banco central Chile

MONETARY POLICY REPORT

DECEMBER 2022

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The Central Bank of Chile's Monetary Policy

Money plays a fundamental role in the proper functioning of any economy. To preserve such role, the monetary policy of the Central Bank of Chile (CBCh) must protect the value of the national currency —the peso—, in its quest to keep inflation low and stable. Achieving this fosters the population's wellbeing by safeguarding their income's purchasing power and making the economy function better. When inflation is low and stable, monetary policy can also moderate fluctuations in employment and production.

The inflation target and the monetary policy interest rate (MPR)

The Bank conducts its monetary policy seeking that, irrespective of the current level of inflation, its forecast for a two-year horizon will be 3%. This is similar to the practice of other countries in the world that have, as does Chile, a floating exchange rate; this is the so-called inflation targeting scheme.

The MPR is the main instrument used by the Bank to achieve the inflation target. Its level is decided at the Monetary Policy Meeting, which is held eight times a year. In practice, the MPR is a reference interest rate to determine the cost of money and other financial prices, such as the exchange rate, and longer-term interest rates, among others. In turn, these variables affect the demand for goods and services and, thereby, prices and inflation. Monetary policy decisions take several quarters to be fully reflected in the economy, which warrants that monetary policy be made from a forward-looking point of view, having as its primary focus the inflation projection two years ahead, and not just today's inflation.

Communication, transparency and the Monetary Policy Report

Since the Central Bank makes its monetary policy decisions autonomously, it must constantly account for them and their results to the general public. This is so not only because it is a government agency within a democratic society, but also because a credible monetary policy, understood by the people, helps to keep inflation low and stable. Through the Monetary Policy Report (MP Report), the Bank communicates to the general public its view of the recent evolution of the economy, its projections for the coming years and the way in which, in this context, it will conduct monetary policy in order to meet the inflation target.

The MP Report is published four times a year (every March, June, September, and December) and is put together by a team of around 60 persons.

Cover picture: Salar de Tara, Región de Antofagasta, Chile. Author: Pierre Mariani Rojas.

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*/ This Report incorporates the monetary policy decision of 6 December. For the central scenario construction purposes, the statistical cut-off date is 30 November. This document was originally written in Spanish. In case of discrepancy or difference in interpretation, the Spanish version prevails.

SUMMARY

The Chilean economy has continued with its adjustment process following the major imbalances it accumulated during 2021. Annual inflation, in line with expectations, peaked in the third quarter. Inflation expectations remain above 3% in the two-year horizon. Private consumption continues to contract after the sharp increases it posted in 2021. Investment, on the other hand, surprised on the upside in the third quarter, concentrated in specific sectors, such as renewable energy, which contributed to a widening of the current account deficit in the third quarter. The world economic outlook is complex, given the high persistence of global inflation and rate hikes by the main central banks. The Board has made a significant adjustment in monetary policy, which has contributed to the gradual easing of inflationary pressures and will allow confront these difficulties from a better position. However, the activity gap remains wide and inflation remains well above the target, both signs that the adjustment process of the Chilean economy is yet to be completed. The Monetary Policy Rate (MPR) is at 11.25% and will remain at that level until the state of the macroeconomy indicates that the convergence process of inflation to the 3% target has been consolidated.

In line with expectations, inflation has retreated slightly in recent months, although its level is still high. Demand-side factors have been receding, reflecting the macroeconomic and consumption adjustment. Although still at high levels, the cost factors that gained strength in recent quarters have begun to ease (Box I.1).

In October, the headline CPI variation was 12.8% annually, while core inflation (i.e., without volatiles) stood at 10.8%. Regarding the latter, the rise in its goods component was lower than expected, despite the depreciation of the peso. The increase in the core CPI for services was somewhat sharper, probably due to levels of inflationary persistence that remain high.

Inflation expectations are still high. Two-year-ahead measures persist above 3%, although with some moderation in the margin. In the one-year term, expectations declined somewhat more, to between 4.5% and 6% in the expert surveys (between 7% and 8% at the statistical cut-off of the previous MP Report).

It is worth noting the drop in world transportation costs, the reduction of bottlenecks and the continued normalization of global supply chains. At the same time, international commodity prices have eased. In our November Business Perceptions Report, the firms perceived moderating cost increases, although the volatility and level of the exchange rate remained a factor of concern. In fact, in recent months the nominal exchange rate has continued to fluctuate significantly. Compared to the previous statistical cut-off, the peso depreciated by around 1%.

In general, third-quarter activity data confirm that the economy continues its adjustment process. Non-mining GDP fell by 0.8% with respect to the previous quarter in its seasonally adjusted series, its second consecutive decline. The decline in trade (-2.8% in the quarter) stands out in this result. Business services were the exception (+1.1%), continuing with the growth trend they have followed for several quarters, explained by the outsourcing of activities. The October Imacec confirmed the downward trend of non-mining activity, with a seasonally adjusted 0.4% decline month-on-month.

On the demand side, gross fixed capital formation (GFCF) showed a much better-than-expected performance in the third quarter. This result was driven by investment in renewable energies and other specific sectors. The latter included the impact of engineering works associated with the final phases of mining projects, higher spending on services, and one-off factors such as bus imports.

The outlook for investment is still weak. The latest Capital Goods Corporation survey foresees declining investment amounts during the period 2022-2025. At the same time, business expectations remain pessimistic. The poor dynamism of the real-estate sector also deserves mention. In any case, long-term interest rates and the levels of local uncertainty have diminished in the last few months, which could help somewhat in the future performance of investment.

Private consumption continued to adjust. It is worth highlighting the further decline in durable goods (-3.8% quarterly seasonally adjusted), which has undone a relevant part of the excessive rise seen in the second half of 2021. Meanwhile, the consumption of non-durable goods continues to adjust downwards, while the consumption of services has continued to grow gradually, consistent with the end of supply limitations after the lifting of sanitary restrictions.

Consumption has been adjusting in a context in which liquidity has been normalizing, job creation is slow and real wages have been falling for almost a year. Total employment and the labor force have shown low dynamism during 2022. In the most recent period, the decrease in formal employment stands out, offset by a higher share of informal and self-employment. Some labor market indicators point to a future deterioration. Vacancies have decreased and the employment outlook for companies and consumers remains weak.

The current account deficit rose to 9.9% of GDP in the last moving year, which is high, and associated with both a decrease in private savings and an increase in investment. In a context where consumption has been adjusting, the lower private savings can be largely explained by the negative effect of the worsened terms of trade on national income. The higher investment, as already mentioned, is mainly related to the dynamism of the machinery and equipment component. The still high transportation costs have also contributed. Going forward, it is expected that these phenomena will be reversed via an additional adjustment in consumption and investment, under the assumption that the policies that spurred the sharp fall in national savings will not be repeated.

