6	32.8
Net public debt balance	21.0	20.3	20.9	21.7	21.4	22.4
Balance of public deposits	12.8	12.0	11.2	11.2	10.2	10.4

1/ Negative sign indicates surplus.
2/ Positive sign indicates reduction of deposits.
* Projection
RI: Inflation Report

56. The **gross debt** of the non-financial public sector would go from 33.8 to 32.9 percent of GDP between 2022 and 2023, to finally stand at 32.8 percent at the end of the projection horizon. Gross debt forecasts for 2023 and 2024 would be lower than the maximum established by the macro-fiscal debt rule of 38.0 percent of GDP, mandated by Law No. 31541.

Graph 51

NON-FINANCIAL PUBLIC SECTOR DEBT: 2014-2024
(Percentage of GDP)

GROSS DEBT IN LATIN AMERICA: 2023-2024
(Percentage of GDP)

* Forecast
Source: BCRP and WEO (April 2023).

Net debt of the non-financial public sector deposits would increase from 21.0 to 21.7 percent of GDP between 2022 and 2023 and would stand at 22.4 percent of GDP by the end of the projection horizon.

57. The yield curve of public treasury bonds (BTP), with fixed interest rate in Peruvian Sol currency (sovereigns), showed a slight average reduction of 4 basis points between June and September.

Graph 52

YIELD CURVE
(Percentage)

YIELD TO MATURITY
(Percentage)
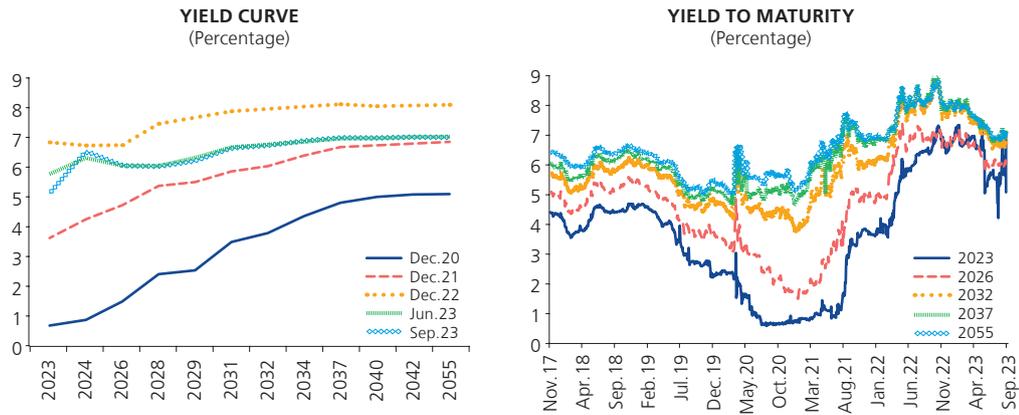
* As of September 8.
Source: MEF.

In the period under review, an increase in 10-year local currency government bond yields was observed in most countries in the region. Specifically, Mexican and Colombian bonds increased the most, by 86 and 82 basis points, respectively. For its part, Brazilian and Chilean bonds increased by 66 and 60 basis points, respectively. Peruvian bonds' yield rate stood at 6.85 percent in September.

Graph 53
10-YEAR LOCAL CURRENCY SOVEREIGN BOND YIELDS
(Percentage)
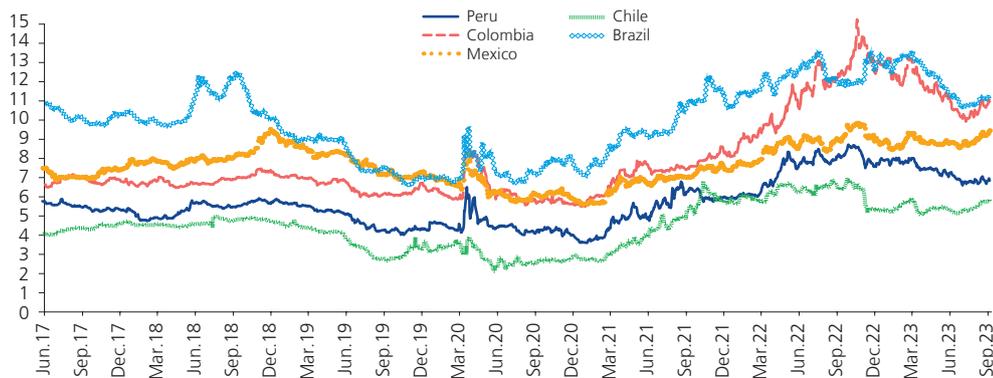
* As of September 08
Source: MEF and Reuters.

Yields on global dollar bonds have risen in all tranches of the yield curve so far in the third quarter, with the most moderate increase in the short tranches. In particular, the Peruvian 10-year bond increased from 5.18 to 5.69 percent over a similar horizon, while the U.S. bond yield increased from 3.84 to 4.27 percent. In the region, bonds from Chile, Mexico and Brazil showed higher interest rates during the third quarter.

The balance of sovereign bonds, as of September 8, stood at S/ 150.3 billion, S/ 0.7 billion higher than the balance as of June 30. In the third quarter, non-resident investors are the main bond bidders, while banks stand out on the demand side. The participation of non-resident investors has continued to slide, standing at 37 percent of total bonds.

Graph 54
SOVEREIGN BOND BALANCES AND NON-RESIDENT INVESTORS' PARTICIPATION
(Millions of Sol and percentage)
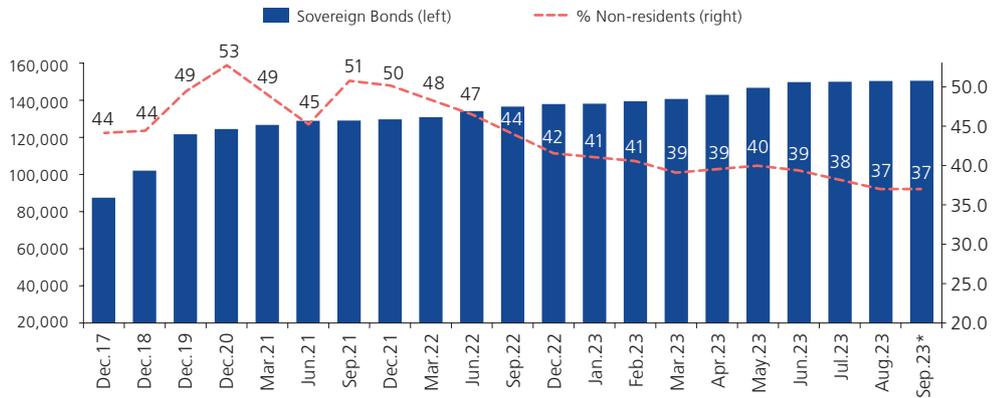
Note: For the calculation of non-residents' share of sovereign bond holdings, until February 2021, inflation-pegged bonds, Global Depositary Notes (GDN) and Euroclear transactions of non-residents are excluded. As of March 2021, nominal sovereign bonds and VACs are included and GDNs are excluded.
*Preliminary information as of September 8.
Source: BCRP, CAVALI, MEF and SBS.

V. Monetary policy and financial conditions

Monetary policy actions

58. In September 2023, the BCRP Board of Directors decided to cut the benchmark rate by 25 bps. to 7.50 percent, emphasizing that this decision does not necessarily imply a cycle of successive interest rate reductions. Future adjustments in the reference rate will be conditional on new information on inflation and its determinants. As a result, the real reference rate slipped slightly from 4.18 percent in August to 4.14 percent in September.

   Previously, the Board had agreed to raise the BCRP reference rate by 25 basis points to 7.75 percent in January 2023. Then, between February and August, it decided to keep this rate unchanged. The BCRP withdrew from the August monetary policy statement the mention indicating that this decision does not necessarily imply the end of the interest rate hike cycle.

Graph 55
REFERENCE INTEREST RATE
(Percentage)

* With expectations of inflation.
Source: BCRP.

59. Monetary policy decisions between July and September 2023 considering the following:

- Between June and August 2023, the twelve-month inflation rate decreased from 6.46 percent to 5.58 percent and the twelve-month non-food and energy inflation rate decreased from 4.35 percent to 3.81 percent. Both indicators have been declining since the beginning of 2023, remain above the upper limit of the target range (between 1 and 3 percent).

- The significant increase in international energy and food prices since the second half of 2021, accentuated by international conflicts, has led to an increase in global inflation rates in magnitudes unseen in many years and moving towards levels significantly higher than the inflation targets of central banks, although in most countries a downward trend is observed during the year. In Peru, there were recorded transitorily higher than expected effects on inflation due to restrictions in the supply of some food products, some of which have begun to dissipate since June.

- Year-on-year inflation is expected to continue to decline, reaching the target range early next year, due to the moderation of the effect of international food and energy prices, the reversal of supply shocks in the agriculture sector, and a reduction in inflation expectations. Climate-related risks remain.

- Between June and August 2023, twelve-month inflation expectations decreased from 3.83 to 3.36 percent, approaching the upper limit of the inflation target range.

- The leading indicators and expectations for the economy in August show a moderate recovery compared to the previous month, although they are still in the pessimistic range. The shocks derived from the social conflicts and the coastal El Niño have had a greater than expected impact on economic activity and domestic demand.

- The outlook for growth in world economic activity points to a moderation, although global risk remains because of restrictive monetary policy in advanced economies, slower growth in China, and international conflicts.

60. The decision on the reference rate considers inflation and inflation determinants such as the evolution of the output gap, changes in international prices, the exchange rate and other supply factors that may affect the formation of economic agents' expectations.

BCRP has adopted the necessary adjustments to its monetary policy stance to ensure that inflation expectations return to the target range within a reasonable timeframe, in a context of higher global inflation, particularly due to higher international food and energy prices. In the absence of a timely response, the central bank would have had to adopt a more restrictive monetary policy to regain credibility regarding inflation control. In such a scenario, the increases in the reference interest rate necessary to control inflation would have been larger and, consequently, the potential impact on economic activity would have been greater.

61. In the September monetary program session, the Board of Directors agreed on the interest rates for domestic currency operations of the BCRP with the financial system for over-the-counter transactions. Thus, the current levels are:

   i.   Overnight deposits: 4.75 percent per year.

ii.   Direct repo operations of securities and currency, and Monetary Regulation Credits: i) 8.00 percent per year for the first 10 operations in the last 3 months; and ii) the interest rate set by the Monetary and Exchange Operations Committee for additional operations to these 10 operations in the last 3 months. In addition, the Committee for Monetary and Exchange Operations may establish higher rates depending on the amount of operations.

Since over-the-counter operations are operations of last resort, the limits to these transactions (lower and upper) are set with the objective of encouraging financial institutions to channel their liquidity surpluses through the interbank market.

62.   Regarding the tone and communication signals of the monetary policy, the tone indicator used by the BCRP shows a lower level since February 2023, since when the reference interest rate have remained at 7.75 percent, with gradual messages of the monetary policy statement. In September, the tone indicator was in a neutral position.

Graph 56
REFERENCE INTEREST RATE AND MONETARY POLICY TONE INDICATOR*
(Percentage and index value)
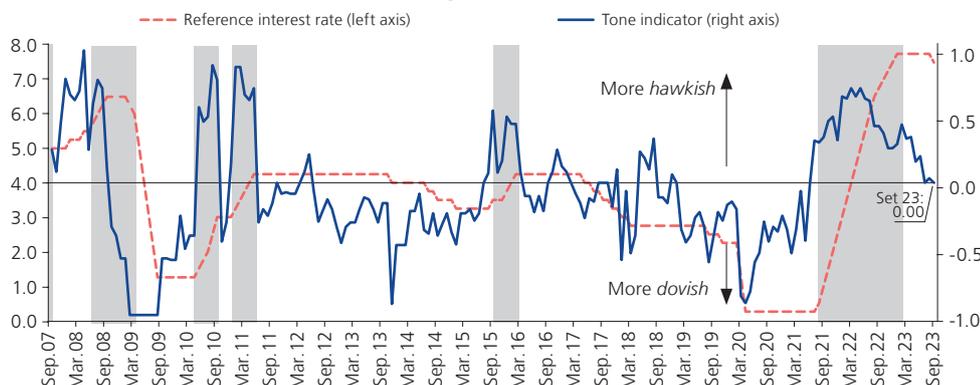
* For the monetary policy tone indicator, positive index values indicate a hawkish tone, while negative values imply a dovish communication stance. The shaded areas correspond to periods of rising interest rates.
Source: BCRP. The methodology is based on Vega, M. and Lahura, E. (2021). "Assessing central bank communication through monetary policy statements: Results for Colombia, Chile and Peru", DT. NO. 2020-017, BCRP.

Monetary Operations

63.   BCRP operations were aimed at ensuring adequate liquidity levels in the interbank market. To this end, between June 1 and August 31, 2023, the BCRP injected liquidity through the maturity of CDV BCRP (S/ 2,254 million), the net placement of securities repos (S/ 1,845 million), the net placement of currency repos (S/ 500 million) and the net placement of auctions of Public Treasury term deposits (S/ 183 million). These operations were partially offset by the net placement of BCRP CDs (S/ 7,239 million), the net placement of term and overnight deposits (S/ 5,465 million), the amortization of government-guaranteed loan portfolio repos (S/ 3,392 million), the net placement of BCRP CDRs (S/ 220 million) and the maturity of loan portfolio repos (S/ 18 million).
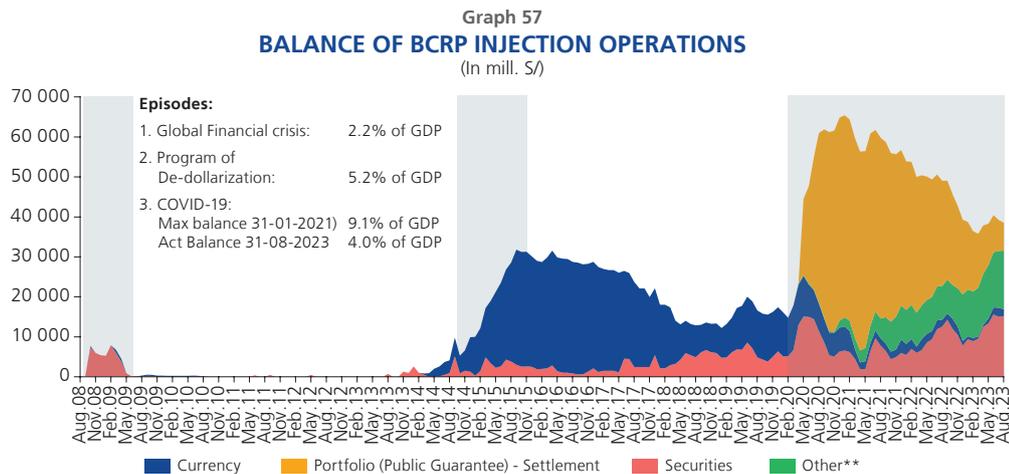
The total balance of injection operations was S/ 38,443 million as of August 31, 2023, while the balance of BCRP Certificates (CD, CDV and CDR) was S/ 34,137 million

as of the same date. The balances of Public Treasury funds auctions and liquidation of BTP purchases were S/ 6,844 million and S/ 8,332 million as of the same date, respectively.

In terms of nominal GDP, at the end of August the balance of liquidity injection operations was equivalent to 4.0 percent of GDP, of which S/ 6,919 million corresponded to government-backed repos of the credit portfolio.

Graph 57
BALANCE OF BCRP INJECTION OPERATIONS
(In mill. S/)

Episodes:
1. Global Financial crisis: 2.2% of GDP
2. Program of De-dollarization: 5.2% of GDP
3. COVID-19:
   Max balance 31-01-2021) 9.1% of GDP
   Act Balance 31-08-2023 4.0% of GDP

Currency   Portfolio (Public Guarantee) - Settlement   Securities   Other**

* " Other" includes the purchase of Treasury bonds, in line with article 61 of the BCRP's Organic Law, and repo operations.
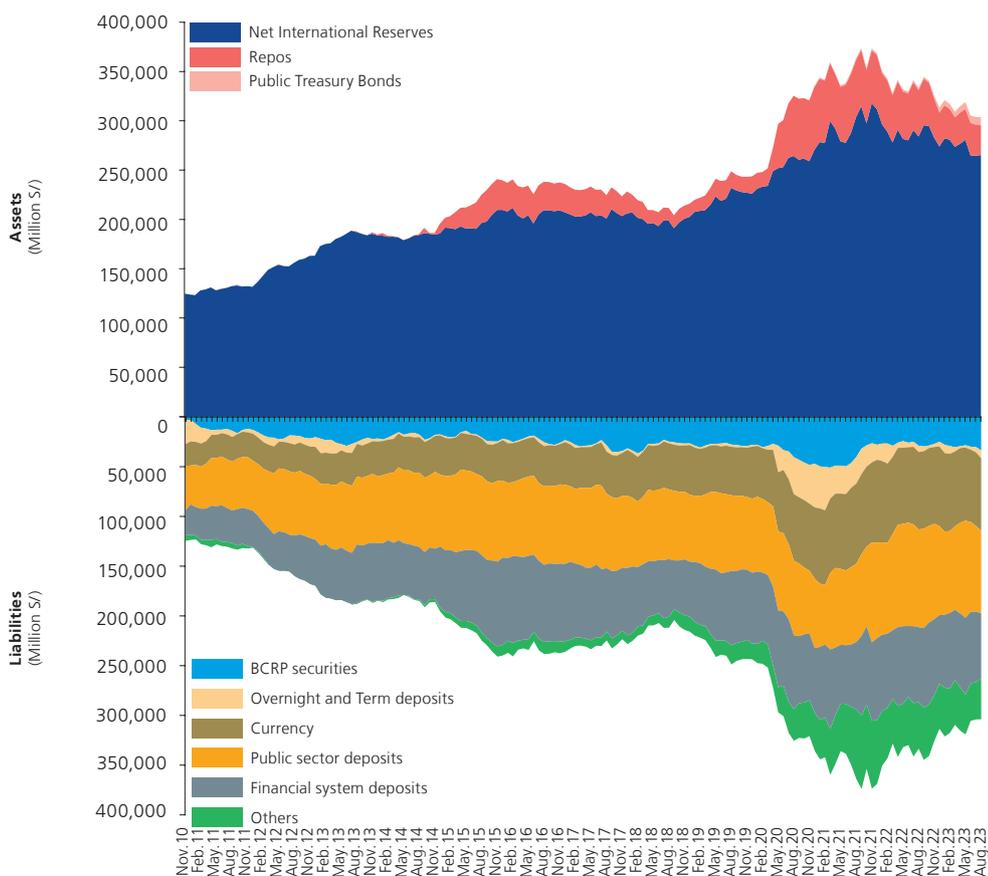Source: BCRP.

64. Since March 2023, the BCRP has purchased Public Treasury Bonds (BTP) in the secondary market with maturities up to 2040. These operations are part of the group of instruments available to the BCRP to regulate the liquidity of the financial system. Thus, between March and August 2023, the BCRP purchased BTPs with maturities between 2028 and 2040 for a total value of S/ 3,019 million.

65. The share of repo operations involving BCRP's net assets in August was higher than in May. Shares of public sector deposits and financial system deposits as part of BCRP's net liabilities decreased, while the shares of BCRP sterilization instruments and currency in circulation increased. On the one hand, the balance of repo operations increased from 9.8 to 9.9 percent of BCRP net assets between May and August 2023. On the other, the share of public sector deposits in BCRP's net liabilities decreased from 30.5 percent in May 2023 to 27.3 percent as of August 2023, while financial system deposits' decreased from 24.1 percent to 21.4 percent. Finally, BCRP sterilization instruments (BCRP CD, BCRP CDV, BCRP CDRs, and term and overnight deposits) increased their share of BCRP net liabilities from 9.8 percent in May 2023 to 13.9 percent in August 2023; currency in circulation, likewise, increased its share from 22.9 percent to 23.9 percent between the end of May and August 2023.

Table 25
SIMPLIFIED BCRP BALANCE SHEET
(As a percentage of Net Assets)

	Dec.21	Dec.22	May.23	Aug.23
I. Net assets	**100%**	**100%**	**100%**	**100%**
Net International Reserves	**84.6%**	**87.5%**	**88.0%**	**87.3%**
	(US$ 78,495 mills.)	(US$ 71,883 mills.)	(US$ 76,244 mills.)	(US$ 71,853 mills.)
Repos	14.8%	10.8%	9.8%	9.9%
Sovereign bonds	0.6%	1.7%	2.2%	2.7%
II. Net liabilities	**100%**	**100%**	**100%**	**100%**
1. Total public sector deposits	**26.0%**	**28.5%**	**30.5%**	**27.3%**
In domestic currency	23.9%	24.9%	24.9%	21.6%
In foreign currency	2.1%	3.6%	5.7%	5.7%
2. Total financial system deposits	**22.2%**	**22.0%**	**24.1%**	**21.4%**
In domestic currency	3.9%	4.3%	4.0%	4.1%
In foreign currency	18.4%	17.7%	20.2%	17.3%
3. BCRP instruments	**11.8%**	**9.6%**	**9.8%**	**13.9%**
CD BCRP	3.9%	4.0%	8.3%	11.2%
CDR BCRP	0.4%	0.0%	0.0%	0.1%
CDV BCRP	3.4%	4.2%	0.7%	0.0%
Term deposits	3.2%	1.1%	0.2%	2.2%
Overnight deposits	0.9%	0.4%	0.6%	0.4%
4. Currency	**22.6%**	**25.5%**	**22.9%**	**23.9%**
5. Other *	**17.4%**	**14.4%**	**12.6%**	**13.6%**

* Includes equity and other accounts.
Source: BCRP.

Graph 58
BCRP BALANCE SHEET EVOLUTION: 2010-2023

Source: BCRP.

The result of these operations can be seen in the changing size and composition of the Central Bank's balance sheet. Thus, in August 2023, BCRP assets amount to S/ 303,580 million, equivalent to 31.3 percent of GDP, lower than in 2020 during the COVID-19 pandemic (46.6 percent) and in 2015 during the de-dollarization program (39.2 percent of GDP).

Financial markets

66. The market's expectation of a future reduction in the benchmark rate reflected as lower most money market and corporate deposit interest rates during the third quarter of 2023. As for the credit market, mixed behaviors in each segment were in line with changing levels of non-performing loans and loan growth.

Between June and the first half of September 2023, the overnight interbank interest rate remained around its current reference level (7.75 percent) and immediately converged to the new level established on September 14 (7.50 percent).

Table 26
INTEREST RATES IN DOMESTIC CURRENCY 1/
(Percentage)

	Dec.19	Dec.20	Dec.21	Dec.22	Mar.23	Jun.23	Sep.23	Historical average 2/
Passive								
90-day corporate prime	2.8	0.2	2.6	8.1	8.1	8.2	7.9	3.7
TIPMN	2.3	1.0	1.1	3.0	3.5	3.9	3.9	2.3
FTIPMN	1.5	0.1	1.0	3.7	3.9	3.7	3.9	2.2
Deposits up to 30-day	2.3	0.0	1.9	7.4	7.5	7.8	7.5	3.4
Individuals	1.6	0.2	0.7	3.7	3.3	3.3	3.0	2.4
Business	2.3	0.0	1.9	7.4	7.5	7.8	7.5	3.4
On 31 to 90-day term deposits	2.7	0.2	2.2	7.5	7.9	8.1	8.0	3.6
Individuals	1.8	0.5	0.8	3.7	4.1	5.4	6.9	2.0
Business	2.8	0.2	2.2	7.8	8.1	8.3	8.2	3.7
On 91 to 180-day term deposits	3.0	0.4	2.4	7.6	7.5	8.1	7.8	3.8
Individuals	2.3	0.5	0.9	4.8	5.5	7.2	7.3	2.7
Business	3.1	0.3	2.6	8.5	8.4	8.8	8.4	4.0
On 181 to 360-day term deposits	3.3	0.7	2.9	7.6	7.9	7.7	7.3	4.1
Individuals	3.3	1.3	2.9	6.9	7.3	7.3	6.6	3.9
Business	3.3	0.4	2.9	7.8	8.2	7.9	7.7	4.2
CTS	2.2	1.9	2.3	2.6	3.5	2.6	2.8	3.1
Active								
90-day corporate prime	3.3	0.7	3.1	9.2	9.1	9.3	8.9	4.5
TAMN	14.4	12.1	11.2	14.5	14.9	15.7	15.9	15.7
FTAMN	18.2	17.6	20.9	28.3	28.9	28.9	30.9	21.0
Corporates	3.8	2.5	3.2	8.9	9.3	9.1	9.1	5.3
Large companies	6.0	4.6	5.7	10.6	11.0	10.6	10.7	6.9
Medium-sized enterprises	9.3	6.1	8.8	14.1	14.8	14.5	14.4	10.2
Small business	18.0	17.2	19.3	22.5	23.4	22.8	23.5	20.3
Micro business	31.3	30.1	32.3	36.3	38.9	37.9	38.3	32.8
Micro business 3/	44.5	22.6	38.8	39.3	42.2	42.0	43.4	40.0
Consumer	40.9	39.5	41.8	49.6	50.1	52.3	54.4	42.3
Consumer 3/	43.1	41.5	40.4	47.7	50.2	50.4	51.9	44.3
Mortgage	7.0	6.4	6.9	9.9	10.0	9.6	9.3	8.4

1/ Rates in annual terms for transactions carried out in the last 30 business days.
2/ Averages since September 2010. In the case of consumer credit, average since October 2019.
3/ Corresponds to the average of the financial system.
As of September 8.
Source: BCRP and SBS.

Lending and deposit prime interest rates, which are highly representative of the financial conditions of banks and quickly incorporate changes in the benchmark rate, decreased in the third quarter of 2023. Thus, between June and September, lending

and deposit interest rates for overnight and twelve-month terms accumulated average reductions of 43 and 35 basis points, respectively.
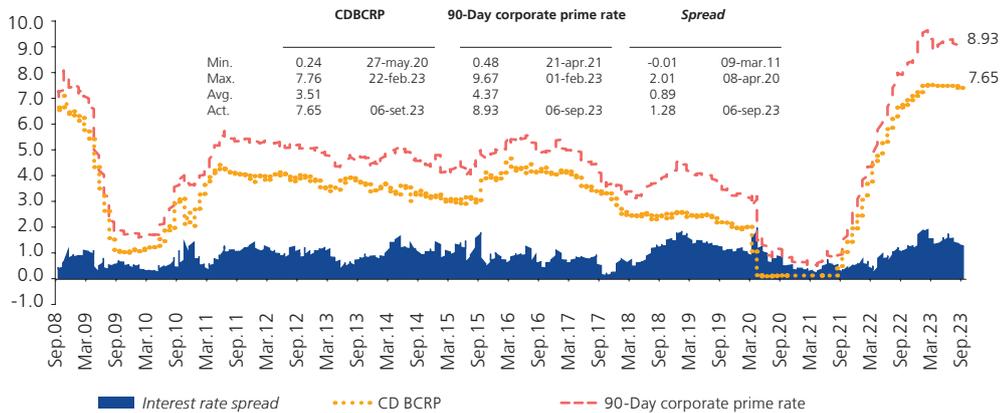
Graph 59
CHANGE IN INTEREST RATES IN EPISODES PRIOR TO A REDUCTION IN THE REFERENCE RATE
(In basis points)
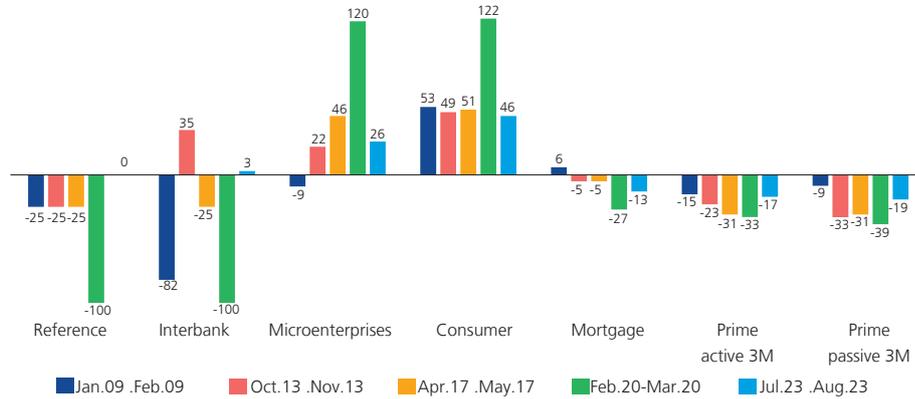
As of August 31.
Source: BCRP and SBS.

The spread between the corporate prime lending rate and the 3-month CD BCRP in September (1.28 percent) slipped after reaching one of its peak levels in recent years (1.93 percent in February 2023). In this context, the BCRP continues to inject liquidity to adjust the structural liquidity of the financial system, thus ensuring proper market functioning.

Graph 60
CORPORATE PRIME LENDING RATE AND 3-MONTH BCRP CD BCRP
(Percentage)

	CDBCRP		90-Day corporate prime rate		*Spread*	
Min.	0.24	27-may.20	0.48	21-apr.21	-0.01	09-mar.11
Max.	7.76	22-feb.23	9.67	01-feb.23	2.01	08-apr.20
Avg.	3.51		4.37		0.89	
Act.	7.65	06-set.23	8.93	06-sep.23	1.28	06-sep.23

As of September 6.
Source: BCRP and SBS.

Interest rates of most segments increased between June and September 2023. The sectors with the lowest credit risk (large companies and corporates) accumulated

the smallest interest rates increases (5 and 7 basis points, respectively). On the other hand, medium-sized companies accumulated a quarterly reduction of 19 basis points. Microenterprise, small business and consumer sectors of the banking system experienced the largest interest rates hikes (48, 63 and 203 basis points, respectively). Over the same horizon, the mortgage sector interest rate fell from 9.6 to 9.3 percent, influenced by the falling yield rate of the 10-year sovereign bond in the third quarter (3 basis points) and the moderate growth in the pace of monthly placements (0.1 percent).

Most passive interest rates of banks decreased in the third quarter of 2023, mainly corporate preferred rates (cumulative reduction of 35 basis points at terms between overnight and 12 months). The balance of personal deposits in the financial system, mainly savings deposits, continues to decline encouraging increases of some deposit interest rates during the third quarter of 2023. Thus, between June and September 2023, interest rates paid to individuals increased by 155 and 9 basis points for terms between 31 and 90 days and between 91 and 180 days, respectively. Interest rates for companies decreased in all terms by an average of 23 basis points.

67. Real interest rates in domestic currency rose in the third quarter of 2023, in line with lower inflation expectations. Thus, between June and September 2023, the benchmark rate in real terms increased by 85 basis points, while the 90-day prime lending and deposit rates rose by 49 and 53 basis points, respectively. The real mortgage interest rate increased by 57 basis points.
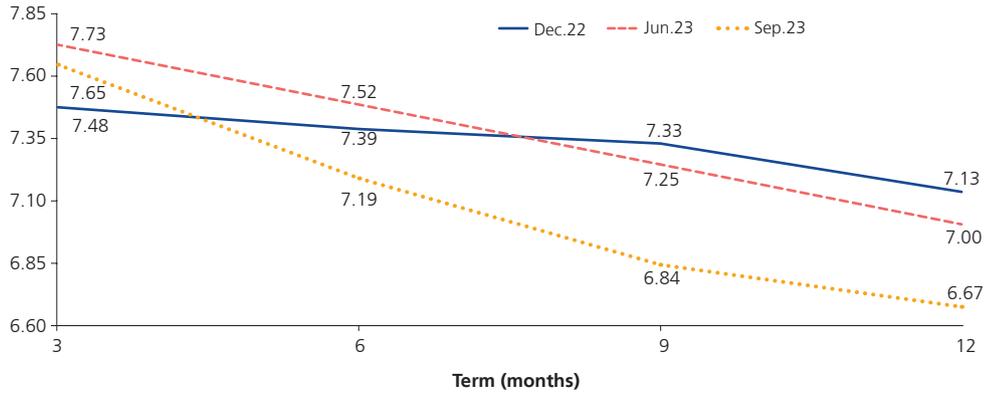
Graph 61
REAL EX ANTE INTEREST RATES IN SOLES
(Percentage)
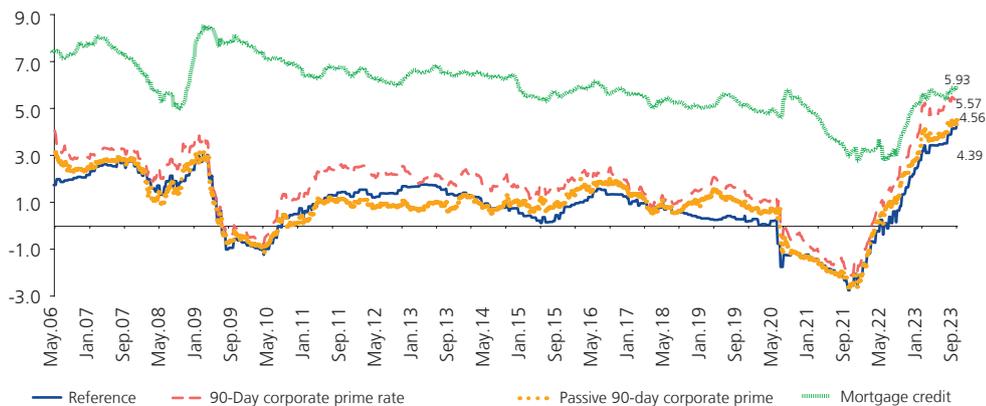
As of September 8. Nominal interest rates are deflated using inflation expectations.
Source: BCRP and SBS.

68. Yield rates of the yield curve of Certificates of Deposit (CD-BCRP) decreased in the third quarter of 2023 and maintains its inverted shape, reflecting the market's expectation on the future evolution of the benchmark rate. Thus, interest rates between June and September 2023 have decreased by 8, 33, 41 and 33 basis points at 3, 6, 9 and 12 months.

Graph 62
YIELD CURVE OF CD-BCRP 1/
(Percentage)

Legend: Dec.22 — Jun.23 — Sep.23

Dec.22 values: 7.48, 7.39, 7.33, 7.13
Jun.23 values: 7.73, 7.52, 7.25, 7.00
Sep.23 values: 7.65, 7.19, 6.84, 6.67

Term (months): 3, 6, 9, 12

1/ BCRP CD primary and secondary market yield rate.
As of September 8.
Source: BCRP.

69. In the dollar money market, local market interest rates are influenced by the path of the Federal Reserve's policy rate. Thus, the average overnight interbank interest rate rose by the same magnitude as the Federal funds rate, from 5.25 percent in June to 5.50 percent in September. The prime lending and deposit rates for terms between 1 and 6 months increased by an average of 13 and 17 basis points, respectively. As a result, the spread between the prime lending rate and the 3-month CME Term SOFR decreased from 103 basis points in June to 100 basis points in September 2023.

Graph 63
INTEREST RATE IN DOLLARS: CORPORATE PRIME LENDING
AND 3-MONTH CME TERM-SOFR
(Percentage)

Legend: Interest rate spread; 90-day corporate prime rate; 3-month term SORF

Values: 6.39, 5.40
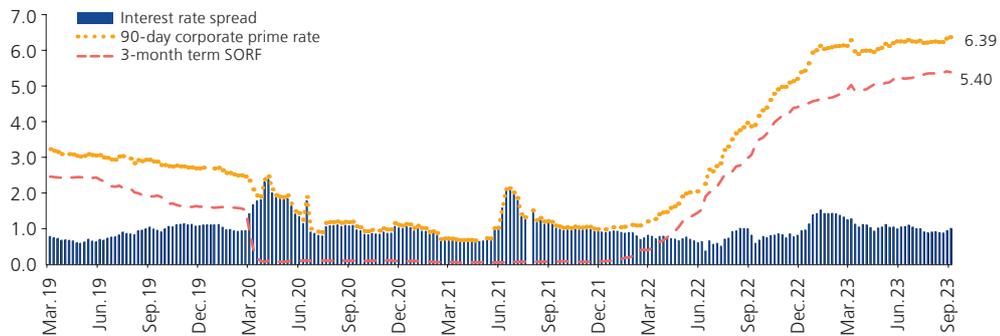
As of September 6.
Source: Chicago Mercantile Exchange, BCRP.

For the credit market, in the third quarter of 2023, the interest rates of the segments with the highest credit risk increased the most (microenterprise, small business and consumer). It is worth noting that the small and microenterprise sector shows one of the largest increases in non-performing loans (3.13 percent) during 2023 among the banks' credit segments. The mortgage loan interest rate fell from 8.10 percent in June

to 7.91 percent in September, while the yield on the 10-year global bond increased from 5.18 percent to 5.69 percent over the same period.