On the external front, world inflation is still high, but has moderated somewhat in some countries. The high numbers are concentrated mainly in the core component of inflation, which in several economies has been driven by strong services sectors. In the U.S., for example, the continuing tight conditions and high wage pressures in the labor market stand out (Box I.2).

Central banks have reinforced the contractionary nature of their monetary policies, particularly in developed economies, whose monetary adjustment processes began later. The Fed and the ECB, along with significant hikes in their policy rates, have signaled a more protracted tightening than expected a while back. In Latin America, most central banks have continued to raise interest rates, with the exception of Chile and Brazil. Overall, market expectations suggest that rate hike cycles are nearing completion in a significant group of emerging economies. In addition, in several of them rate cuts are expected during 2023, particularly in those that started raising rates earlier. In this context, global financial markets continue to show significant volatility.

The domestic financial market has been adjusting to a lower risk scenario, with a significant drop in nominal interest rates. Compared with early September, 10-year nominal yields fell by 125 basis points (bp). Shorter term rates —1- and 2-year swap rates— fell by around 250bp in the period. At the same time, the spread with respect to international rates decreased significantly. The decomposition of long-term interest rates shows a growing preponderance of external risk factors, while domestic risk factors have decreased. In any case, real rates show movements of a smaller magnitude.

Local bank credit continues to show low dynamism, amid a tight supply and limited demand. The different lending categories show low annual variations by historical standards, with interest rates remaining high. The third-quarter Bank Credit Survey notes that credit granting conditions have become more constrained, amid limited demand.

Structural parameters

As pointed out in September, for this Report the Board updated the structural parameter estimation used in its medium-term projections.

In line with the June 2021 forecast, trend non-mining GDP growth is expected to continue to decline throughout the period 2023-2032. In the nearest years, this trend is related to the fact that some variables, such as hours worked and the participation rate, are already significantly ahead in their post-pandemic recovery. Accordingly, from now onwards they will no longer contribute as significantly to trend growth. Towards the end of the period, the convergence of hours worked to the OECD average becomes more important, which will reduce the contribution of the labor factor. Total factor productivity growth is still estimated to be low, based on the consolidation of a downward trend. In any case, for the period 2023-2032, the trend growth of non-mining GDP will average 2.2% (Box II.1).

The neutral monetary policy rate is estimated to be 3.75%, within a 3.5% to 4% range (+25bp with respect to the previous estimate). This increase is consistent with the recent reversal of neutral rates in other economies, which altered the downward trend shown by international rates (Box II.2).

Projections

The central scenario foresees that headline inflation will continue to decline in coming quarters, to converge to 3% by the second half of 2024. Core inflation is projected to decline somewhat more slowly, reaching 3% by the end of 2024.

Inflation forecast for the end of 2022 and the year 2023 is revised slightly upward with respect to the previous Report. By the end of this year, annual inflation is expected to stand at 12.3% (12% in September). By 2023, total inflation is projected to average 6.6%, ending the year at 3.6% (6.1% and 3.3%, respectively, in September). This revision considers the surprise accumulated in recent months and a slower decline of the real exchange rate (RER) over the projection horizon. Regarding the latter, it is assumed that the RER will remain around its current levels in the coming quarters, contributing to the adjustment of local imbalances, and then begin to decline, in line with the adjustment of imbalances and the convergence of other fundamentals.

The convergence of inflation continues to rely on the further adjustment of the economy. In the central scenario, activity is still foreseen to contract for several quarters. With this, the activity gap will turn negative by the beginning of 2023, remaining at these values until the end of the policy horizon, which is necessary for inflation to converge to the target. In the central scenario, GDP will grow 2.4% in 2022, fall between -1.75% and -0.75% in 2023 and increase between 2 and 3% in 2024. The upward revision for 2022 is based on actual data, while the bulk of the downward correction for 2023 and 2024 responds to the new assumption for trend growth.

The projection continues to assume consumption and investment will see negative variation rates in 2023. This reflects a labor market that has lost strength, pessimistic household and business expectations, a high RER and tighter financial conditions for all credit segments. On the fiscal side, it considers spending in line with the approved budget for 2023, which defines a consolidation path for the following years.

The current account deficit will descend in the coming quarters, in a context where the economy resumes the balance between savings and investment. The reduction in the high transportation costs will also contribute. In the central scenario, the current account will close 2022 with a deficit of 8.7% of GDP, a figure that will fall to 4.9% in 2023 and 4.1% in 2024.

The impulse that the Chilean economy will receive from abroad is reduced from the September forecast. In a context of more contractionary monetary policies in the developed world, global growth prospects have deteriorated again. In the central scenario, in line with market consensus forecasts, the United States and the Eurozone are expected to enter a recession in 2023. With this, Chile's trading partners will grow 2.1% next year (2.6% in September). Commodity prices are still expected to be on a downward trajectory with respect to their current levels. For copper, average prices of US$3.55 and 3.45 are foreseen for the next two years, and for oil, prices of around US$80 are forecast for the same period.

Monetary policy has made a significant adjustment and is facilitating the resolution of the imbalances present in the economy. However, inflation remains very high and its convergence to the 3% target is still subject to risks. The Board will maintain the MPR at 11.25% until the state of the macroeconomy indicates that this process has been consolidated.

The borders of the MPR corridor reflect scenarios where the speed of the inflation convergence process allows for earlier or later adjustments of the rate with respect to the central scenario estimate. A relevant factor is the assessment of inflationary persistence, either by the magnitude and sign of new inflation surprises or by the degree of adjustment of expectations. Scenarios where these variables denote a lower (higher) inflationary persistence could lead to a sooner (later) than expected process of MPR reduction. Another relevant factor would be the speed of the economy's adjustment. The external scenario has seen steady deterioration, and household and business expectations are in pessimistic territory. In this context, a faster adjustment of the economy leading to an earlier reduction of the MPR cannot be ruled out. In any case, the opposite scenario cannot be ruled out either, since demand, particularly investment, has been slightly more dynamic than expected in recent times. The Board estimates that the lower and upper bounds of the MPR corridor, respectively, capture the alternative MPR trajectories associated with these events.

As for risks, the external scenario has become a major source of concern and events leading to a major disruption of financial conditions and an abrupt deterioration of external impulse should not be disregarded. In such case, the short-term inflationary effects could be considerable —due to the global appreciation of the dollar—, although mitigated in the medium term by their impact on growth. On the other hand, measures that prevent the expected adjustment in spending, and give a new impulse to inflation, would lead to MPR hikes to ensure the convergence of inflation to the target.

The Chilean economy is in the process of resolving its macroeconomic imbalances and has the task of rebuilding the buffers that have allowed it to mitigate the impacts of external shocks in the past. For the same reason, it is particularly important that all economic policies point in the same direction, and that priority be given to those aimed at promoting savings. The economy's ability to make a rapid, orderly adjustment at the lowest possible cost depends critically on the coherence of the decisions of the different agents involved. In the case of the Central Bank, the Board will keep the monetary policy rate at its current level until the state of the macroeconomy indicates that the convergence process of inflation to the target has been consolidated.