Table 27
INTEREST RATES IN FOREIGN CURRENCY 1/
(Percentage)

	Dec.19	Dec.20	Dec.21	Dec.22	Mar.23	Jun.23	Sep.23	Historical average 2/
Passive								
90-day corporate prime	1.6	0.2	0.3	4.7	4.9	5.1	5.3	1.2
TIPMEX	0.8	0.3	0.2	1.2	1.6	1.7	1.9	0.6
FTIPMEX	1.2	0.1	0.1	2.3	3.0	3.1	3.1	0.8
Deposits up to 30-day	1.4	0.1	0.1	3.6	4.3	4.6	4.8	1.0
Individuals	1.3	0.0	0.1	1.1	1.7	2.3	2.0	0.7
Business	1.4	0.1	0.1	3.6	4.3	4.6	4.8	1.0
On 31 to 90-day term deposits	1.5	0.3	0.2	3.3	4.5	4.6	4.8	1.2
Individuals	1.0	0.2	0.2	1.7	2.8	2.9	3.4	0.7
Business	1.6	0.3	0.2	3.4	4.7	4.8	5.0	1.3
On 91 to 180-day term deposits	1.3	0.3	0.5	3.4	3.7	4.4	4.3	1.2
Individuals	1.0	0.2	0.3	2.1	2.9	4.0	3.9	0.9
Business	1.6	0.3	0.6	4.6	4.8	5.0	5.1	1.4
On 181 to 360-day term deposits	1.4	0.3	0.6	3.8	4.2	4.3	4.2	1.3
Individuals	1.2	0.3	0.4	3.2	4.0	4.3	3.3	1.2
Business	1.8	0.3	0.7	4.9	5.0	5.0	5.5	1.5
CTS	1.3	1.0	0.9	1.1	1.1	1.0	1.1	1.5
Active								
90-day corporate prime	2.7	1.0	1.0	6.0	6.0	6.3	6.4	2.3
TAMEX	7.6	6.1	6.7	9.3	10.2	10.4	10.7	7.7
FTAMEX	7.1	6.3	7.6	10.9	12.5	12.7	13.1	7.9
Corporates	3.2	2.0	2.1	6.1	7.1	7.1	7.3	3.3
Large companies	5.5	4.5	5.7	7.8	8.5	8.5	8.7	6.7
Medium-sized enterprises	6.6	5.9	5.9	8.8	10.1	10.2	10.0	7.8
Small business	8.8	5.3	10.3	12.2	13.5	12.5	13.9	11.6
Micro business	11.0	8.5	7.4	12.7	12.9	13.4	17.2	16.2
Micro business 3/	7.7	4.8	17.1	9.4	12.5	11.9	14.3	13.1
Consumer	36.1	35.1	33.4	41.0	41.5	41.2	43.2	31.2
Consumer 3/	35.3	33.5	33.9	37.1	40.7	40.8	41.4	35.9
Mortgage	5.6	5.4	5.0	8.3	8.0	8.1	7.9	6.9

1/ Rates in annual terms of transactions in the last 30 days.
2/ Averages since September 2010. In the case of consumer credit, average since October 2019.
3/ Reflects the average of the financial system.
As of September 8.
Source: BCRP and SBS.

Rates on dollar deposits of banks decreased in the third quarter, especially those paid to individuals (average reduction of 22 basis points). Corporate deposits increased by an average 22 basis points (49 basis points for terms from 181 to 360 days). The C.T.S. deposit interest rate increased from 1.00 percent in June to 1.14 percent in September.

Fixed income market

70.   In the third quarter of 2023, Peruvian companies only accessed financing in the local financial market, as has been happening since the third quarter of 2022. The reduced level of private sector bond placements, both in local and foreign markets, reflects: i) the increase in the cost of indebtedness for issuers due to the more restrictive global monetary policy; ii) the persisting prospects of a global recession affecting the demand in auctions of risky securities; iii) higher yield rates of US government bonds, which makes them more attractive compared to domestic ones; iv) low business confidence; and v) lower long-term funding in the local capital market, generated by withdrawals of pension funds' deposits.

A total of S/ 473 million was placed in the local market, through public offerings so far in the third quarter of 2023, below second quarter of 2023 figures (S/ 812 million), and below the quarterly average between 2019 and 2022 (S/ 740 million).

For the fifth consecutive quarter, Peruvian corporations failed to make any new bond placements in the international market. Non-resident entities have issued securities in local currency for S/ 455 million soles, which is above the total sold in the second quarter of 2023 (S/ 142 million), although still below the quarterly average between 2019 and 2022 (S/ 543 million).

Graph 64
PRIVATE SECTOR BOND PLACEMENTS
(In millions S/)
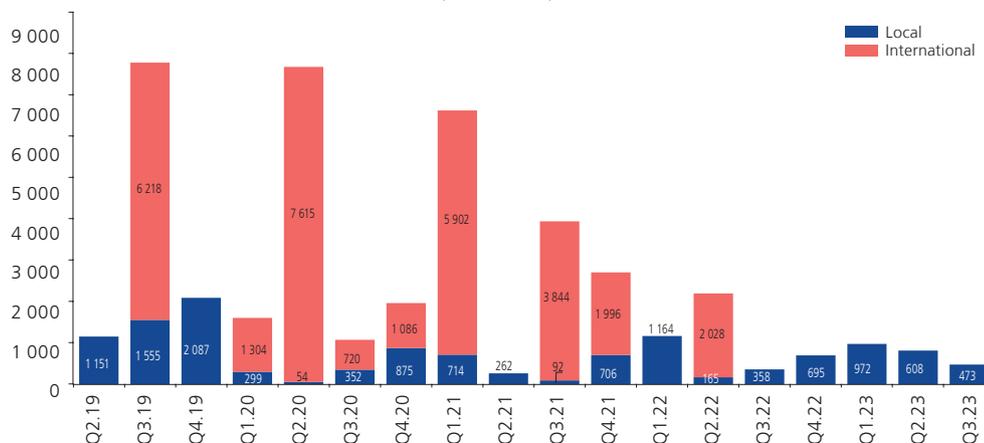
As of August 28.
Source: Reuters and SMV.

71. The value of portfolios managed by institutional investors continued to recover slightly in the third quarter of 2023.

    In the case of AFPs, the investment portfolio increased from S/ 105.9 billion to S/ 116.7 billion between December 30, 2022 and September 8, 2023, after significant withdrawals by contributors pursuant to Law No. 31478 ("Law permitting the extraordinary withdrawal of private pension funds in the context of the COVID-19 pandemic in 2022") and other previous regulations that are estimated to have caused extraordinary withdrawals of up to S/ 88.0 billion (9.4 percent of GDP) between 2020 and 2022.

    For mutual funds, assets under management increased from S/ 28.3 billion in December 2022 to S/ 30.2 billion in August 2023. The number of participants increased from 340,500 to 341,000 in the same period. Insurance companies' portfolio increased from S/ 58.0 billion to S/ 59.6 billion between December 2022 and June 2023.

Foreign Exchange Market

72. The trajectory of the exchange rate in the third quarter of 2023 was influenced by changes in sentiment towards risky assets, the increase in net demand for dollars from the non-financial sector and the strengthening of the dollar at the global level (2.1 percent). Thus, the exchange rate increased from S/ 3.626 per dollar on June 30 to S/ 3.716 per dollar on September 8, accumulating a depreciation of 2.5 percent in the period.

    In a context of increased exchange rate variability, BCRP interventions in the foreign exchange market increased during the third quarter of 2023 compared to the previous

quarter. In the third quarter, uncertainty in the financial markets continued and, with it, the lower appetite for risky assets.

Graph 65
EXCHANGE RATE AND BCRP FOREIGN EXCHANGE INTERVENTION 1/
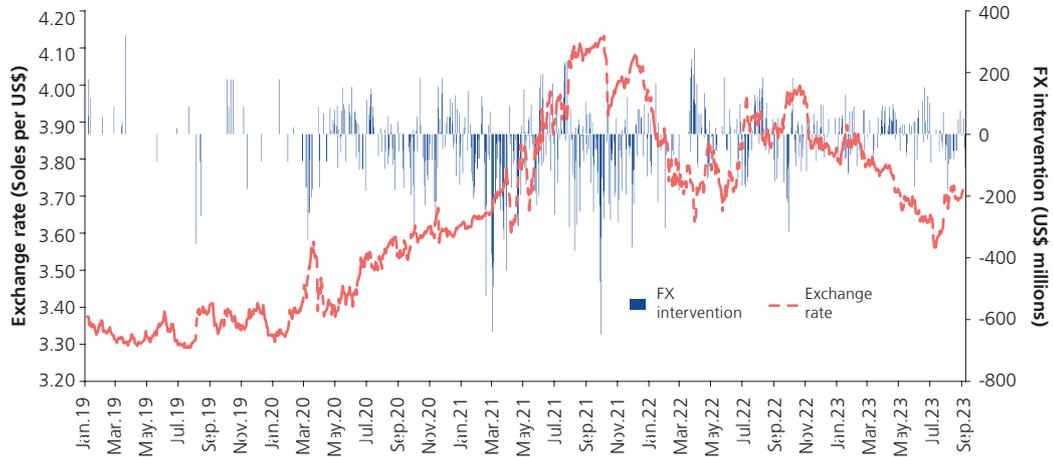
1/ Includes: Purchases/sales of dollars in the spot market and net placements of CDLD BCRP, CDR BCRP and currency swaps.
As of September 28.
Source: BCRP.

The average volatility of the Peruvian Sol increased in the third quarter, particularly in August, with respect to the first and second quarters. This higher volatility was also reflected in the exchange rate bid-ask spreads, which fluctuated between 0.0 and 0.85 basis points between July and September 2023, above the second quarter range (0.05 and 0.65 basis points).

Graph 66
EXCHANGE RATE SPREAD AND VOLATILITY

EXCHANGE RATE BID-ASK SPREAD
(In basic points)

VOLATILITY OF THE SOL
(Percentage)
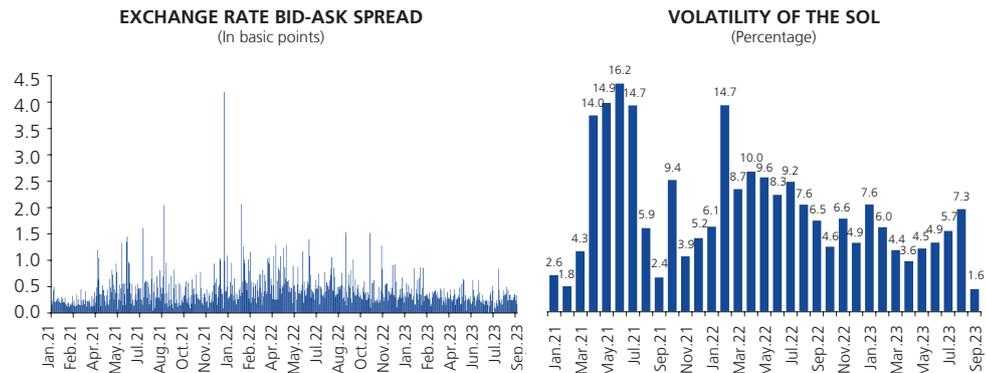
Monthly annualized daily standard deviation.
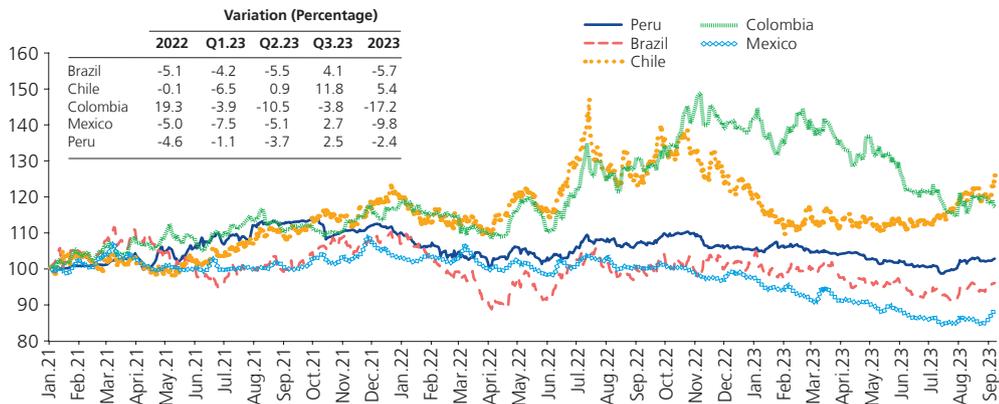As of September 8.
Source: Reuters and BCRP.

Average daily trading in the interbank spot foreign exchange market so far in the third quarter (US$ 351 million) is lower than in the first and second quarters (US$ 398 million and US$ 369 million, respectively).

Graph 67
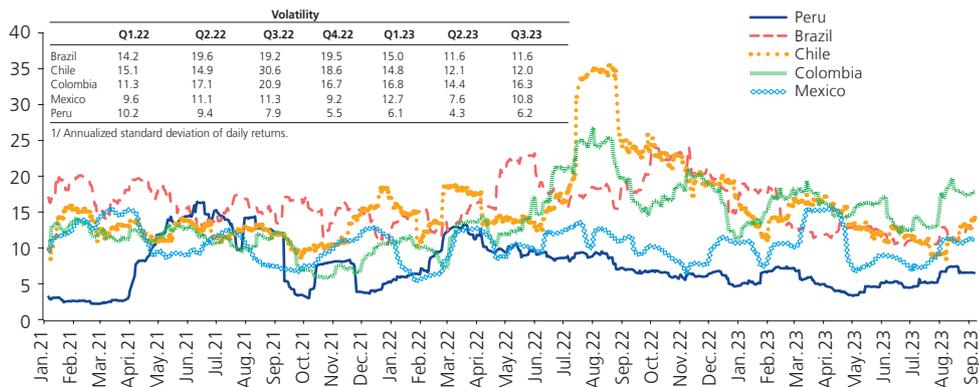**AVERAGE AMOUNT TRADED IN INTERBANK SPOT MARKET**
(US$ millions)

Month	Value
Jan.21	398
Feb.21	417
Mar.21	432
Apr.21	392
May.21	445
Jun.21	371
Jul.21	408
Aug.21	434
Sep.21	478
Oct.21	411
Nov.21	359
Dec.21	280
Jan.22	339
Feb.22	338
Mar.22	342
Apr.22	343
May.22	288
Jun.22	273
Jul.22	247
Aug.22	280
Sep.22	266
Oct.22	345
Nov.22	354
Dec.22	313
Jan.23	355
Feb.23	372
Mar.23	466
Apr.23	384
May.23	359
Jun.23	363
Jul.23	351
Aug.23	368
Sep.23	334
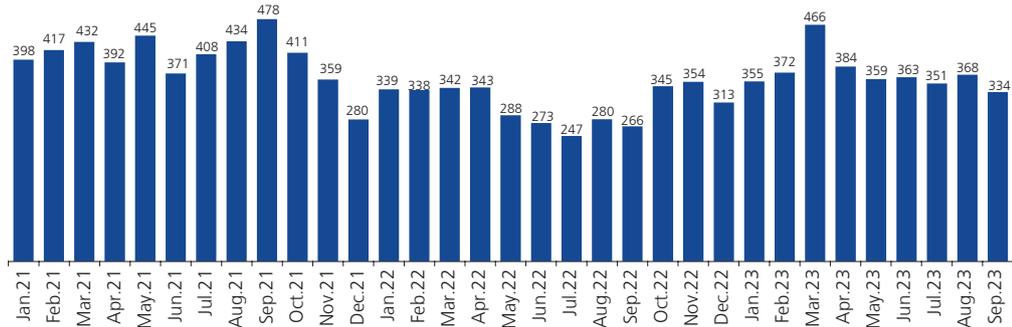
As of September 8.
Source: BCRP.

Graph 68
EXCHANGE RATE INDEX 1/
(31 Dec.2020=100)

	Variation (Percentage)				
	2022	**Q1.23**	**Q2.23**	**Q3.23**	**2023**
Brazil	-5.1	-4.2	-5.5	4.1	-5.7
Chile	-0.1	-6.5	0.9	11.8	5.4
Colombia	19.3	-3.9	-10.5	-3.8	-17.2
Mexico	-5.0	-7.5	-5.1	2.7	-9.8
Peru	-4.6	-1.1	-3.7	2.5	-2.4

Legend: Peru, Brazil, Chile, Colombia, Mexico

1/ An increase in the index indicates currency depreciation.
As of September 8.
Source: BCRP and Reuters.

Graph 69
EXCHANGE RATE VOLATILITY*

	Volatility						
	Q1.22	**Q2.22**	**Q3.22**	**Q4.22**	**Q1.23**	**Q2.23**	**Q3.23**
Brazil	14.2	19.6	19.2	19.5	15.0	11.6	11.6
Chile	15.1	14.9	30.6	18.6	14.8	12.1	12.0
Colombia	11.3	17.1	20.9	16.7	16.8	14.4	16.3
Mexico	9.6	11.1	11.3	9.2	12.7	7.6	10.8
Peru	10.2	9.4	7.9	5.5	6.1	4.3	6.2

1/ Annualized standard deviation of daily returns.

Legend: Peru, Brazil, Chile, Colombia, Mexico

*Standard deviation of annualized daily return over the last 30 days.
As of September 8.
Source: Reuters.

In the region, during the third quarter, the Peruvian sol presented the lowest volatility (6.2 percent), below the regional average (11.4 percent), and the second-best quarterly performance. The stability of the Peruvian sol is associated with the solid macroeconomic fundamentals of the Peruvian economy, as well as a moderation in expectations of depreciation of the local currency against the U.S. dollar by economic agents.

73. Foreign exchange flows from market participants in the third quarter of 2023, as of September 8, are net dollar demand (US$ 1,301 million), a change from the net dollar supply observed in the second quarter (US$ 1,309 million). The spot market showed net demand for dollars (US$ 1,022 million), mainly from the corporate sector, non-resident investors and AFPs. The derivatives market experienced net demand (US$ 279 million) from non-resident investors.

Graph 70
FLOWS TO THE FOREIGN EXCHANGE MARKET: SPOT AND DERIVATIVES
(In millions of dollars)

	2021	Q1.22	Q2.22	Q3.22	Q4.22	2022	Q1.23	Q2.23	Q3.23	2023
Spot	-6,892	-1,482	2,017	2,816	-2,071	1,281	104	1,448	-1,022	530
Derivatives	-10,288	1,787	-2,340	-4,062	2,085	-2,531	-275	-139	-279	-693
Total	**-17,180**	**305**	**-323**	**-1,246**	**14**	**-1,250**	**-171**	**1,309**	**-1,301**	**-163**
Change in Global Exchange Position of Banks	-326	-76	110	-27	108	115	138	-19	272	391
BCRP intervention	17,506	-229	213	1,273	-123	1,134	33	-1,290	1,029	-228

* Other includes companies in the corporate, mining and retail sectors.
** As of September 8.
Source: BCRP.

Non-resident investors changed their net dollar positions between the second and third quarters. In the spot market they demanded dollars in the third quarter (US$ 668 million), mainly in August (US$ 536 million), a change from the net dollar supply in the second quarter (US$ 531 million). In the derivatives market, net demand in the third quarter reached US$ 1,241 million, up from net demand in the second quarter (US$ 64 million). Between June 30 and September 8, foreign investors sold net S/ 3,306 million of government treasury bonds (BTP), a considerable change from net purchases in the second quarter (S/ 4,016 million).

The AFPs bid around US$ 262 million in the third quarter of 2023, below the net bid in the second quarter (US$ 517 million), while in the spot market they demanded a net US$ 693 million. In the derivatives market they bid around US$ 955 million. Net purchases of external securities by AFPs in the period amounted to US$ 789 million, higher than in the second quarter (US$ 412 million).

In the non-financial sector, between June and September 2023, entities registered a net supply of US$ 523 million, as follows: (i) corporates: net demand of US$ 2,290 million, mainly in the spot market (US$ 2,345 million), below the total recorded in the second quarter (US$ 2,167 million), reflecting lower dollarization by economic agents for precautionary reasons; (ii) mining companies: net supply of US$ 1,727 million (US$ 1,718 million in the spot market), below the net supply of the second quarter (US$ 2,366 million); (iii) retail: net supply of US$ 1,086 million in the spot market, below the net supply of the second quarter (US$ 821 million).

Banks' overall position decreased from -US$7 million in June to -US$280 million in September 2023. The Non-Delivery Forward (NDF) balance of net bank sales with non-resident investors increased by US$ 1,218 million between the second and third quarters of 2023.

Between June and September 2023, the BCRP intervened in the foreign exchange market through auctions of FX swaps-sales at fixed and variable rates; and with the placement of adjustable certificates of deposit (CDR-BCRP), in order to reduce volatility in the price of the sol against the dollar, given uncertain international financial markets. FX swaps-sales for S/ 11,553 million (US$ 3,156 million) were placed for 3, 6, 9 and 12 months at fixed and variable rates, and S/ 8,449 million (US$ 2,186 million) matured at fixed rates. Additionally, BCRP CDRs for S/ 280 million (US$ 76 million) were placed for 3-month terms, and S/ 60 million (US$ 16 million) matured.

The accumulated balance of FX swaps-sale and BCRP CDRs sale as of September 8 stands at US$ 9,497 million (13 percent of NIRs). The average residual term of FX swaps-sale amounted to 259 days in September 2023, higher than in December 2019 (62 days), December 2020 (107 days) and December 2022 (244 days), but lower than the average residual term in December 2021 (293 days) and June 2023 (278 days). The increase in average maturity terms is associated with the demand for coverage over a longer horizon.
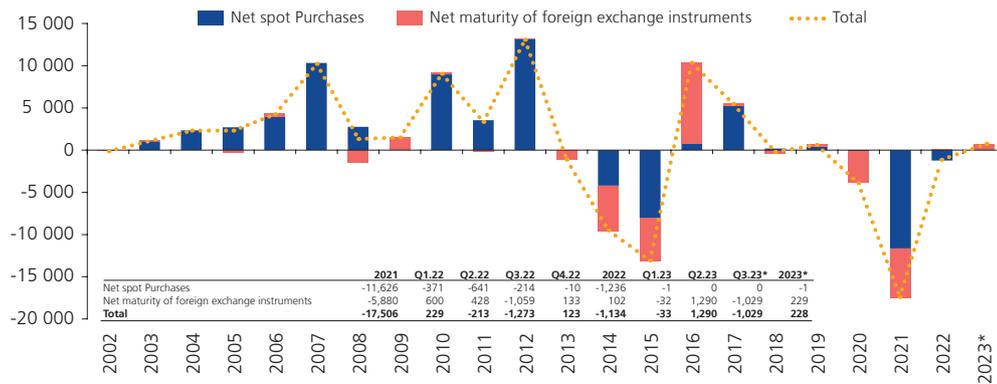
As of September 8, in the third quarter, the BCRP has sold a net US$ 1,029 million in the foreign exchange market through net placement of foreign exchange swaps (US$ 970 million) and BCRP CDRs (US$ 59 million).

In an environment of increased net demand for dollars in the local exchange market, the BCRP has offered net dollars to banks in the third quarter of 2023, through the placement of foreign exchange instruments.

Graph 71
INTERVENTIONS IN THE FOREIGN EXCHANGE MARKET OF THE BCRP
(In US$ millions)

	2021	Q1.22	Q2.22	Q3.22	Q4.22	2022	Q1.23	Q2.23	Q3.23*	2023*
Net spot Purchases	-11,626	-371	-641	-214	-10	-1,236	-1	0	0	-1
Net maturity of foreign exchange instruments	-5,880	600	428	-1,059	133	102	-32	1,290	-1,029	229
Total	**-17,506**	**229**	**-213**	**-1,273**	**123**	**-1,134**	**-33**	**1,290**	**-1,029**	**228**

*As of September 8.
Source: BCRP.

Liquidity

74. The year-on-year rate of private sector deposits has grown by an average of 2.0 percent so far in 2023. It stood at 2.8 percent in annual terms in July. Sol-denominated deposits increased by 3.6 percent year-on-year, while dollar-denominated deposits increased by 1.4 percent year-on-year in July.

Graph 72
PRIVATE SECTOR DEPOSITS BY CURRENCY
(Annual percentage change)
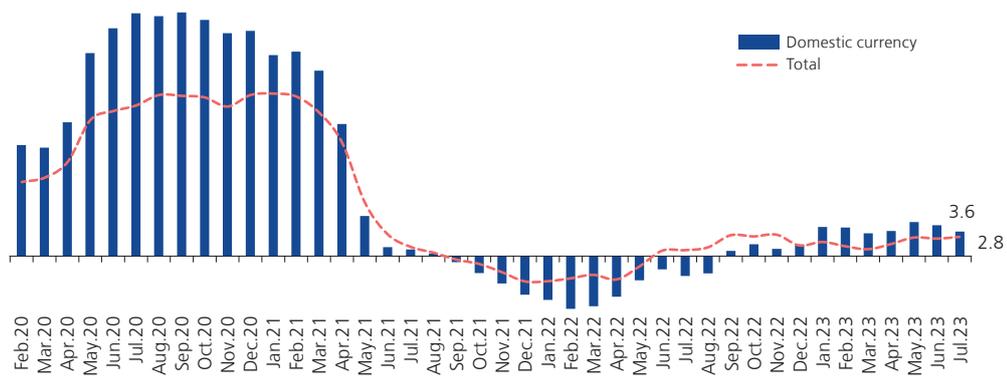
*Total at constant exchange rate of S/ 3.81 per US$ of December 2022.
Source: BCRP.

Private sector deposits dollarization increased slightly from 35.6 percent in December 2022 to 36.0 percent in July 2023. This is explained by the increase in the dollarization of corporate deposits (from 39.7 percent to 39.9 percent) and individual deposits (from 32.5 percent to 33.0 percent).

In 2022, domestic currency deposits grew 1.7 percent, while credit to the private sector in domestic currency grew 2.5 percent. By 2023, the gap between credit and

deposits in domestic currency is expected to widen (year-on-year growth in domestic currency of 5.8 percent for deposits and 1.3 percent for credit to the private sector). By 2024, the gap is expected to narrow slightly (8.8 percent and 4.7 percent, respectively).

Table 28
DEPOSITORY CORPORATIONS MONETARY AND CREDIT AGGREGATES (END OF PERIOD)
(Annual % change)

|	Dec.19	Dec.20	Dec.21	Mar.22	Jun.22	Dec.22	Jul.23	Dec.23*	Dec.24*
Currency in circulation (End-of-period)	4.7	37.3	16.0	3.7	-1.0	-3.8	-5.9	-5.0	-1.0
Deposits in domestic currency	12.3	33.0	-5.6	-7.3	-1.9	1.7	3.6	5.8	8.8
Total deposits 1/	10.1	23.6	-3.7	-2.8	0.8	1.5	2.8	3.8	6.0
Broad money in domestic currency	10.6	32.2	-0.9	-4.4	-1.3	0.6	2.6	3.0	6.5
Total broad money 1/	9.6	25.1	-0.4	-1.0	1.0	1.0	1.8	2.1	4.6
Credit to the private sector in domestic currency	10.1	19.4	5.5	7.6	6.7	2.5	-0.2	1.3	4.7
Total credit to the private sector 1/	6.9	10.7	4.0	6.9	5.9	4.6	0.2	1.0	4.0
Total credit to the private sector (without Reactiva Peru Program)1/	6.9	-5.5	8.8	13.5	12.9	11.3	5.6	4.7	5.6

1/ The exchange rate of December 2022 is maintained.
*Forecasts.
Source: BCRP.

75. Currency in circulation fell 3.8 percent year-on-year in December 2022, and 5.9 percent in July 2023, evidence of a slightly faster reduction. The level of currency in circulation is expected to continue to decline, reversing its historically high growth during the state of emergency,[25] due to the attenuation of the factors that favored the increase in currency in previous years. With this, currency in circulation would approach its pre-pandemic trend with respect to GDP somewhat sooner, but still in the medium term, as a growing nominal GDP is expected and also considering recent innovations in electronic means of payments. Variation rates of -5.0 percent for 2023 and -1.0 percent for 2024 are expected.

Graph 73
CURRENCY IN CIRCULATION
(Percentage change 12 months)

	2021	2022	2023*	2024*
Currency (Annual % change)	16.0	-3.8	-5.0	-1.0
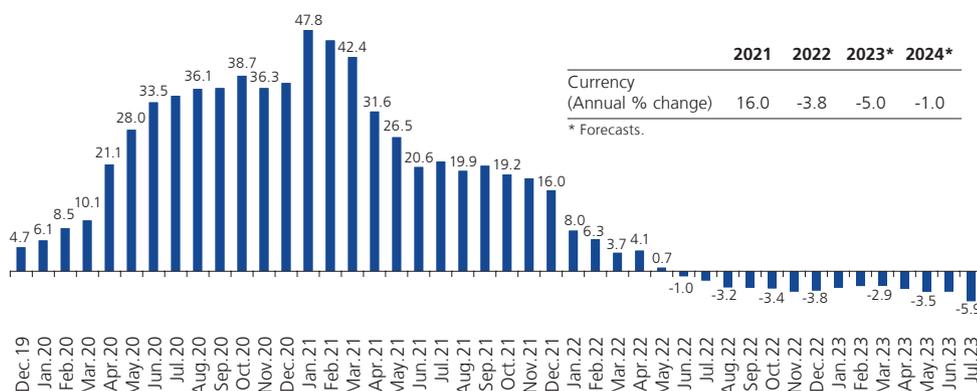
* Forecasts.

* Forecasts.
Source: BCRP.

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25   Precautionary cash savings would have been driven mainly by transfers to families through the bonds granted by the State.

76. The preference for currency in circulation continued to decline during 2022 and through the third quarter 2023, after growing steadily between April 2020 and December 2021, standing at 23.1 percent in August 2023.

Graph 74
CURRENCY IN CIRCULATION AND PREFERENCE FOR CURRENCY IN CIRCULATION
(Millions of Sol and percentage)
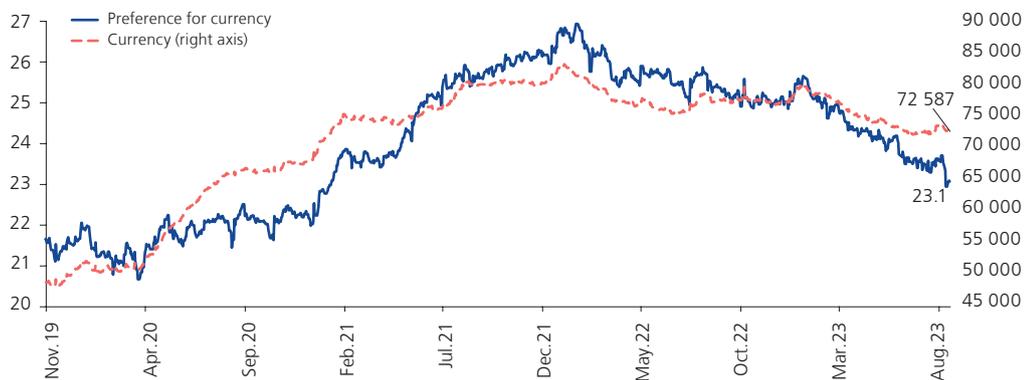
Source: BCRP.

Credit to the private sector

77. **Credit to the private sector** grew by 0.2 percent in annual terms in July 2023 (4.6 percent in 2022). Excluding loans under the Reactiva Peru program, the year-on-year growth rate of credit amounted to 5.6 percent in July 2023 (11.3 percent in 2022). It is worth mentioning that credit to the private sector has been slowing down since March 2022, and this phenomenon is explained by: i) the advance of loan repayments associated with the Reactiva Peru program, ii) aggregate supply and demand factors that explain the lower level of economic activity; and iii) higher interest rates as a consequence of the monetary policy response to reduce inflation.

78. Loans to individuals remain dynamic, despite a slight reduction. They grew 9.9 percent in July 2023 (15.9 percent in 2022). This slight slowdown in credit to individuals is mainly due to the lower increase in consumer credit (13.4 percent in July 2023). In addition, mortgage credit also slowed in recent months, to a year-on-year growth rate of 4.9 percent in July 2023.

79. Credit to companies contracted mainly associated with amortizations of the Reactiva Peru program and partially due to a drop in demand given the evolution of economic activity. In July 2023, credit to companies decreased by 5.4 percent, while excluding Reactiva Peru loans, it increased by 2.9 percent (8.4 percent in 2022). Medium-sized companies experienced the largest drop (-15.6 percent); meanwhile, the corporate and large companies segment dropped 4.7 percent. Heterogeneity observed in the dynamics of the different segments of credit to companies is explained by several factors, including the financial conditions associated with each of these classifications.

Table 29
CREDIT TO THE PRIVATE SECTOR TOTAL 1/
(Annual growth rates)

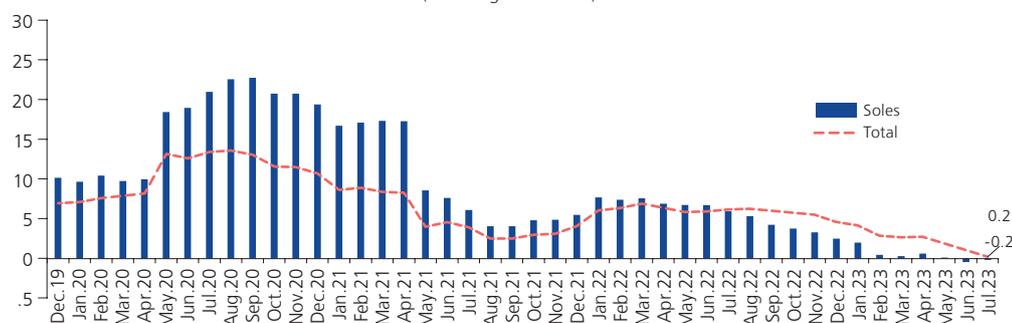|	Dec.19	Dec.20	Dec.21	Dec.22	Mar.23	Jun.23	Jul.23
Businesses	**4.2**	**19.7**	**3.6**	**-1.4**	**-3.1**	**-4.4**	**-5.4**
Corporate and large companies	4.3	6.4	8.0	1.2	-2.2	-3.6	-4.7
Medium-sized enterprises	0.3	47.2	0.0	-13.7	-13.1	-14.9	-15.6
Small business and Micro business	8.4	24.0	-1.1	7.7	5.7	5.0	3.6
Individuals	**11.4**	**-3.2**	**4.8**	**15.9**	**13.1**	**10.2**	**9.9**
Consumer	13.3	-7.2	3.1	21.8	17.7	13.7	13.4
Car loans	12.0	-2.2	7.3	15.9	18.7	18.4	16.2
Credit cards	13.4	-20.3	-41.0	32.6	28.9	20.9	21.4
Rest	13.3	-0.5	21.4	19.8	15.4	12.0	11.5
Mortgage	8.6	2.9	7.1	8.0	6.7	5.2	4.9
TOTAL	**6.9**	**10.7**	**4.0**	**4.6**	**2.6**	**1.0**	**0.2**
Memo:							
Businesses without Reactiva	**4.2**	**-7.0**	**11.5**	**8.4**	**6.2**	**4.7**	**2.9**
Total without Reactiva Peru	**6.9**	**-5.5**	**8.8**	**11.3**	**8.9**	**6.9**	**5.6**

Note: The criteria for classifying loans to companies by credit segment follows the SBS definition valid until June 2023. In July 2023, SBS Resolution No. 02368-2023 changed this classification.
  Corporate: Annual sales in excess of S/ 200 million (idem)
  Large companies: Annual sales between S/ 20 million and S/ 200 million (Annual sales between S/ 20 million and S/ 200 million; or maintaining issues in the capital market in the last year).
  Medium-sized companies: Annual sales between S/ 5 million and S/ 20 million (Total indebtedness greater than S/ 300 thousand or annual sales under S/ 20 million).
  Small companies: Annual sales under S/ 5 million and total indebtedness above S/ 20 thousand (Total indebtedness between S/ 20 thousand and S/ 300 thousand).
  Microenterprises: Annual sales of less than S/ 5 million and total indebtedness of less than S/ 20 thousand (Total indebtedness under S/ 20 thousand).
1/ Constant exchange rate as of December 2022.
Source: BCRP.

80. Since the beginning of 2022, there has been a slowdown in sol-denominated credits and an increase in dollar-denominated credits, mainly in the corporate sector, though reversed in recent months. As of July 2023, sol-denominated credit contracted 0.2 percent, while dollar-denominated credit increased 1.2 percent in the same period.