TABLE 1 : INFLATION (1)
(annual change, percent)

	2021	2022 (f)		2023 (f)		2024 (f)	
	MP Rep.	MP Rep. Sep.22	MP Rep. Dec.22	MP Rep. Sep.22	MP Rep. Dec.22	MP Rep. Sep.22	MP Rep. Dec.22
Average CPI	4.5	11.4	11.6	6.1	6.6	3.1	3.2
December CPI	7.2	12.0	12.3	3.3	3.6	3.0	3.0
CPI in around 2 years (2)						3.0	3.0
Average core CPI	3.8	9.2	9.3	7.3	7.5	3.5	3.8
December core CPI	5.2	10.5	10.4	4.7	5.3	3.0	3.0
Core CPI around 2 years (2)						3.1	3.0

(1) Core inflation is measured using the CPI without volatiles.

(2) For September 2022 MP Report corresponds to inflation forecast for the third quarter of 2024, for December to inflation forecast for the fourth quarter of 2024.

(f) Forecast.

Sources: Central Bank of Chile and National Statistics Institute (INE).

TABLE 2 : INTERNATIONAL BASELINE SCENARIO ASSUMPTIONS

	2021	2022 (f)		2023 (f)		2024 (f)	
	MP Rep.	MP Rep. Sep.22	MP Rep. Dec.22	MP Rep. Sep.22	MP Rep. Dec.22	MP Rep. Sep.22	MP Rep. Dec.22
			(annual change, percent)				
Terms of trade	11.8	-5.6	-6.5	-2.6	-1.1	-0.3	0.4
Trading partners (e)	6.4	2.6	3.0	2.6	2.1	3.1	2.7
World GDP at PPP	6.3	2.5	3.2	2.4	1.9	3.2	2.8
Developed GDP at PPP (e)	5.2	2.3	2.5	0.7	-0.1	1.7	1.3
Emerging GDP at PPP (e)	7.1	2.7	3.7	3.4	3.1	4.2	3.7
				(levels)			
LME copper price (US$cent/pound)	423	400	400	350	355	340	345
Oil price, average WTI-Brent (US$/barrel)	69	100	98	89	81	81	76

(f) Forecast.

Source: Central Bank of Chile.

TABLE 3 : INTERNAL SCENARIO

	2021	2022 (f)		2023 (f)		2024 (f)	
	MP Rep.	MP Rep. Sep.22	MP Rep. Dec.22	MP Rep. Sep.22	MP Rep. Dec.22	MP Rep. Sep.22	MP Rep. Dec.22
GDP	11.7	1.75-2.25	2.4	-1.5/-0.5	-1.75/-0.75	2.25-3.25	2.0-3.0
Domestic demand	21.6	1.2	2.5	-4.7	-5.3	2.2	1.7
Domestic demand (w/o inventory change)	18.0	0.9	3.2	-4.6	-4.6	2.6	1.9
Gross fixed capital form	17.6	-3.3	2.9	-4.7	-5.0	2.9	-0.2
Total consumption	18.2	2.2	3.3	-4.6	-4.5	2.4	2.5
Private consumption	20.3	1.4	2.7	-5.7	-5.9	2.5	2.5
Goods and services exports	-1.5	1.3	0.9	5.5	6.0	3.0	3.2
Goods and services imports	31.3	-1.4	1.1	-5.5	-5.4	1.2	0.9
Current account (% of GDP)	-6.6	-6.3	-8.7	-3.6	-4.9	-3.3	-4.1
Gross national saving (% of GDP)	18.8	18.9	17.7	20.0	20.2	19.9	19.8
Gross fixed capital formation (% of nominal GDP)	24.0	23.5	25.6	22.2	24.3	22.2	23.8

(f) Forecast.

Source: Central Bank of Chile.

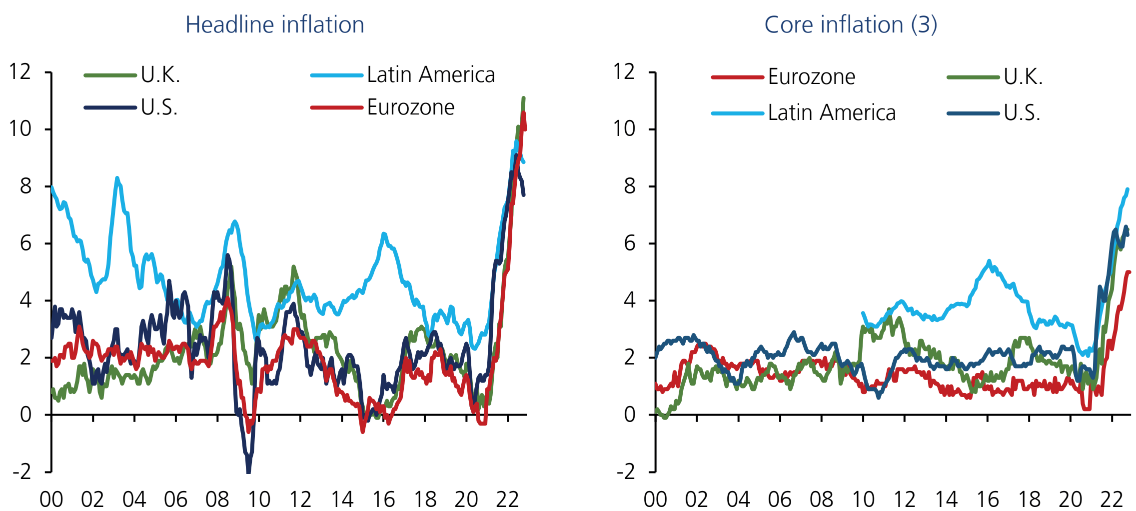
I. RECENT EVOLUTION OF THE MACROECONOMIC SCENARIO

World inflation remains high and central banks have reasserted a more contractionary stance for their monetary policies, especially the U.S. Federal Reserve (Fed). In this context of high volatility in recent months, financial conditions have remained tight and global growth prospects have worsened for 2023-24. Locally, the economy has proceeded with the adjustment process that began earlier this year and inflation has begun to decline in line with expectations. Private consumption continues to contract after the sharp increases of 2021. Investment has been unexpectedly strong lately, particularly in some sectors, although its outlook remains weak. The greater dynamism of this spending component explains most of the increase in the current-account deficit —accumulated over the last rolling year— in the third quarter. In sum, the developments of the last few months maintain the view that the economy will continue to lose momentum in the coming quarters, as it advances in the adjustment process necessary for the resolution of the macroeconomic imbalances accumulated over the past year.