Graph 75
TOTAL PRIVATE SECTOR CREDIT IN DOMESTIC CURRENCY
(Annual growth rates)

CREDIT TO THE PRIVATE SECTOR 1/
(Annual percentage change)

	Dec.19	Dec.20	Dec.21	Mar.22	Jun.22	Sep.22	Dec.22	Mar.23	Jun.23	Jul.23
Domestic currency	10.1	19.4	5.5	7.6	6.7	4.2	2.5	0.3	-0.5	-0.2
Foreign currency	-0.3	-11.0	-0.8	4.6	3.2	12.5	12.1	10.8	5.7	1.2
Total	6.9	10.7	4.0	6.9	5.9	6.1	4.6	2.6	1.0	0.2

1/ Constant exchange rate as of December 2022.
Source: BCRP.

In this regard, box 5 of the June 2023 inflation report, entitled "Credit Supply and Demand Shocks in Peru"[26] shows that the slowdown in the year-on-year growth of credit to the private sector since the second half of 2022 is explained by aggregate demand and supply factors, which are closely related to the evolution of economic activity, as well as credit demand and supply. The main component explaining the lower credit expansion is aggregate demand while the effect of the reference rate level (required for inflation control) stood at a fraction less than 40 percent. The following is an update of this exercise at the end of June 2023, showing a persistent slowdown trend explained by the aforementioned factors.

Graph 76
DECOMPOSITION OF CREDIT GROWTH IN DOMESTIC CURRENCY
(Percentage)
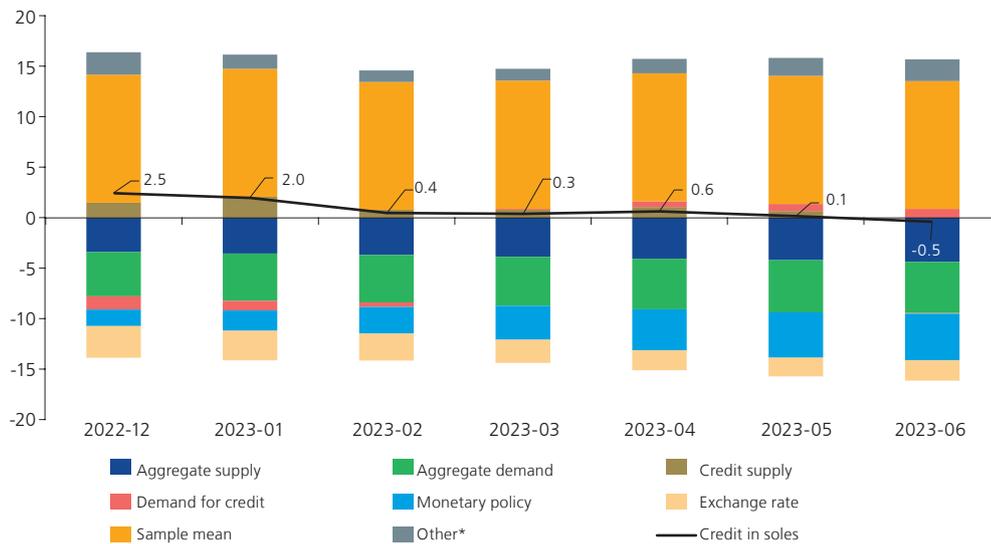
Non-performing loans

81. The **non-performing loans ratio** in July 2023 stood at 4.22 percent, slightly higher than in July 2022 (3.86 percent). This result would be explained by higher non-performing loans to companies, mainly due to the increase in non-performing loans granted to the medium-sized and micro and small companies segment. Non-performing loans to individuals increased in the same period, particularly for credit cards. The increase in non-performing loans reflects the evolution of economic activity and financial conditions.

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26 See https://www.bcrp.gob.pe/docs/Publicaciones/Reporte-Inflacion/2023/junio/reporte-de-inflacion-junio-2023-recuadro-5. pdf.

Table 30
NON-PERFORMING LOANS DELINQUENCY RATE
(Percentage)

	Dec.19	Dec.20	Dec.21	Dec.22	Mar.23	Jun.23	Jul.23
Business	**3.71**	**3.73**	**4.60**	**5.09**	**5.15**	**5.29**	**5.38**
Corporativo and Large companies	0.62	1.04	1.08	1.39	1.44	1.11	1.15
Medium-sized enterprises	8.24	6.27	9.49	11.65	11.95	12.89	13.31
Small business and Micro business	6.29	6.06	6.54	6.37	6.43	6.94	7.06
Individuals	**2.85**	**4.91**	**2.57**	**2.54**	**2.58**	**2.74**	**2.86**
Consumer	2.81	5.92	2.23	2.51	2.60	2.80	2.99
Credit cards	5.33	12.70	6.28	6.58	7.00	7.50	7.69
Car loans	3.75	5.85	3.72	3.37	3.13	3.14	3.22
Rest	1.46	3.07	1.35	1.57	1.59	1.69	1.89
Mortgage	2.91	3.51	3.01	2.57	2.56	2.64	2.65
Average 1/	**3.24**	**4.00**	**3.76**	**3.97**	**4.01**	**4.12**	**4.22**

1/ The non-performing loans ratio is the percentage of direct loans that are past due or in judicial collection. This indicator also includes loans to companies, individuals, sovereign loans, loans to multilateral organizations, and loans to public sector companies and organizations.
Source: BCRP.

Projected credit to the private sector

82. In 2023 and 2024, credit to the private sector is expected to grow at a slower pace than nominal GDP, following a significant increase in the credit-to-GDP ratio in 2020, which would stabilize at pre-pandemic levels starting in 2024. Thus, the credit-to-GDP ratio is expected to stand at 41.4 percent of GDP in 2023 (after having stood at 53.1 percent in 2020, 45.4 percent in 2021, and 44.3 percent in 2022).
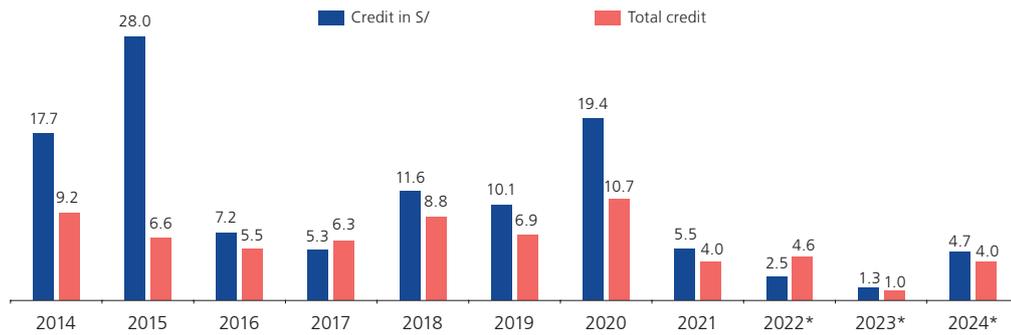
Similarly, a more moderate increase in domestic currency credit is expected. Thus, the projected growth of credit to the private sector in domestic currency would be 1.3 percent in 2023; and 4.7 percent in 2024, considering the vanishing statistical effect of the strong increase in 2020 and the beginning of the amortization of loans granted under the Reactiva Peru program. Thus, total credit would grow 1.0 percent in 2023 (4.7 percent excluding Reactiva Peru program). By 2024, total credit growth is estimated at 4.0 percent (5.6 percent without Reactiva). This would stabilize the credit dollarization ratio at 22.6 percent by the end of 2024.

In addition, the growth rates of total liquidity and currency in circulation would be lower than those of nominal GDP in 2023 and 2024 due to progress in the normalization of financial conditions, with growth in domestic currency liquidity close to that of nominal GDP in 2024. The ratio of liquidity to GDP would decline from 47.5 percent in 2022 to 44.9 percent in 2023 (close to its pre-pandemic level), and to 44.3 percent in 2024. Meanwhile, the depository corporations' currency in circulation ratio to GDP would contract from 8.5 percent in 2022 to 7.5 percent in 2023, and to 7.0 percent in 2024, a level like that recorded prior to the COVID-19 pandemic.
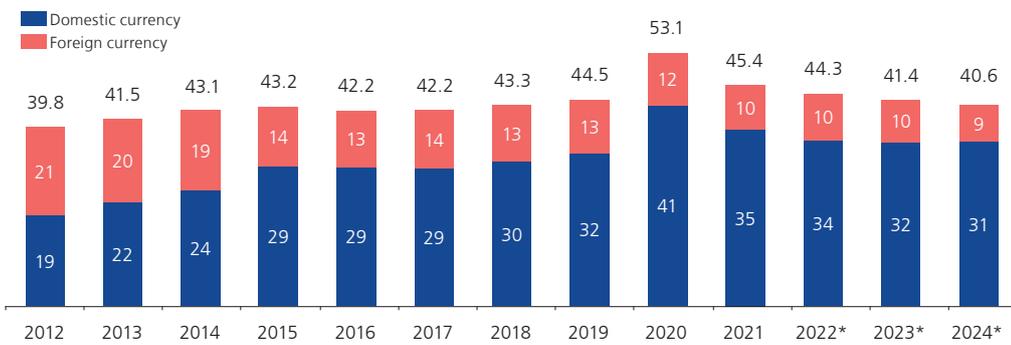
Graph 77
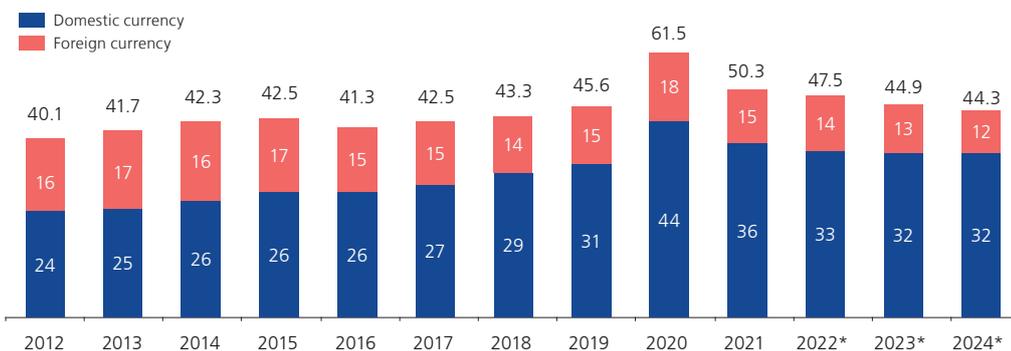**CREDIT TO THE PRIVATE SECTOR**
(Percentage changes)

Credit in S/   Total credit

Year	Credit in S/	Total credit
2014	17.7	9.2
2015	28.0	6.6
2016	7.2	5.5
2017	5.3	6.3
2018	11.6	8.8
2019	10.1	6.9
2020	19.4	10.7
2021	5.5	4.0
2022*	2.5	4.6
2023*	1.3	1.0
2024*	4.7	4.0

* Forecasts.
Source: BCRP.

Graph 78
CREDIT / GDP RATIO
(Percentage)

Domestic currency
Foreign currency

Year	Domestic currency	Foreign currency	Total
2012	19	21	39.8
2013	22	20	41.5
2014	24	19	43.1
2015	29	14	43.2
2016	29	13	42.2
2017	29	14	42.2
2018	30	13	43.3
2019	32	13	44.5
2020	41	12	53.1
2021	35	10	45.4
2022*	34	10	44.3
2023*	32	10	41.4
2024*	31	9	40.6

Note: Calculated at constant exchange rate (December 2022).
* Forecasts.
Source: BCRP.

Graph 79
LIQUIDITY / GDP RATIO
(Percentage)

Domestic currency
Foreign currency

Year	Domestic currency	Foreign currency	Total
2012	24	16	40.1
2013	25	17	41.7
2014	26	16	42.3
2015	26	17	42.5
2016	26	15	41.3
2017	27	15	42.5
2018	29	14	43.3
2019	31	15	45.6
2020	44	18	61.5
2021	36	15	50.3
2022*	33	14	47.5
2023*	32	13	44.9
2024*	32	12	44.3

Note: Calculated at constant exchange rate (December 2022).
* Forecasts.
Source: BCRP.

Box 5
THE RECENT EVOLUTION OF THE NATURAL RATE
OF INTEREST IN PERU

The Natural Rate of Interest (NRI) is the interest rate consistent with macroeconomic stability. It is defined as the real interest rate that would be observed with a closed output gap and no persistent fluctuations in inflation. In this scenario, the economy would remain at its potential output level and with an inflation rate at its long-term equilibrium level. Accordingly, the NRI can be used as a benchmark to measure the stance of monetary policy. Thus, if the real reference rate is lower (higher) than the NRI, the monetary policy stance can be said to be expansionary (contractionary).

The NRI depends on structural factors that balance the loanable funds market. Florián and Carrasco (2019) document the following factors: domestic and external potential growth, household preferences for savings, demographic factors, structural fiscal deficit, external real interest rate, country risk, among others.[27] For example, a contraction in potential growth reduces returns to domestic capital, which translates into a lower NRI. On the other hand, an increase in country risk reduces the inflow of foreign capital, which reduces the supply of loanable funds and therefore increases NRI.

Despite its relevance, the NRI is an unobservable variable and must be inferred from available information. Three approaches to estimating NRI are documented in Borio (2021).[28] The first approach focuses on using the statistical properties of the data to obtain a smoothed trend over long periods. For the second approach, structural systems are formulated, which assume additional information from economic theory. Finally, the last approach uses variables that capture the dynamics of agents' expectations in financial markets. At present, the first two approaches are the most popular.

Estimates of the natural rate of interest

Since NRI is a function of different structural conditions, changes in these factors generate uncertainty about its level and lead to historical revisions of previous estimates. The following table shows TNI estimates that some central banks have recently published.

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27   Florián, David and Carrasco, Alex, 2019. The Natural Interest Rate in a small open economy and its determinants: Aspectos conceptuales, Revista Moneda, Banco Central de Reserva del Perú, N° 178, pages 10- 14.

28   Borio, C. (2021). Navigating by r*: safe or hazardous? No 982, BIS Working Papers, Bank for International Settlements.

RECENT ESTIMATES OF THE REAL NATURAL RATE OF INTEREST IN OTHER ECONOMIES
(Range of point estimates)

Country	Estimated		Date
	Real	Nominal	
Brazil	4.50% - 5.00%		Inflation Report – Jun 2023
Chile	0.50% - 1.10%		Monetary Policy Report – Dec 2022.
Colombia	1.12% - 2.00%		Inflation Report - Sep 2018.
Mexico	1.80% - 3.40%		Quarterly Report Apr – Jun 2019.
Peru	1.40% - 1.80%		Inflation Report – Sep 2019.
USA 1/	0.58%		FED New York / Holston, Laubach y Williams (HLW) / 2023 Q1.
	1.20%		FED New York / Laubach y Williams (LW) / 2023 Q2.
	2.16%		FED Richmond / Lubik y Matthes. Q1
Canada 2/	1.42%	2.00% - 3.00%	(Real) FED New York HLW 2023 T1. / (Nominal) Staff Analytical Note - May 2023.
Eurozone 3/	0.91%	1.00% - 2.00%	(Real) FED New York HLW 2023 T1. / (Nominal) Remarks by the Governor of the Banque de France at Jackson Hole - Aug 2022.

Notes:
For Brazil, Chile, Colombia, Mexico and Peru the range corresponds to the dispersion of point estimates across different studies.
1/ 2023 average.
2/ The estimate in real terms corresponds to the New York Fed's estimate, using the HLW model. The nominal estimate is a range reported by the Bank of Canada.
3/ The estimate in real terms corresponds to the New York Fed estimate, using the HLW model. The nominal estimate is a range stated by the Governor of the French Central Bank at the Jackson Hole meeting in August 2022.

In the case of Brazil, the June 2023 inflation report points to a short-term NRI that would have declined during the pandemic from 5.0 percent in April 2017 to 2.0 percent in June 2020. However, it would have recovered in the post-pandemic stage progressively to 3.0 percent in August 2021, 4.0 percent in December 2021, 4.5 percent in December 2022, and 4.8 percent in June 2023, to a range between 4.5 and 5.0 percent.

NRI REVIEWS IN REGIONAL COUNTRIES

Country	Pre-Pandemic	Pandemic	Post-Pandemic
Brazil 1/	5% (Apr. 2017)	2% (Jun. 2020)	3% (Aug.2021); 4% (Dec. 2021); 4.5% (Dec. 2022); 4.8% (Jun. 2023)
Chile 2/	0.75% - 1.25% (Jun. 2019)		0.25% - 0.75% (Jun. 2021); 0.5% - 1.0% (Dec.2022)
Colombia 1/	1.2% (2019)	1.3% (2020)	1.5% (2021); 2% (2022) ; 2.2% (2023)

Note:
1/ Parentheses SHOW the corresponding date for the NRI of the latest estimate for its path. In the case of Brazil it is the path published in the June 2023 inflation report, and for Colombia it is that published in the July 2023 monetary policy report.
2/ The dates of the monetary policy report announcing the change in the NRI are shown in parentheses.

The table above reports the revisions to the NRI estimates prepared by the Central Bank of Chile. In June 2019 it was estimated that the NRI fluctuated between 0.75 and 1.25 percent, while in June 2021 it was estimated that the NRI would have decreased by 50 bps (between 0.25 and 0.75 percent). In the latest revision published at the end of 2022 this rate would have increased by 25 bps, ranging between 0.5 and 1.0 percent.

The latest revision of Colombia's NRI calculations dates back to September 2018, and it is reported to be between 1.12 and 2.0 percent. This rate has been adjusted to reflect permanent increases in the risk premium. For example, in January 2022 the natural rate of interest was increased by 20 bps, while in December of the same year it was increased by an additional 20 bps. Overall, according to the latest monetary policy report of July 2023, Colombia's NRI would have increased from 1.2 percent in 2019 to 2.2 percent in 2023.

On the other hand, to date, the latest published estimates of the natural rates for Mexico and Peru are from the pre-pandemic period. The COVID-19 pandemic has significantly increased

aggregate uncertainty, making it difficult to estimate unobservable variables. The fact that some central banks have not published NRI updates since the pandemic could be due to this increased uncertainty.[29]

Recent estimates for the Peruvian economy

Recent estimates for Peru prepared by the BCRP show that, during the pandemic, the TNI would have declined and then recovered in the post-pandemic period. This dynamic resembles Brazil and Chile's. It is estimated that the recent increases in the TNI would be associated with the observed increase in the country risk premium.

For this review of NIT estimates, different methodologies have been considered: i) some that characterize NIT as a linear function of explanatory variables, and ii) others that use time series techniques of unobserved components.

Within the first group is the exercise by Lahura and Vega (2023).[30] In this estimation, the authors adapt Benati (2023) for the Peruvian case and use the information on the velocity of circulation of the M1 component of liquidity.[31] According to this methodology, inflation is considered to be stationary in countries with inflation targeting, and the velocity of circulation of M1 is the permanent component of nominal interest rates. Thus, with simple regressions, a nominal NIR can be estimated from which the inflation target is extracted to infer the real NIR.

The second group of methodologies includes estimations with Bayesian vector autoregressive regression (BVAR) and Kalman filters. Perez (2023) uses a BVAR with common trends, in which it is assumed that the systematic NIR, inflation and liquidity premium follow a common random walk, while the rest of the variables in the model follow a stationary VAR.[32] On the other hand, Ledesma (2023) uses the Kalman filter to jointly estimate the NIR and potential output.[33] In this last exercise, in line with Holston et al. (2023), a correction is incorporated to make the estimation robust to the notable sample variability observed during the pandemic.[34] Likewise, this exercise includes two specifications (exogenous policy rate and closed economy policy rate) as a robustness exercise. Finally, the NIT is estimated with a Kalman filter on the quarterly projection model (TPM) described in Aguirre et al. (2022).[35]

The table below shows how the TNI estimate has evolved, considering the median between the different methodologies.[36] It can be observed that after a reduction in TNI, during the pandemic

29   For example, the Federal Reserve stopped updating its TNI estimates from the beginning of the pandemic until May 19, 2023 (see https://www.newyorkfed.org/newsevents/news/research/2023/20230519).

30   Lahura, Erick and Vega, Marco (2023). Natural rate of interest and velocity of money circulation: Evidence for Peru. Mimeo.

31   Benati, L. (2023). A new approach to estimating the natural rate of interest. Journal of Money, Credit and Banking.

32   Pérez, F. (2023). Estimating the Neutral Rate in Peru: A Common Trends Approach.

33   Ledesma, A. (2023). Estimation of unobservables in MPT in postpandemia. BCRP working paper. Mimeo.

34   Holston, K., Laubach, T., & Williams, J. C. (2023). Measuring the Natural Rate of Interest after COVID-19. FRB of New York Staff Report, (1063).

35   Aguirre, J., Vidal, J., Castillo, L., Hoyle, D., Ledesma, A., Martínez, J., Vásquez, V. and Vélez, A., 2022. Quarterly forecasting model: an update to 2019 (No. 2022-011). Central Reserve Bank of Peru.

36   In all cases, with the exception of the estimate in Lahura and Vega (2023), the implicit forecasts of this inflation report up to 2024 are used as data, thus reducing the end-of-sample bias typical of these methodologies.

would have increased to levels even higher than the pre-pandemic, albeit under greater uncertainty. This observation is common to all the NRI estimation methodologies implemented.

SUMMARY OF NRI ESTIMATES FOR PERU
(Median of estimates)

Year	Nominal NIR	NIR	CI 5%	CI 95%
2019	3.4	1.4	0.3	2.6
2020	3.3	1.3	0.2	2.6
2021	3.4	1.4	0.1	2.6
2022	3.6	1.6	0.4	2.9
2023	4.1	2.1	0.5	3.3

Note: Nominal NRI and NRI show the median of the mean values estimated by Lahura and Vega (2023), MPT with Kalman filter, Perez (2023) and Ledesma (2023) including extended UCUR (exogenous rate) and extended UCUR (closed economy). The CI5% and CI95% are the minimum and maximum, respectively, of those reported among the different methodologies.

Conclusions

The NRI is an important variable for monetary policy decisions; however, since it depends on long-term structural factors, its estimates will always be subject to uncertainty. Accordingly, the BCRP constantly revises its NRI estimates and uses different methodologies for its estimations. Recent estimates show that NRI in Peru would have increased, after having slipped during the pandemic. In fact, it is estimated that the NRI would have outweighed the average pre-pandemic values.

The higher NRI would be mainly associated with the increase in aggregate uncertainty materialized in the increase of several risk premiums, particularly country risk.

Taking this into account, the real NIT estimate is revised upward to 2.0 percent, compared to 1.5 percent in the previous estimate published in the September 2019 inflation report.

Box 6
MEASURING THE CREDIT CYCLE AFTER
THE COVID-19 PANDEMIC

This Box presents two methodologies for measuring the credit cycle: in nominal terms or levels, to get an idea of the credit expansion or contraction in the economy; and as a ratio of nominal GDP to contextualize such credit expansion or contraction in terms of financial depth.

Both approaches are valid for measuring the financial cycle even in a context of high uncertainty such as the current one. Jokipii et. al. (2020)[37] show in a paper by the Swiss National Bank that there is no significant evidence to disregard the use of the credit to nominal GDP ratio in such an objective. However, one should be cautious in interpreting that signal, especially in periods of higher GDP volatility, as was the case of the pandemic, whereby this indicator should be complemented with additional ones.

To calculate these indicators, we first estimate the credit cycle using the seasonally adjusted nominal credit series. The following figure shows the seasonally adjusted credit series[38] using the Tramo-Seats[39] program, its trends[40] and the relative margin. This methodology results in an expansionary cycle discernible from the beginning of the pandemic, with a slowdown starting in June 2022.


TREND AND SEASONALLY ADJUSTED
(In millions of S/)

SEASONALLY ADJUSTED MARGIN / TREND
(%)
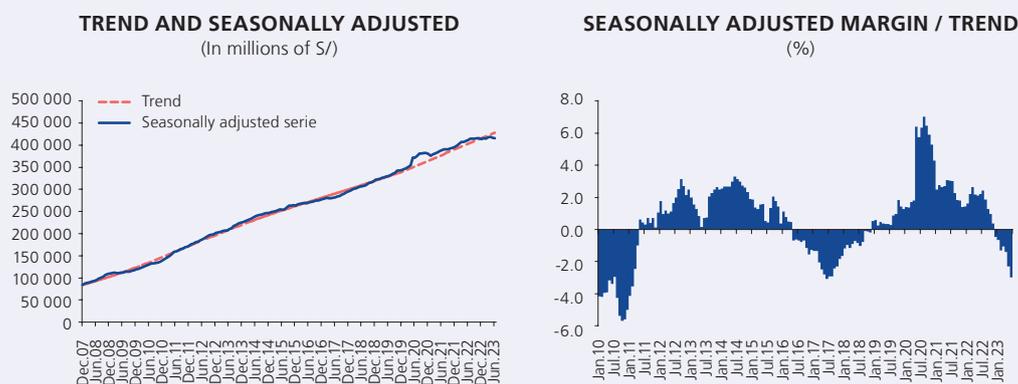
For its part, the estimation of the credit cycle as a percentage of GDP is shown in the following figure.[41] Drehmann et al. (2012)[42] identify financial cycles using the ratio of credit to GDP. Drehmann and Borio (2014), using panel data, find that this ratio is the best single indicator to prevent the occurrence of financial crises over a 2-5 year horizon.

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37   Jokipii, T, R Nyffeler and S Riederer (2020). The BIS credit-to-GDP gap and its critiques. SNB Working Paper, 20-19.
38   Abeln et al (2022) and Bógalo (2022) find that methodologies to seasonally adjust the series require adjustments for outlier detection when including the pandemic period.
39   Gómez, V., & Maravall, A. (1996). Programs TRAMO and SEATS. Instructions for the User (with some updates). Working Paper 9628, Servicio de Estudios, Banco de España, Madrid.
40   The trend is estimated with the HP filter using information as of December 2019, with a smoothing parameter of 129600 as suggested in Ravn and Uhlig (2002). After that, the trend is projected linearly. The credit in dollars is valued at the constant exchange rate of December 2022 (S/ 3.81 per dollar).
41   The trend is estimated with information as of December 2019. Thereafter, the trend is projected with a first-order autoregressive model of the trend in first differences.
42   Drehmann, M., C. Borio and K. Tstsaronis (2012). Characterising the financial cycle: don't lose sight of the medium term! BIS Working Paper No. 380.

This methodology yields a more important and also shorter credit expansionary cycle after the pandemic. This is due to (i) the impact of the pandemic on GDP, which experienced a sharp reduction in the first quarters of the pandemic and then began to recover with the progressive resumption of economic activities; and (ii) measures aimed at maintaining the supply of credit in the financial system, such as Reactiva Peru. As of November 2022, credit as a percentage of GDP would be below its trend.
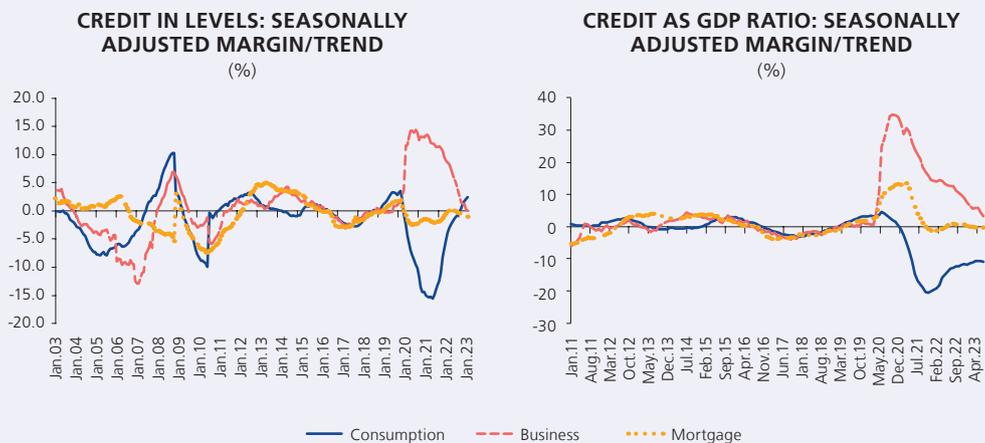
TREND AND RATIO
(In millions of S/)

SEASONALLY ADJUSTED MARGIN / TREND
(%)
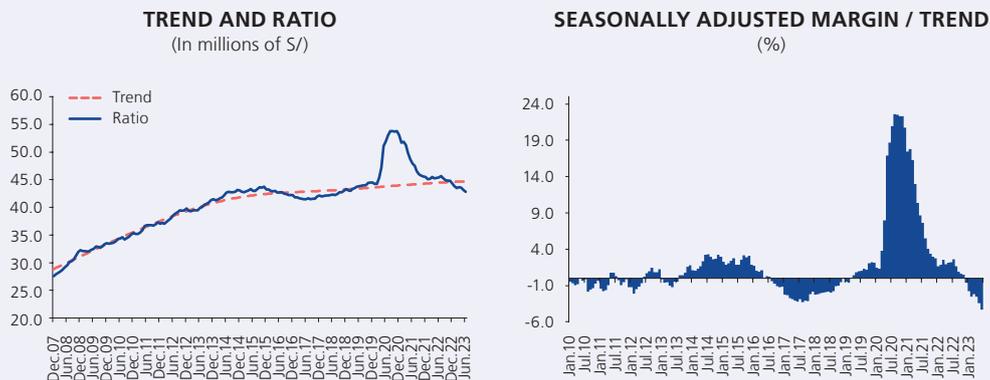
Financial cycles can differ significantly from the economic cycle. Borio (2014)[43] finds that financial cycles have a lower frequency than business cycles and their peaks are associated in several cases with financial crises. Therefore, the financial cycle measured as a percentage of GDP could be capturing a larger part of the business cycle during the pandemic period where these effects were amplified. Along this line, Perez and Vilchez (2018)[44] show through various methodologies that Peru's financial cycle estimated as a ratio of GDP has a stronger relationship with the evolution of asset prices than with the business cycle.

The recent evolution of the corporate, mortgage and consumer credit cycle shows important differences. Corporate credit rose during the pandemic driven by credit support programs, mainly Reactiva Peru. This credit segment moved countercyclically, offsetting the contractionary effects of the pandemic. Credit repayments from these programs are narrowing the gap. On the contrary, a contraction of consumer credit during the pandemic was mainly explained by portfolio cleaning and banks' write-offs; lower consumption; and a lower intensive margin, which has recently started to recover. Mortgage credit at the beginning of the pandemic slowed down in nominal credit, but as a percentage of GDP it recorded an increase due to the fall in GDP. Afterwards, it has kept growing at relatively stable rates, which shows a practically closed gap.

The following graph, by credit segment, shows in both measures of the credit cycle, greater volatility during the pandemic period with a marked expansionary cycle in business credit and a contractionary cycle in consumer credit.

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43   Borio, Claudio (2014). The financial cycle and macroeconomics: What have we learnt? Journal of Banking & Finance, 45(C), pp 182-198.

44   Perez, Fernando & Vilchez, Diego, 2018. "Financial cycles in Peru" Revista Moneda, Banco Central de Reserva del Perú, issue 176, pages 4-9.

CREDIT IN LEVELS: SEASONALLY ADJUSTED MARGIN/TREND
(%)

CREDIT AS GDP RATIO: SEASONALLY ADJUSTED MARGIN/TREND
(%)

Consumption — Business — Mortgage

To conclude, the estimated cycles as a percentage of GDP and by level give us information consistent with a common interpretation of the state of the cycle during the periods under review prior to the pandemic. However, after the pandemic we observe an unwarranted increase in the correlation of the cycles and a pronounced divergence between the two credit cycle measures starting in December 2022. This is consistent with the literature[45] on the behavior of these cycle measures during periods of large GDP movements where conflicting signals are to be expected during and after this period.

45   Galán, J. (2019), "Measuring credit-to-GDP gaps. The Hodrick-Prescott filter revisited", Banco de España Occasional Paper, (1906).

Box 7
DYNAMIC EFFECTS OF MONETARY POLICY
ON THE YIELD CURVE[46]

The government securities yield curve is a reference of market expectations regarding the evolution of the aggregate economy, especially those related to interest rates and inflation, as well as economic activity. It basically reflects the cost of financing at different maturities, which can also be associated with financial conditions. Since the yield curve is an aggregator of information (public and private signals), it is to be expected that it will fluctuate according to monetary policy actions, measured through changes in the benchmark rate and its communication. However, the yield curve could also fluctuate due to other forces outside monetary policy, both domestic and external.

In the particular case of Peru, the short end of this curve is the Certificates of Deposit of the Central Reserve Bank of Peru (CD BCRP), which covers terms less than or equal to 2 years, and the long end corresponds to sovereign bonds of the Public Treasury, mainly with terms longer than CD BCRP The following figure shows the evolution of yields for selected maturities, from 3 months to 30 years, since these are usually the most representative.

### PERU: YIELD CURVE AND INTERBANK INTEREST RATE (2003-2023)*
(Percentages)
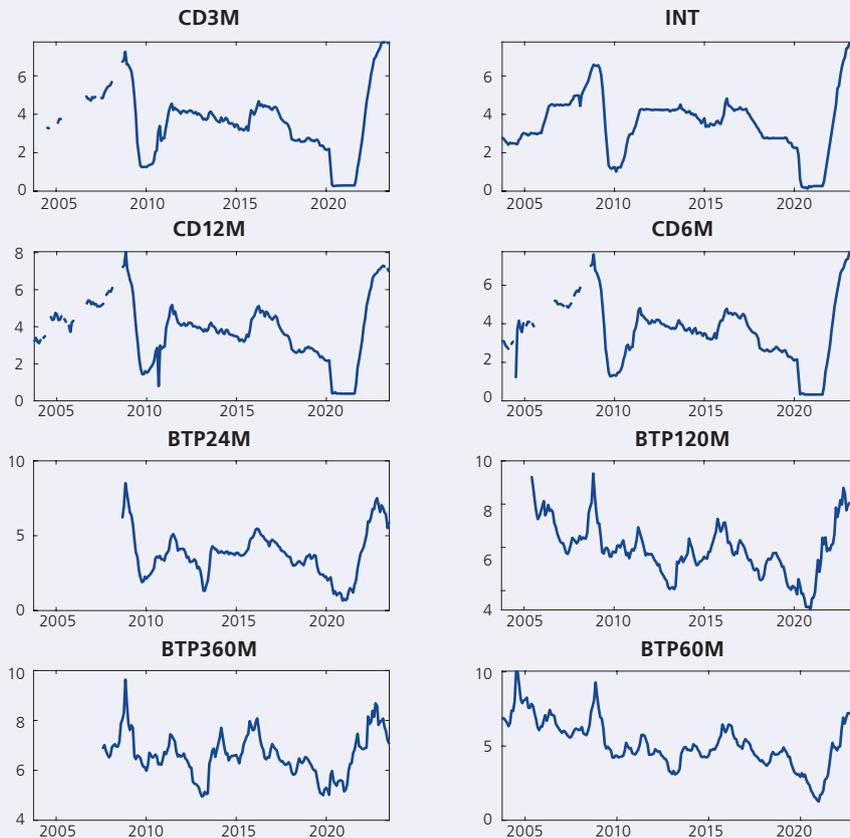
* Periods in months (M): Data from September 2003 to June 2023. CD are BCRP Certificates of Deposit and BTP are Public Treasury sovereign bonds.

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46 Box based on the paper by Fernando Perez which was presented at the BCRP's Economic Research Seminar in August 2023.

In line with the empirical financial literature, this box estimates the representative factors of the yield curve (level, slope and curvature), and studies the dynamics of these factors after a monetary policy shock, where the main factors are the level and slope. For this purpose, an *Affine* yield curve model (ATSM)[47] is specified and estimated, and with it the aforementioned factors.[48] The advantage of the methodology is that it allows estimation even if not all observations are available, as shown in the figure above.