THE INTERNACIONAL SCENARIO

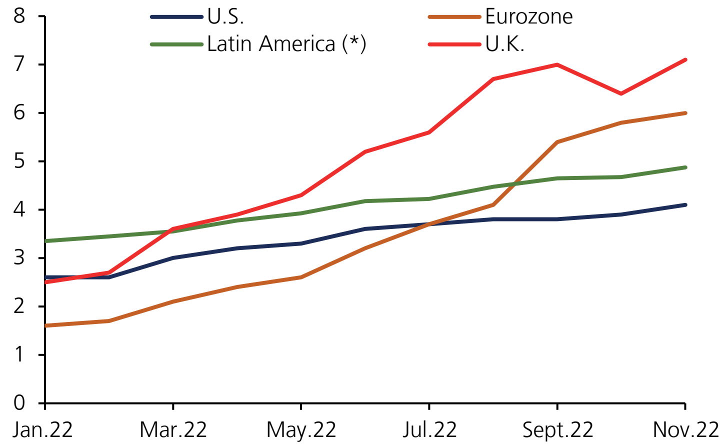
Global inflation has remained high, beyond some moderation in some countries (figure I.1). These high records have spread to the core component of inflation and have been driven by increases in the prices of services. In the U.S., this is partly explained by high wage pressures in a context where the labor market continues to be significantly tight. In the U.K., headline inflation rose again, to levels not seen in more than four decades. In the Eurozone, inflation has remained high and has spilled over to CPI items with increased persistence. In Latin America, overall, total inflation has declined, although its core component has continued to rise in several economies. Colombia stands out, where inflation indicators have risen across the board. In Brazil, in contrast, there have been significant reversals in recent months, largely due to the temporary reduction in fuel taxes. All in all, the global outlook for inflation is that it will remain high through 2023 and that its downward path will be gradual (figure I.2).

FIGURE I.1 WORLD INFLATION (1) (2)
(annual change, percent)



(1) For Latin America, simple average of annual inflation of Brazil, Mexico, Peru, and Colombia is considered. (2) For the Eurozone, the November figure is preliminary. (3) Excludes foods and energy.
Source: Bloomberg.

FIGURE I.2 INFLATION FORECASTS FOR 2023
(average annual change, percent)

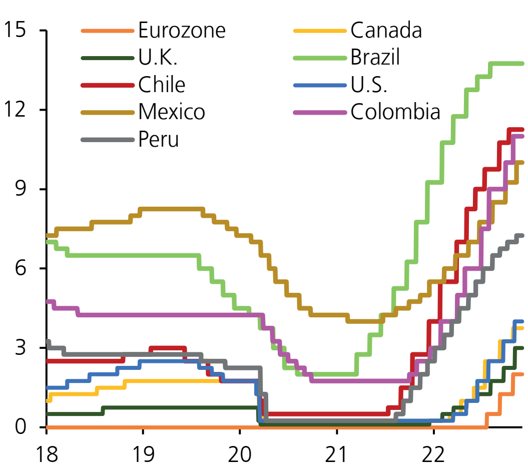


(*) Simple average of annual inflation expected at December 2023 in Brazil, Colombia, Mexico and Peru.
Source: Consensus Forecasts.

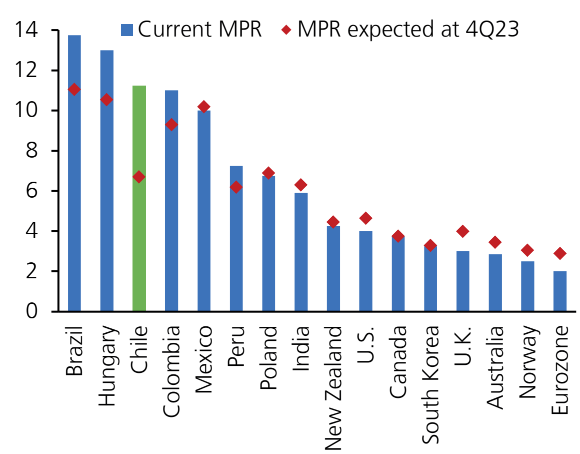
Central banks have enhanced the contractionary nature of their monetary policies, particularly in developed economies, where monetary adjustment processes began later (figure I.3). The Fed and the European Central Bank, together with significant increases in their benchmark rates, have given signs that the tightening will be more prolonged than was expected some months ago. In Latin America, most central banks have further raised their interest rates, albeit with more moderate adjustments than those observed months ago. Brazil —whose central bank halted rate hikes in September and has not ruled out resuming them if needed— and Chile have been the exceptions. In general, expectations point to the rate hike cycles are coming to an end in a significant group of emerging economies, with a number of them expected to cut their rates during 2023.

FIGURE I.3

Monetary policy rates (MPR)
(percentage points)



Global policy rates and expectations
(percentage points)

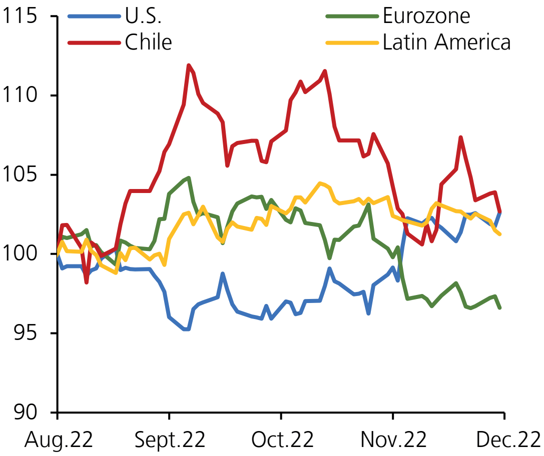


Source: Bloomberg.

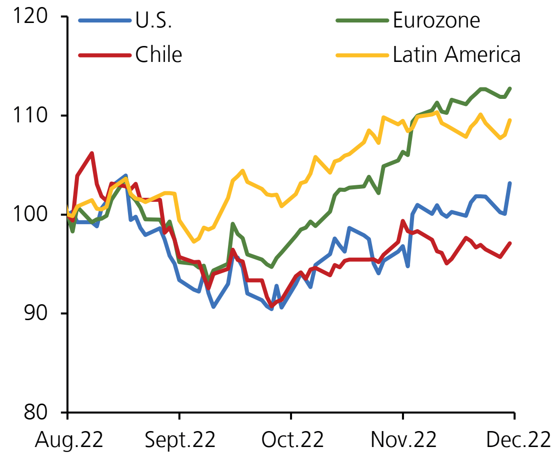
Global financial markets have reacted to the greater monetary tightening, mainly by the Fed, as well as to fears of a global recession. Market volatility has remained high (figure I.4). Markets continue to show high sensitivity to data releases and statements by authorities. Since the September Report, short and long-term interest rates have risen in a significant number of economies. The dollar has fluctuated significantly during the period, with a depreciating trend in recent weeks that has strengthened the rest of the currencies. Stock markets have evolved heterogeneously, with upward movements in recent weeks, reflecting an increase in global risk appetite, which seems consistent with the current inflationary and macroeconomic context.