PERU: YIELD CURVE FACTORS (2003-2023)*
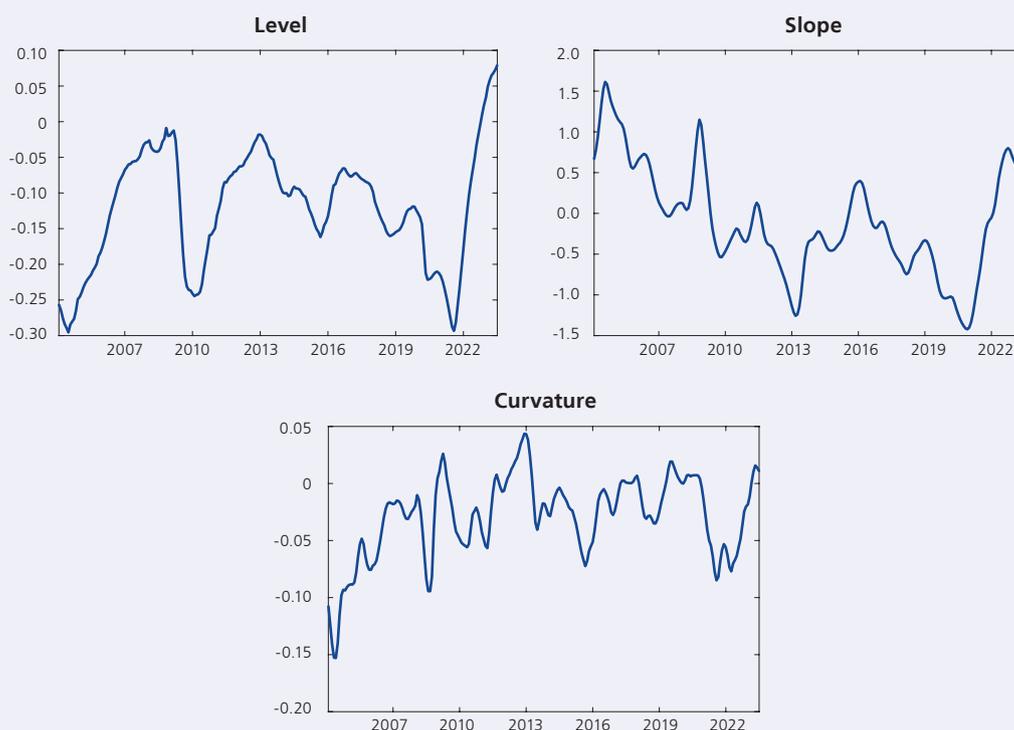
* September 2003 to June 2023. The estimated factors are normalized indexes that on average are zero. Therefore, the scales and units are referential and do not represent percentages or variations.

The factors obtained capture the behavior of the yield curve. For example, the level factor is highly correlated with the evolution of the overnight interbank interest rate, and the slope factor also shows a high correlation with usual proxy indicators, such as the difference between the 10-year yield and the 3-month yield, etc.

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47   Piazzesi, M. (2010). Ch. 12 - Affine term structure models. In Y. Ait-Sahalia and L. P. Hansen (eds.), Handbook of Financial Econometrics: Tools and Techniques, Handbooks in Finance, vol. 1, San Diego: North-Holland, pp. 691-766.

48   This box uses a version of the Affine Term Structure Model (ATSM) in discrete time, which can be expressed through a state space system. With this, parameter estimation and obtaining the final factors can be done through standard Bayesian methods in the literature: i) Evaluation of the likelihood function through the Kalman filter, ii) Maximization and simulation of the a posteriori distribution of the parameters through a version of the Metropolis-Hastings algorithm, iii) Calculation of the yield curve factors through the smoothed Kalman filter and the estimated parameters.

**LEVEL AND SLOPE FACTORS AND YIELD CURVE DATA**
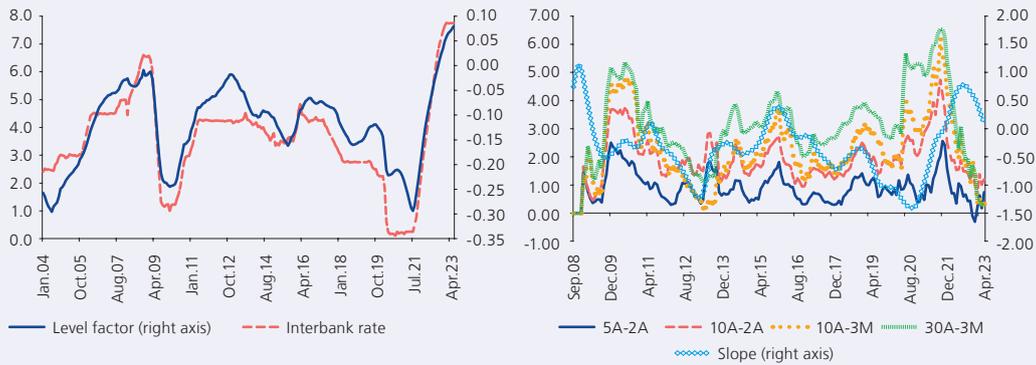
Subsequently, using the information of these factors and a set of macroeconomic variables relevant to the Peruvian economy, an autoregressive vector model with changing parameters and stochastic volatility (TVP-VAR-SV)[49] is estimated, in order to obtain the impulse response functions of a monetary policy shock over time. The variables used for the period 2003- 2023 apart from the three estimated factors are: i) terms of trade, ii) inflation, iii) inflation expectations, iv) GDP growth, v) interbank interest rate, vi) sol-denominated liquidity, and vii) exchange rate. All variables are introduced to the model in year-to-year variations except for the interest rate and the factors of the curve previously obtained, while monetary policy shocks are identified through restrictions of zeros and signs. Basically, it is assumed that a rise in the interest rate slows down liquidity and appreciates the sol against the dollar. Likewise, GDP, inflation and its expectations do not react contemporaneously to the monetary policy shock, but this would happen in the following months.[50]

**FACTOR RESPONSES TO A MONETARY POLICY SHOCK TIME IN MONTHS:
SET-2003-JUN-2023**

Level Factor
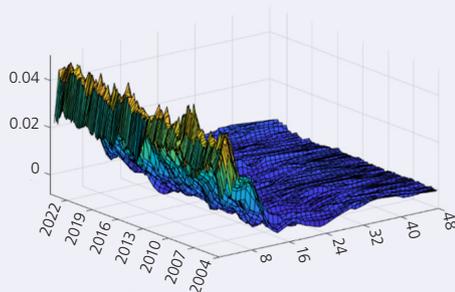
Slope Factor
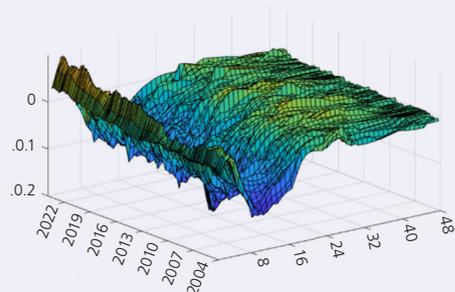
49   The model uses the version of Canova and Perez Forero (2015): "Estimating overidentified, non-recursive, time-varying coefficients structural vector autoregressions", Quantitative Economics, 6 (2), pp. 359-384, which allows combining zeros and signs restrictions. See also earlier versions of this model in Cogley and Sargent (2005): Drifts and volatilities: "Monetary policies and outcomes in the post WWII US". Review of Economic Dynamics, 8 (2), pp. 262-302 and Primiceri (2005), "Time varying structural vector autoregressions and monetary policy". Review of Economic Studies, 72, pp.821-852.

50   A similar exercise is implemented for the case of the US economy by Mumtaz and Surico (2009): "Time-Varying Yield Curve Dynamics and Monetary Policy", Journal of Applied Econometrics, 24 (6), pp. 895-913.

Next, we describe the dynamic effects of the monetary policy shock on the main factors of the yield curve. First, a contractionary monetary policy shock raises the level of the yield curve, and this impact is amplified in the first 3 months and then fades away during the first year. Moreover, this mechanism appears stable throughout the entire analysis sample (2003-2023). Secondly, this shock produces a steepening of the yield curve through the increase in the slope factor, which is amplified in the first two months, and then quickly fades and even becomes negative during the first year, suggesting a cumulative impact associated with a flattening of the curve, with this propagation mechanism also being stable throughout the sample.

Additionally, to notice for the main factors of the curve is the increase in volatility according to the estimated model, especially as of 2020. This can be seen in the following figure, and partly reflects the greater macroeconomic uncertainty observed in recent years. This is reflected in the significant increase in these variances, which can also be associated with an increase in the risk premium given this greater uncertainty.

EVOLUTION OF THE VOLATILITY OF THE YIELD CURVE FACTORS
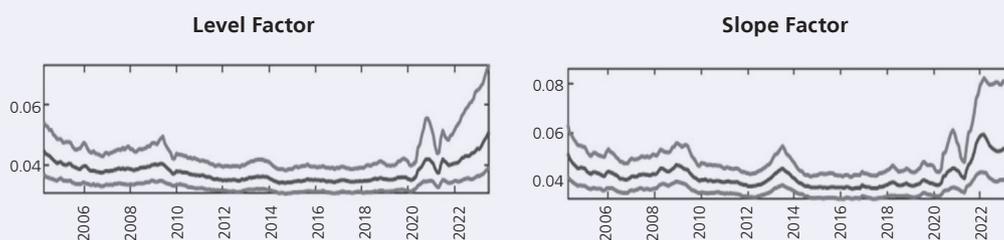
By way of conclusion, fluctuations in the yield curve can be partly explained by monetary policy actions, while movements in the benchmark rate affect the factors estimated from a non-arbitrage model, with such dynamic effects being significant and persistent for at least one year, which also reflects BCRP credibility. It is worth noting that the monetary policy transmission mechanism is stable for the period of analysis (2003-2023) even in the period of the COVID-19 pandemic, and that it produces the expected dynamic effects under normal conditions and in line with the BCRP's communication. However, it should also be noted the higher volatility in the yield curve recorded in recent years, and this is explained by the higher macroeconomic and financial uncertainty recorded since the COVID-19 pandemic, where this can come from both global and domestic factors.

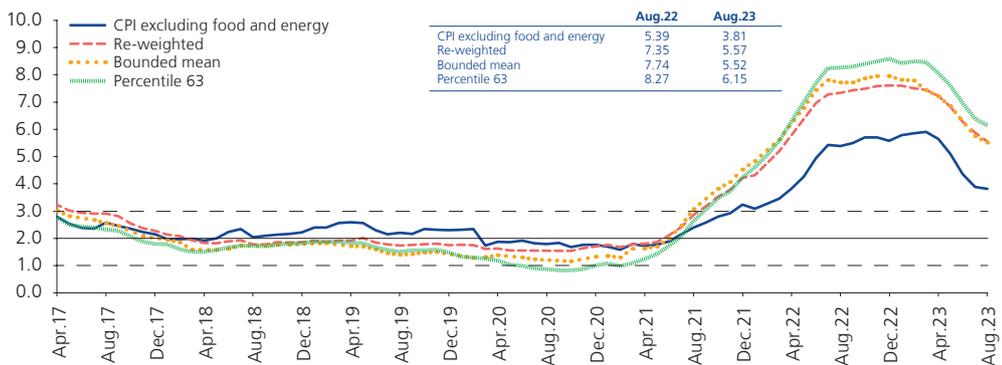# VI. Inflation and balance of inflation risks

Recent inflation trends

83. Year-on-year **inflation** continued to decline from 7.89 percent in May to 5.58 percent in August 2023. Contributing to this reduction were food items such as chicken meat, fresh fish and potatoes, as well as electricity. Lower non-food and energy inflation also contributed, which decreased from 5.11 to 3.81 percent in the same period. The different trend inflation indicators were also above the target range, although they have been on a downward trend so far this year.

Graph 80
INFLATION
(Percentage change last 12 months)

	Avg. 01.21	2020	2021	2022	Aug.23
CPI:	2.7%	1.97%	6.43%	8.46%	5.58%
CPI excluding food and energy	2.2%	1.76%	3.24%	5.59%	3.81%
Food and energy	3.3%	2.22%	10.18%	12.02%	7.66%

Source: BCRP.

Graph 81
TREND INFLATION INDICATORS
(Percentage change last 12 months)

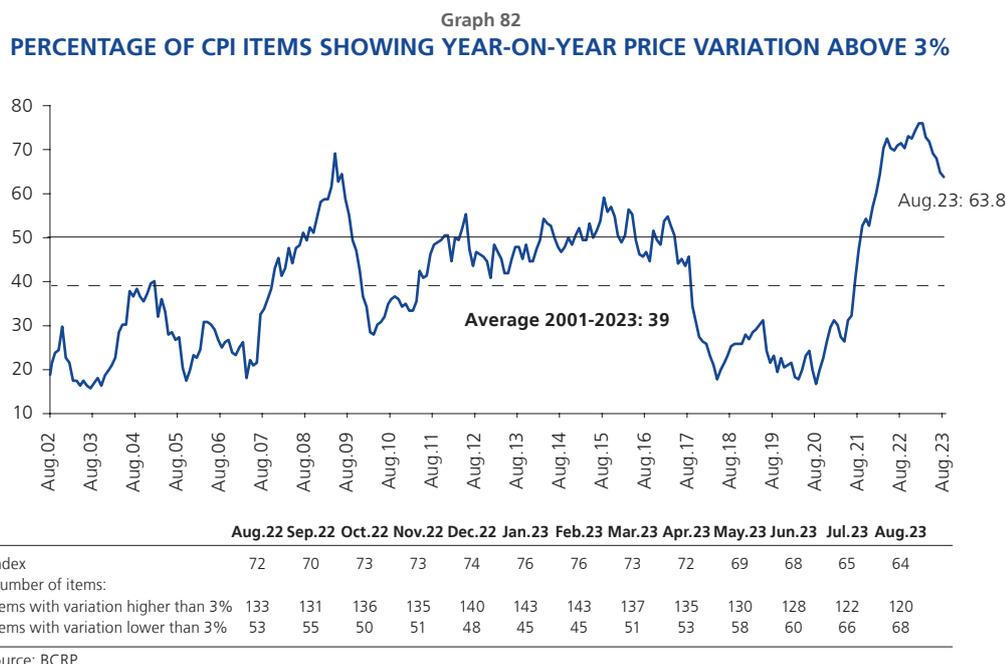|	Aug.22	Aug.23
CPI excluding food and energy	5.39	3.81
Re-weighted	7.35	5.57
Bounded mean	7.74	5.52
Percentile 63	8.27	6.15

Note:
1. CPI excluding food and energy: CPI excluding food, fuel and electricity.
2. Reweighted: Reduces the weight of the most volatile items by dividing the original weights of each item by the standard deviation of their monthly percentage variations.
3. Narrow mean: Weighted average of the percentage changes in prices located between the 34th and 84th percentiles.
4. 63rd percentile: Corresponds to the percentage variation of the item located in the 63rd percentile:
Source: BCRP.

84. Of 188 items in the Consumer Price Index, 64 percent recorded a year-on-year variation higher than 3 percent. This indicator peaked at 76 percent in February and has been decreasing since March.

Graph 82
PERCENTAGE OF CPI ITEMS SHOWING YEAR-ON-YEAR PRICE VARIATION ABOVE 3%

	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Jan.23	Feb.23	Mar.23	Apr.23	May.23	Jun.23	Jul.23	Aug.23
Index	72	70	73	73	74	76	76	73	72	69	68	65	64
Number of items:													
Items with variation higher than 3%	133	131	136	135	140	143	143	137	135	130	128	122	120
Items with variation lower than 3%	53	55	50	51	48	45	45	51	53	58	60	66	68

Source: BCRP

85. The items most linked to the exchange rate, international prices and contracts linked to the Wholesale Price Index (WPI) contributed 0.06 percentage points to cumulative inflation between January and August (3.30 percent). For reference, in December 2020, these same items contributed 0.7 percentage points to annual inflation (2.0 percent), while in 2021 they contributed 3.6 percentage points to annual inflation (6.4 percent) and in 2022 they contributed 2.1 percentage points to annual inflation (8.46 percent).

Table 31
ITEMS RELATED TO EXCHANGE RATE, INTERNATIONAL PRICES AND MPI

	Weight 2009= 100	% chg. 12 m. Dec.21	Weighted contribution	Weight Base Dec.21	% chg. 12 m. Dec.22	Weighted contribution	Cumulated % chg. Jan.-Aug.23	Weighted contribution
CPI	**100.00**	**6.43**	**6.43**	**100.00**	**8.46**	**8.46**	**3.30**	**3.30**
Items linked to the exchange rate	**14.06**	**4.25**	**0.54**	**14.58**	**5.19**	**0.76**	**1.17**	**0.16**
Items linked to international prices and exchange rate	**9.83**	**28.52**	**2.51**	**7.99**	**11.40**	**0.91**	**2.27**	**0.19**
Linked to food commodities	7.03	21.32	1.35	5.84	15.21	0.89	4.88	0.30
Linked to Fuels	2.79	47.20	1.15	2.15	1.05	0.02	5.83	0.12
Items related to WPI	**1.64**	**11.57**	**0.22**	**1.37**	**7.90**	**0.11**	**1.32**	**0.02**
Items related to the exchange rate WPI and international prices	**2.95**	**9.50**	**0.35**	**2.62**	**11.46**	**0.30**	**11.63**	**0.31**
Total items related to the exchange rate WPI and prices	**28.47**	**13.31**	**3.63**	**26.56**	**7.82**	**2.08**	**0.21**	**0.06**
Rest	**71.54**	**3.86**	**2.81**	**73.44**	**8.69**	**6.38**	**4.41**	**3.25**

Source: BCRP.

86. As for the evolution of inflation in 2023, between January and August, the general price level increased 3.30 percent. This result is mainly explained by the increase in food and beverage prices (6.2 percent), which contributed 2.56 percentage points to inflation in the period, though partly counterbalanced by a 9.2 percent decrease in fuel and electricity prices (-0.43 percentage points to inflation).

Table 32
INFLATION
(Year-on-year percentage change)

| | Weight | Dec.20 | Dec.21 | Dec.22 | 2023 | |
					Aug.23.Dec.22*	Aug.23/Aug.22
CPI	**100.0**	**1.97**	**6.43**	**8.46**	**3.30**	**5.58**
1. CPI excluding food and Janrgy	**55.3**	**1.76**	**3.24**	**5.59**	**2.17**	**3.81**
a. Goods	17.4	1.5	2.6	5.3	2.2	3.9
b. Services	37.9	1.9	3.6	5.7	2.2	3.8
Education	8.6	2.0	1.6	3.9	6.4	6.6
Health	1.5	1.2	2.8	7.3	2.6	4.2
Local transportation	9.1	2.5	3.7	12.3	0.4	4.3
Other	18.7	1.6	1.7	3.2	1.1	2.2
2. Food and Janrgy	**44.7**	**2.22**	**10.18**	**12.02**	**4.62**	**7.66**
a. **Food and beverages**	**40.0**	**2.2**	**8.0**	**12.6**	**6.2**	**9.7**
Meals inside the home	24.5	2.9	9.8	14.5	6.8	10.6
Meals outside the home	15.5	1.0	4.5	9.7	5.2	8.1
b. **Fuel and electricity**	**4.8**	**2.1**	**24.4**	**6.8**	**-9.2**	**-9.6**
Fuel	2.1	-4.2	47.2	1.0	-5.8	-12.9
Electricity	2.6	6.7	9.5	11.5	-11.6	-6.8

* Cumulative percentage change.
Source: BCRP.

87. The items with the highest positive contribution to inflation in the January-August period were meals away from home, root and bulb vegetables, other fresh fruits, eggs and citrus fruits (1.94 percentage points to inflation). The items with the highest negative contribution were potatoes, electricity, domestic gas, avocado and fuel for vehicles (-0.96 percentage points to inflation).