FIGURE I.4 FINANCIAL CONDITIONS

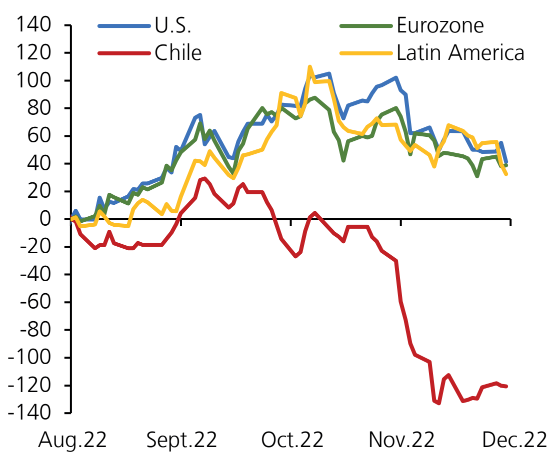
Currencies (1) (2) (3)
(index, 31.Aug.22=100)



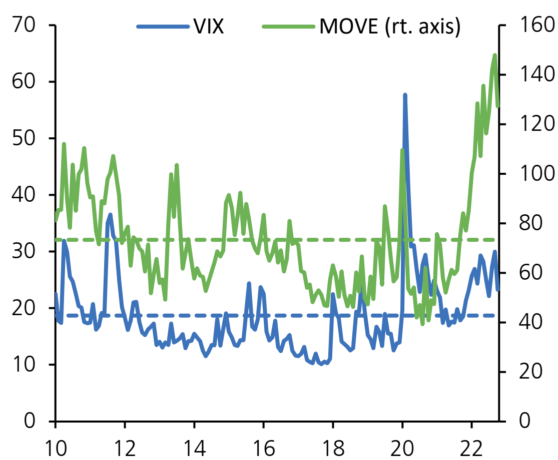
Stock markets (1) (2)
(index, 31.Aug.22=100)



Interest rates on nominal 10-year bonds (1) (2)
(difference with respect to 31.Aug.22, basis points)



Financial volatility (4) (5)
(index)

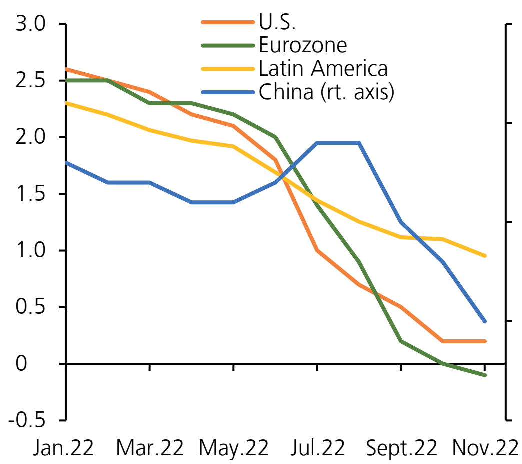


(1) Considers movements from the statistical closing of the September Report (31 August). (2) For Latin America, simple average of Brazil, Mexico, Colombia and Peru. (3) Higher (lower) index represent a deppreciation (appreciation). For the U.S., the U.S. Dollar Index is used. (4) Dashed horizontal lines represent historical averages between 2010 and 2022 for each index. (5) The VIX index measures volatility implicit in options on the one-month U.S. S&P500. The MOVE index measures the volatility implicit in options on the U.S. Treasury bond with different durations at one month.
Source: Bloomberg.

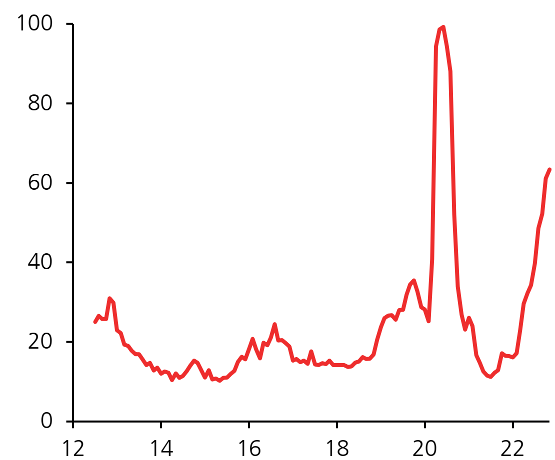
The outlook for global growth in 2023 is downgraded again, despite positive surprises in actual data for several economies (figure I.5). In the U.S., high inflation, a longer-lasting contractionary monetary policy and tight financial conditions have contributed to reduced growth expectations for next year. In the Eurozone, uncertainty about the war in Ukraine continues to affect expectations about the availability of energy and, hence, the impact it would have on activity. In addition, real incomes are falling and confidence levels remain low. In China, the view of lower potential growth has been taking hold. This combines the problems and uncertainty surrounding the real-estate sector, the effects of the zero-Covid policy, and the impact that weak global demand will continue to have on the export sector. In Latin America, the outlook is somewhat more pessimistic, in a context of unfavorable financing conditions and where a worsened performance of trading partners is expected, together with falling commodity prices and domestic tension risks that remain latent in various countries. All of the above is taking place in circumstances where fiscal policy, in general, will be no significant source of global impulse.

FIGURE I.5

Growth forecasts for 2023 (1)
(percent)



Probability of a recession within 12 months in developed economies (2)
(percent)



(1) Latin America considers Brazil, Argentina, Peru, Colombia, and Mexico. PPP-weighted growth, shares of each economy according to WEO (IMF). (2) Includes the U.S., U.K., Germany, France, and Japan. Calculated using averaged responses to surveys in countries included, PPP-weighted according to WEO (IMF).
Sources: Consensus Forecasts, IMF and Bloomberg.

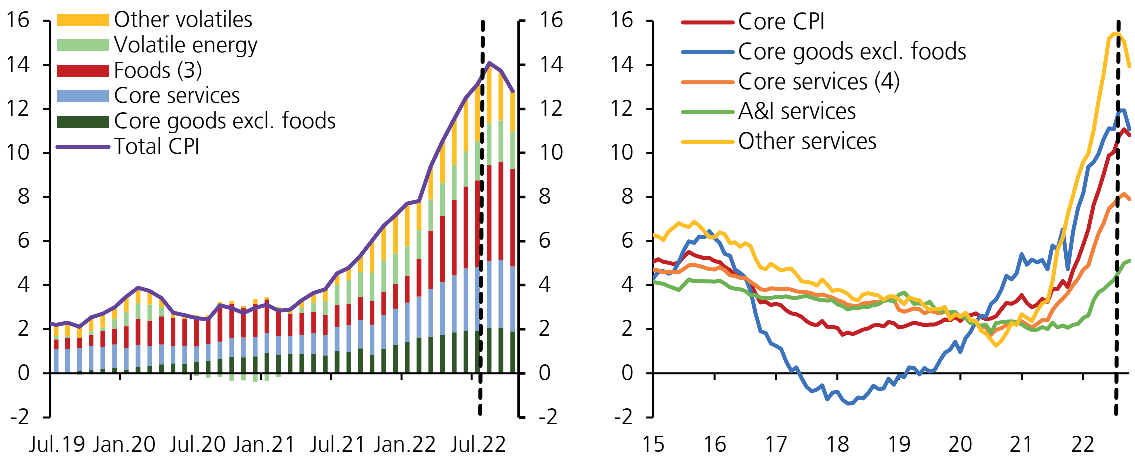
THE DOMESTIC SCENARIO

As expected, local inflation declined to 12.8% annually in October. Core inflation —measured by the CPI minus volatiles— reached 10.8% annually in the same month, slightly below the September level (figure I.6). In the recent evolution of prices, the deceleration of core goods —excluding foods—, a group that posted negative monthly variation during October, stood out. Core services, on the other hand, have shown somewhat more persistence, which to some extent responds to price indexation. In fact, indexed items have continued on an upward trend. As for volatile items, foods have maintained its high impact on annual inflation, while the contribution of energy has been slightly reduced in the margin.

FIGURE I.6

Inflation indicators (1) (2)
(contribution to annual change, percentage points)

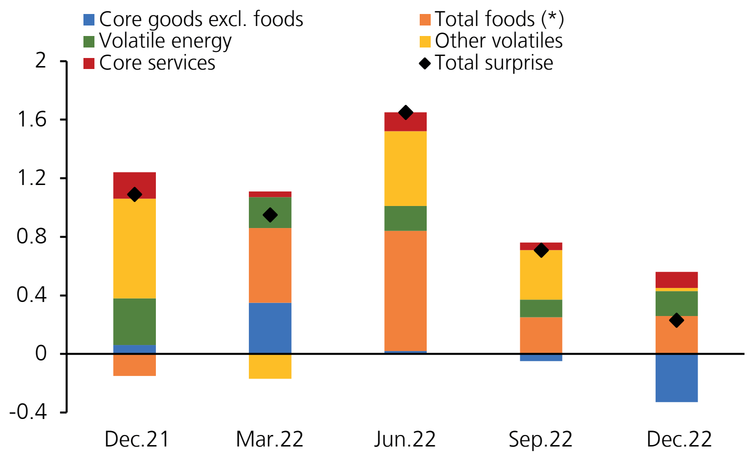
Core inflation (1)
(annual change, percent)



(1) Dashed vertical line indicates statistical closing of September 2022 Report. (2) For more detail on the different groupings and their shares in the total CPI basket, see box IV.1 in December 2019 Report, Carlomagno and Sansone (2019), and Economic Glossary. (3) Considers sum of volatile and non-volatile foods. (4) Sum of Administered and Indexed services (A&I) and Other services.
Sources: Central Bank of Chile and National Statistics Institute (INE).

The magnitude of inflationary surprises decreased significantly in recent months, with differences that, on aggregate, are concentrated in volatile items (figure I.7). Between August and October, inflation accumulated 0.23 percentage points (pp) more than estimated in the last Report. This surprise was mainly explained by higher prices of different food items and fuels, the latter affected by the pass-through of a higher exchange rate than assumed in the September Report. There was a significant downward surprise in core goods —excluding foods— inflation, which was mostly associated with automobile prices. Core services, on the other hand, came in above expectations and explain the remaining surprise.

FIGURE I.7 CUMULATIVE INFLATIONARY SURPRISES IN EACH MP REPORT
(percentage points)



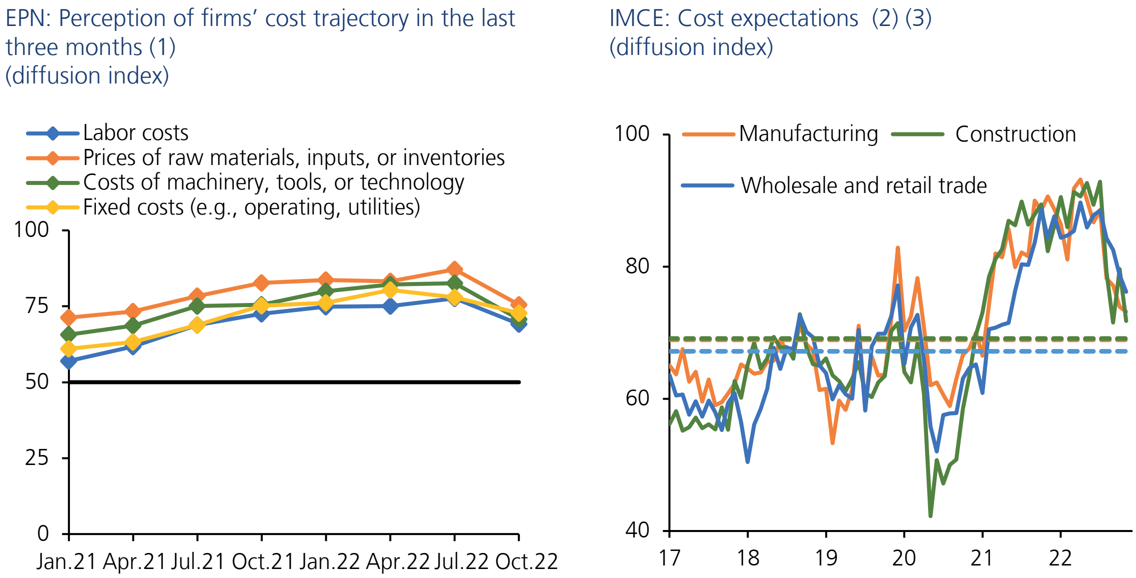
(*) Sum of volatile and non-volatile foods.
Sources: Central Bank of Chile and National Statistics Institute (INE).

Costs have shown some moderation lately, but are still high (figure I.8). The INE's industrial producer price index dropped in annual terms and posted a variation of 13.7% in October. The transportation cost index moderated its annual change in October and reached 28%, slightly below its September figure, and continued to be driven by fuel prices. In the November Business Perceptions Report (IPN), companies reported that the cost pressures seen in previous quarters began to ease, but were still a burden. In addition, some respondents commented on the negative impact that exchange rate fluctuations were having on their costs. Looking forward, the IMCE cost outlook has shown significant declines from the peaks of a few months ago, especially in manufacturing and construction.

Commodity prices have fallen from their highs seen in the first half of the year, although they remain high by historical standards. This occurs in a scenario where weak expectations for world activity combine with markets in which supply constraints persist (figure I.9). The price of oil has shown great volatility and trades around US$82 per barrel (-14% since the September Report for the WTI-Brent average). The context is one in which the outlook for world demand for crude oil has been adjusted downwards, although with still tight inventories while OPEC+ agreed to implement new production cuts. Metal prices have also fallen from their highs seen in the first half of the year. At the close of this Report, the pound of copper was trading around US$3.6.