Table 33
WEIGHTED CONTRIBUTION TO INFLATION: JANUARY - AUGUST 2023

Positive	Weight	% chg.	Contr.	Negative	Weight	% chg.	Contr.
Meals outside the home	15.5	5.2	0.81	Potatoes	0.7	-37.8	-0.48
Root or bulb vegetables	0.5	100.8	0.51	Electricity	2.6	-11.6	-0.31
Other fresh fruits	0.6	39.9	0.25	Domestic gas	0.8	-8.2	-0.06
Eggs	0.7	21.5	0.21	Avocado	0.2	-20.8	-0.05
Citrics	0.6	21.7	0.16	Vehicle fuels	1.1	-4.8	-0.05
Higher education	4.3	3.8	0.16	International air transport	0.5	-6.7	-0.04
Primary education	1.6	10.4	0.15	Fresh fish maritime	0.7	-5.5	-0.04
Toiletries care	4.0	3.6	0.14	National ground transportation	0.3	-12.8	-0.03
Secondary eduaction	1.3	10.7	0.13	vegetable oil	0.4	-6.5	-0.03
Local transportation	8.1	1.3	0.11	Rents	4.5	-0.5	-0.02
Total			**2.63**	**Total**			**-1.11**

Source: BCRP.

Food

Food price increases have been more persistent due to weather anomalies throughout the year. The prices of meals outside the home increased 5.2 percent in the January-August period due to the higher price of food inputs. However, the interannual variation

of this item was lower than that of meals at home (8.1 and 10.6 percent, respectively).

Root or bulb vegetables rose 100.8 percent, mainly reflecting the increase in the price of onion (175.6 percent), a bulb vegetable, due to a lower supply from Camaná (Arequipa); lower yields, due to lower fertilizer use in the last two agricultural seasons, as well as less planting, due to switching to other more profitable crops in view of the low prices in the previous season.

Other fresh fruit (39.9 percent) showed the largest price increases in February and March. The supply of crops such as strawberries, which come from the valleys of the Lima region, decreased in those months due to the rains that devastated crops in March. Mango was another product affected by climatic disturbances; flooding of plantations in Piura due to rains and overflowing rivers hampered crops.

Egg prices (21.5 percent) recorded the highest increases in February through April. Higher temperatures increased product perishability and marketing costs, in addition to the impact of avian flu on poultry. Production costs also increased due to the lower availability and higher price of soybean meal, the poultry feed.

Citrus rose 21.7 percent, due to the higher price of lime (62.3 percent). Citrus production on the northern coast was affected by the rains and floods in March and April, which altered flowering and led to fungal diseases. In contrast, mandarin (-5.9 percent) and passion fruit (-21.4 percent) prices declined due to higher seasonal supplies from the Lima valleys.

Potato prices recorded successive decreases this period, accumulating a negative -37.8 percent variation. Rain in February and March advanced crops in the central highlands, mainly in Junín. Although plantings in the current season decreased in that region, less severe temperature anomalies from April onwards increased crops, with higher shipments from Ayacucho and Arequipa. However, this situation was reversed in August, recording a 5.4 percent price increase, which was influenced by the end of the major harvest season in the central highlands.

Services

Primary education fees increased 10.4 percent due to the increase in enrollment corresponding to the beginning of the school year, and the increase in tuition due to the return of daily face-to-face classes. In 2022, in presence classes were held only on some days of the week, and were complemented by online instruction. Similarly, secondary and higher education also increased by 10.7 and 3.8 percent, respectively.

Energy

Electricity rates decreased 11.6 percent, recording successive reductions, mainly in February, May and August.

The adjustment in February responded to the reduction of the premium for renewable energy resources (RER) following the increase in the spot price, the quarterly adjustment

of the price at generation level and the surcharges collected in the main transmission component, as well as the lower surcharge for the Electric Social Compensation Fund (FOSE, Fondo de Compensación Social Eléctrica). In May, the lower exchange rate and the compensation mechanisms for the differences between the price at generation level, defined *ex ante* by Osinergmin energy regulator, and the prices of the bidding contracts had an impact. Subsequently, in August, generation prices were revised (quarterly settlement of the February-April 2023 period of the compensation mechanism between regulated users), which resulted in a new tariff reduction. A lower FOSE surcharge factor was also considered, as well as the update of the fixed charge and the distribution added value reflecting the variation of the wholesale price index, the exchange rate, and the prices of copper and aluminum.

Domestic gas prices decreased 8.2 percent due to price band readjustments throughout the period, partially offset by an increase in the packaging, marketing and distribution margin.

Forecasts

88. The BCRP designs and implements its monetary policy actions in response to inflation forecasts and its determinants, taking into consideration all available macroeconomic and financial information. Determinants of inflation include inflation expectations, imported inflation (which brings with it the effect of the exchange rate) and inflationary pressures on both demand and supply. Likewise, part of the process of preparing inflation forecasts includes the quantification of uncertainty through different tools and models and, subsequently, the specification of risk scenarios together with their likelihood of occurrence. The following is the baseline scenario and the balance of risks that could cause an eventual deviation from this scenario.

Graph 83
INFLATION PROJECTION: 2023-2024
(Percentage change last twelve months)
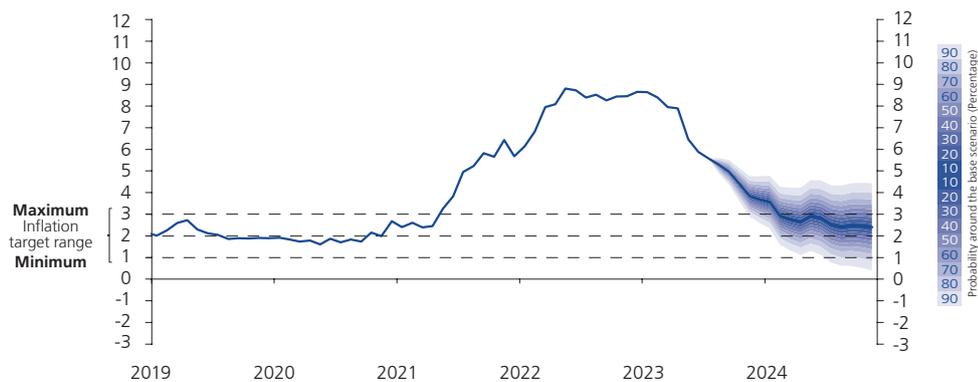
Note: This fan chart presents the distribution of possible inflation forecast values over the projection horizon. Its central line is the mode of the distribution and shows the baseline scenario projection presented in this inflation report. Each pair of bands of the fan (each shade) accumulates a 10% probability and indicates the possible values for the evolution of inflation over the projection horizon associated with this confidence level. Source: BCRP.

An inflation rate of 3.8 percent is expected by the end of 2023, a revision on the upside from expectations in the June report (3.3 percent). This revision is due to adverse weather events that temporarily affect food prices. Trend inflation, measured by the year-on-year change in non-food and energy prices, is expected to return to the target range by the end of this year. Thus, inflation will decline over the projection

horizon, return to the target range in the first months of 2024, and close that year at 2.4 percent.

Graph 84
INFLATION FORECASTS EXCLUDING FOOD AND ENERGY (SAE): 2023-2024
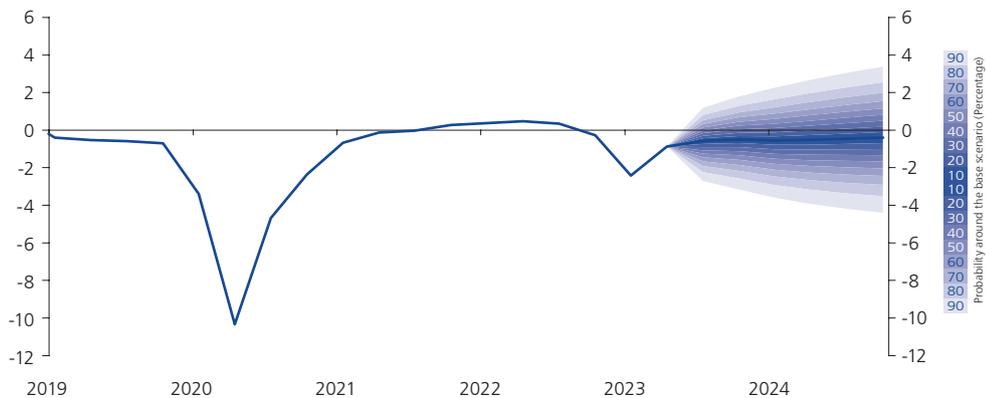(Percentage change last twelve months)
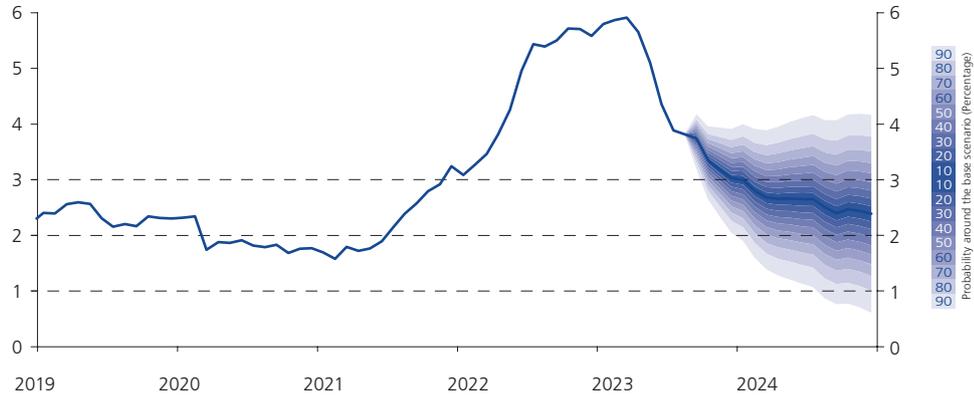
Note: This fan chart presents the distribution of the possible values of the non-food and energy inflation projection (SAE) over the projection horizon. Its center line, the mode of the distribution, shows the baseline scenario projection presented in this inflation report. Each pair of bands of the fan (each shade) accumulates a 10% probability and indicates the possible values for the evolution of inflation SAE over the projection horizon associated with this confidence level.
Source: BCRP.

In addition to the reversal of the effects of weather events, this forecast assumes that the effects of transitory factors such as the exchange rate, international fuel and grain prices dissipate, in a context in which economic activity is approaching its potential level, and inflation expectations show a decreasing trend towards the target range.

89. The low business confidence that has been recorded will gradually recover and the terms of trade are expected to remain at favorable levels. As a result, the output gap is expected to close over the projection horizon.

Graph 85
PROJECTED OUTPUT GAP: 2023-2024
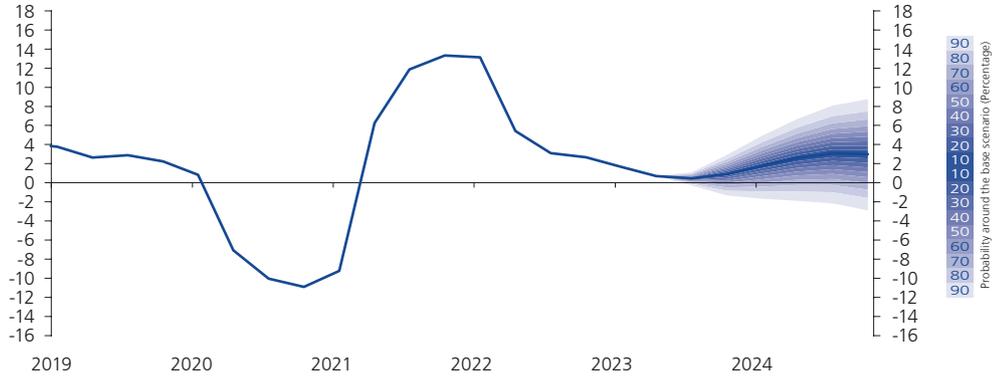(Percentage of potential output, quarterly average)

Note: This fan chart presents the distribution of possible inflation forecast values over the projection horizon. Its central line is the mode of the distribution and shows the baseline scenario projection presented in this inflation report. Each pair of bands of the fan (each shade) accumulates a 10% probability and indicates the possible values for the evolution of output gap over the projection horizon associated with this confidence level.
Source: BCRP.

90. In line with the evolution of the output gap and the estimated potential GDP, a moderate growth in the level of economic activity is expected.

Graph 86
PROJECTED OUTPUT GROWTH: 2023-2024
(Percentage change, 4 quarters moving average)

Note: This fan chart presents the distribution of possible inflation forecast values over the projection horizon. Its central line is the mode of the distribution and shows the baseline scenario projection presented in this inflation report. Each pair of bands of the fan (each shade) accumulates a 10% probability and indicates the possible values for the evolution of output growth over the projection horizon associated with this confidence level.
Source: BCRP.

91. Inflation expectations, estimated on the basis of surveys among financial and non-financial firms, as well as economic analysts, reveal a range for the expected inflation rate between 4.0 and 5.0 percent for 2023 (between 4.9 percent and 6.0 percent in the June 2023 inflation report), and between 2.95 and 4.0 percent for 2024 (between 3.0 percent and 4.0 percent in the June 2023 Inflation Report). Twelve-month inflation expectations in August 2023 declined to 3.36 percent, temporarily above the upper limit of the inflation target range.

Graph 87
TWELVE-MONTH INFLATION EXPECTATIONS
(Percentage points)

Expectations	%
Dec. 22	4.30
Mar. 23	4.30
Jun. 23	3.83
Aug. 23	3.36

Aug.23
3.36

Source: BCRP.

Table 34
INFLATION EXPECTATIONS SURVEY
(Percentage)

	IR Mar.23	IR Jun.23	IR Sep.23*
Financial entities			
2023	5.00	4.90	4.25
2024	3.50	3.50	3.00
Economic analysts			
2023	4.00	4.90	4.00
2024	3.00	3.00	2.95
Non-financial firms			
2023	5.50	6.00	5.00
2024	4.00	4.00	4.00

* Survey conducted as of August 31.
Source: BCRP.

92. Another determinant of inflation is the imported component, which combines the effect of the international prices of the products Peru imports (such as oil, wheat, soybeans and maize) with the effect of the variation of the exchange rate (Peruvian sol against the U.S. dollar).

Thus, average import prices are projected to decrease by 6.5 percent in 2023, mainly due to the reduction in oil prices and some foodstuffs such as maize, wheat and soybeans; while for 2024 an increase of 0.9 percent is expected in these products' prices. The expected exchange rate from surveys as of August ranges between S/ 3.70 and S/ 3.73 for 2023, and between S/ 3.70 and S/ 3.80 for 2024.

Table 35
EXCHANGE RATE EXPECTATIONS SURVEY
(In soles per dollar)

	IR Mar.23	IR Jun.23	IR Sep.23*
Financial entities			
2023	3.85	3.80	3.70
2024	3.85	3.75	3.70
Economic analysts			
2023	3.85	3.70	3.73
2024	3.92	3.80	3.80
Non-financial firms			
2023	3.90	3.80	3.70
2024	3.90	3.80	3.80

* Survey conducted by August 31.
Source: BCRP.

The effects are expected to contribute to the return of inflation to the target range over the projection horizon.

Risks to the inflation projection

93. Risks to the inflation projection are reduced with respect to the June report due to the following shocks:

- **Food and energy price shocks**

  Relatively intense natural phenomena could disrupt some economic activities, the movement of perishable goods and the supply of domestic markets. These potential events could translate into higher food prices and transportation costs. The expected impact of this risk has increased with respect to the June forecast in view of persisting high temperatures and the higher likelihood of a strong or extraordinary El Niño event in the summer of 2024 when the country is more exposed to this climatic phenomenon.

  In addition, geopolitical tensions in both Eastern Europe and China, with a moderate risk of escalation, continue to fuel fears of global food and energy shortages. In addition, recent trade tensions between the United States, China and other economies could generate new risks of supply chain disruptions.

- **Domestic demand shocks**

  New episodes of political instability and social unrest could deteriorate the prospects for growth in consumption and private investment and reduce public spending. Lower public and private investment spending would lead to lower capital accumulation and, therefore, to lower potential growth. The expected impact of this risk has increased since the previous report.
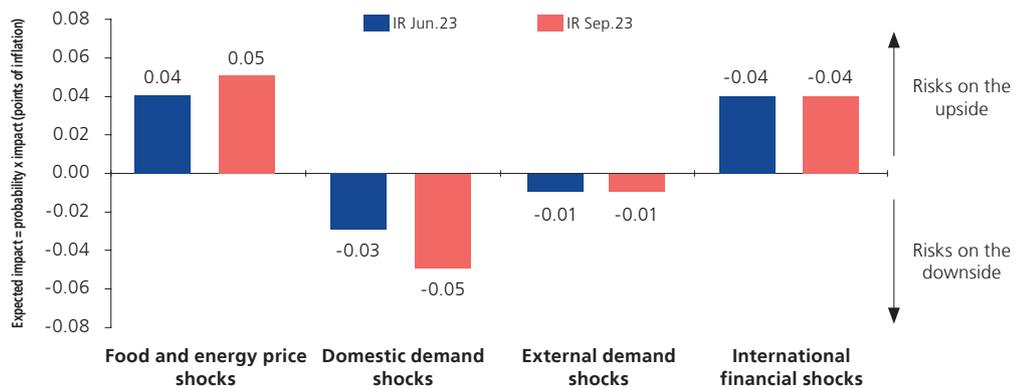
- **External demand shocks**

  There is still a risk of a slowdown in global growth, which would imply a lower demand for our main export products (external demand). This contingent scenario could be generated by: (i) tighter international financial conditions due to banking crises in developed countries or a more accelerated withdrawal of quantitative easing in advanced economies, due to their efforts to control inflation and their possible impact on inflation expectations; (ii) greater geopolitical tensions; (iii) new disruptions in global supply chains (technological war between China and the United States, and trade tensions between the United States, China and other advanced economies); (iv) the impact of inflation on consumption; and (v) the likely slowdown in China's economic growth. The expected impact of this risk remains the same as in the June inflation report.

- **Financial shocks**

  The possibility of higher international interest rates could generate episodes of capital outflows in emerging economies. On the domestic side, new episodes of political uncertainty and social unrest could increase country risk and amplify capital outflows. These factors could generate upward pressure on the exchange rate, thus contributing to higher inflation. The expected impact of this risk remains the same as in the June report.

Graph 88
INFLATION RISKS BALANCE SHEET

Source: BCRP.