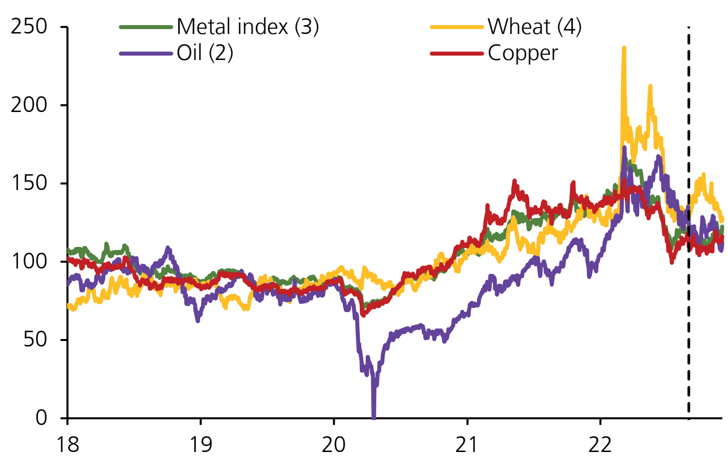
With respect to foods, the FAO index is somewhat below its level at the close of the previous Report, and below the historical high it reached last March. Most recently, better supply prospects prevailed for a number of products. Lower commodity prices have counterbalanced their transmission to local prices by exchange rate movements. Compared to the September Report statistical close, the peso depreciated by around 1%, although in the days prior to the publication of this Report it was below CLP 900.

FIGURE I.8 COST PRESSURES



(1) Value above (below) 50 denotes higher proportion of "have increased" ("have decreased") responses. Responses weighted by firm size. The weighting by size incorporates the economic importance of firms in the index, giving greater weight to the responses of firms with a larger share of value added. (2) Value above (below) 50 indicates prospects for expansion (contraction). (3) Dashed horizontal lines indicate historical averages between January 2004 and November 2022.
Sources: Central Bank of Chile and Icare/Universidad Adolfo Ibáñez.

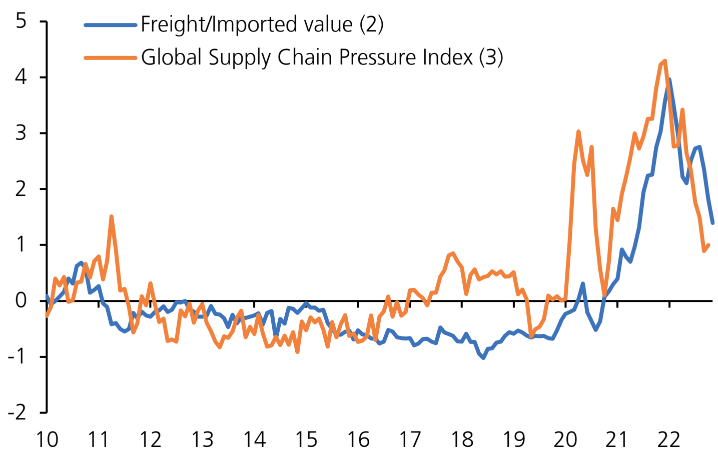
FIGURE I.9 COMMODITY PRICES (1)
(index, average 2010-2022=100)



(1) Dashed vertical line indicates statistical closing of September 2022 Report. (2) WTI-Brent average. (3) S&P GSCI Industrial Metals. (4) One-month futures prices.
Source: Bloomberg.

Global supply chains have continued to normalize, which has also taken some pressure off external costs (figure I.10). Bottlenecks have been shrinking as global demand for goods has weakened further. The recent lifting of mobility restrictions in China has also contributed, although many of them have been reinstated due to the increase in contagions over the past few weeks.

FIGURE I.10 TRANSPORTATION COSTS AND BOTTLENECKS (1)
(standard deviations)

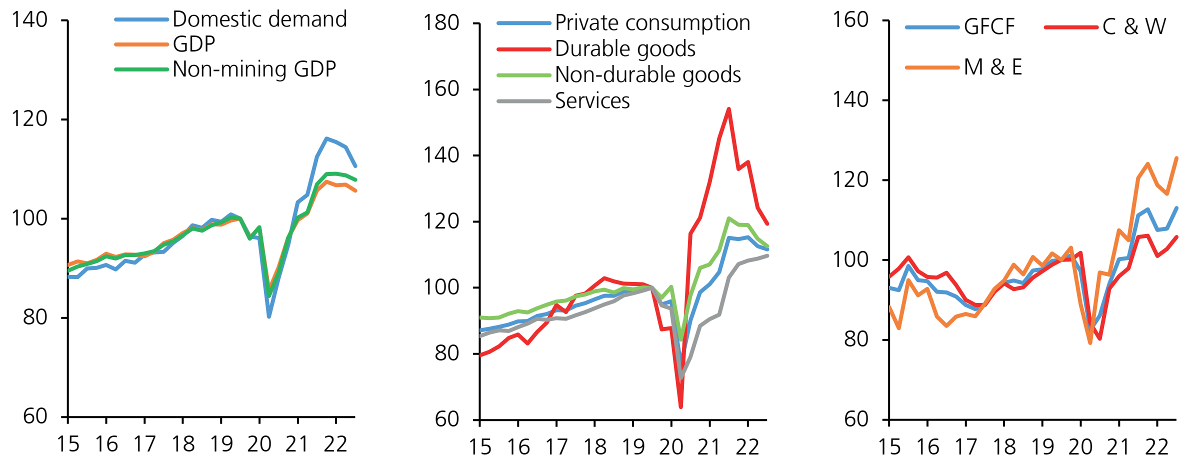


(1) Standard deviations with respect to its average. (2) This study is part of the research agenda developed by the Central Bank of Chile on economic and financial matters within its area of competence. Under the framework of this agenda, the Bank has access to anonymous information from various public and private entities, by virtue of collaboration agreements signed with those institutions. (3) For further details, see Global Supply Chain Pressure Index.
Sources: Central Bank of Chile based on microdata from Chile's National Customs Service, and Fed NY.

Activity has continued the adjustment process necessary to resolve the macroeconomic imbalances accumulated over the past year. The seasonally-adjusted series of non-mining GDP fell by 0.8% from the previous quarter, its second consecutive drop (figure I.11). This decline was seen in most sectors, especially trade, where activity fell 2.8% in the quarter. Entrepreneurial services were the exception and grew by 1.1%, continuing the growth trend it began in mid-2020, which could be reflecting a structural change in the operation of firms towards greater automation and outsourcing of productive processes. Meanwhile, in its seasonally adjusted series, mining activity registered a quarterly decline of 3.3%, related to operating problems at Codelco. The seasonally-adjusted non-mining Imacec fell 0.4% in October, confirming the downward trend in activity.

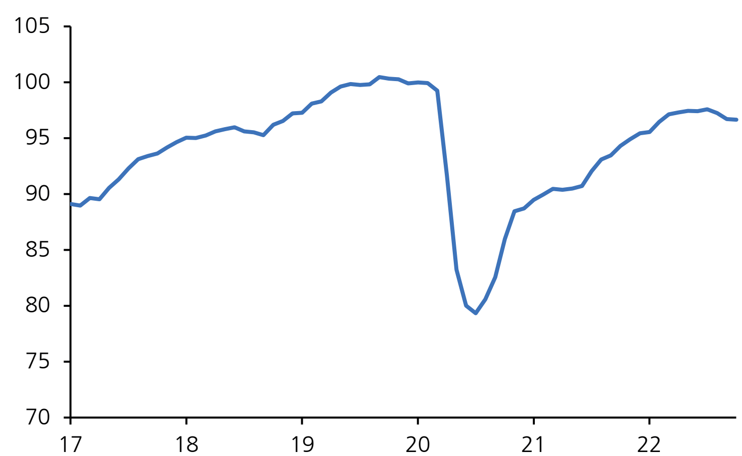
Private consumption has continued to moderate following the peaks it reached in 2021, in line with the evolution of its fundamentals (figure I.11). National accounts data reflect a new quarterly decline in household consumption, which fell 0.8% in seasonally-adjusted terms. The fall was concentrated in goods, especially durables (3.8% quarter-on-quarter, seasonally adjusted), which have undone a significant part of the excessive rise they showed in 2021. Partial fourth-quarter data, retail trade and digitally invoiced sales, suggest that goods consumption continued to decline. As for services consumption, it has continued to grow, in line with the end of supply constraints following the lifting of sanitary constraints. This result comes amid greater caution on the part of consumers (November IPN), normalization of liquidity, and a real wage bill that has shown little change in several months (figure I.12).

FIGURE I.11 ACTIVITY INDICATORS
(index, 2019Q3 =100, seasonally-adjusted series)



Source: Central Bank of Chile.

FIGURE I.12 REAL WAGE BILL (*)
(index, Jan.20 = 100, seasonally-adjusted)

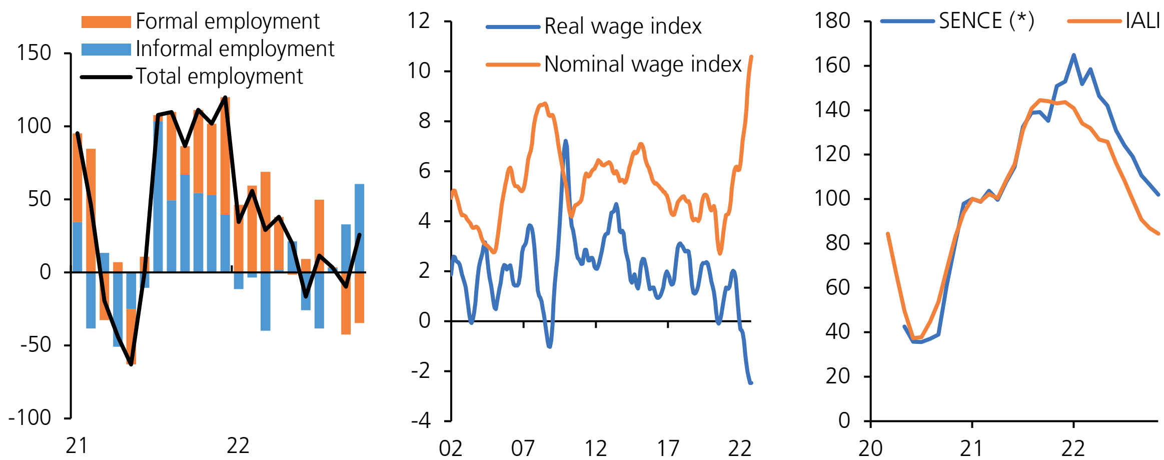


(*) Calculated using seasonally-adjusted real compensation index (IREM) series, usual hours worked, and employment.
Source: Central Bank of Chile based on National Statistics Institute data.

In the labor market, job creation remains slow and real wages continue to decline (figure I.13). Total employment and the labor force have remained mostly unchanged during the last few months. However, there has been a decrease in formal salaried employment, which has been offset by a greater share in the other occupational categories, particularly informal salaried employment and self-employment. The fall in real wages has deepened. Some indicators suggest that the labor market will likely deteriorate going forward. Thus, job vacancies have decreased as per the Online Job Postings Index and data from the Sence Labor Observatory; the employment outlook for businesses and consumers remains weak according to data from the EPN, the IMCE and the IPEC.

FIGURE I.13 LABOR MARKET INDICATORS

Formal and informal employment (moving quarter change, thousands) | Compensation index (percent, annualized quarterly velocity, moving annual average) | Labor demand (index, Jan.2021 = 100, moving 3-month average)



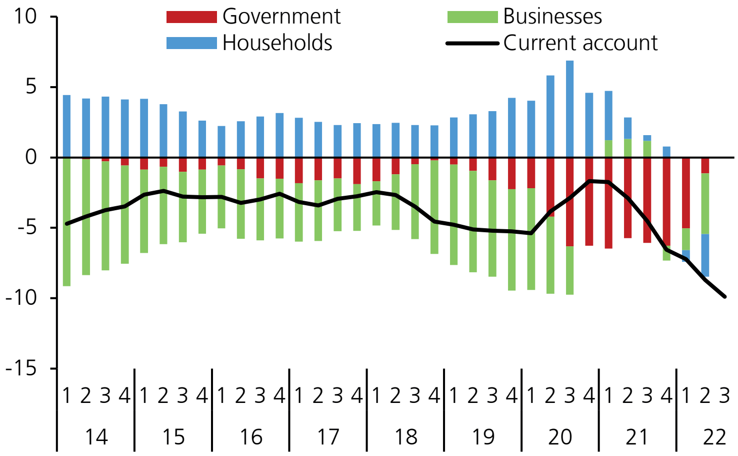
(*) Information from the Labor Market Analysis System, Sence Labor Observatory. The indexes were constructed using information from trabajando.com and laborum.cl with nationwide coverage. The number of ads corresponds to ads published by firms. Latest data available as of 30 November.
Sources: System of Employment Agency Analysis, Sence Labor Observatory, INE, and Central Bank of Chile.

Investment has been more dynamic than was assumed in the last MP Report (figure I.11). Third-quarter investment data surprised with higher-than-expected growth, rising 4.7% q-o-q in its seasonally adjusted series. This growth was seen both in machinery and equipment (7.6%) and in construction and other works (2.9%). Regarding the former, the surprise came largely from projects associated with transportation and renewable energies, in a context in which non-conventional energies continue to gain share in the national energy matrix. As for construction and other works, the greater dynamism was mainly related to increased spending on services and engineering works associated with the terminal phases of mining projects.

Recently, the current account deficit has been persistently high, at 6.6% of GDP in 2021 and 9.9% of GDP (accumulated in twelve months) in the third quarter of 2022. This is due, on one hand, to a notorious decrease in national savings after the fiscal support and pension fund withdrawal measures implemented from the second half of 2020 onwards. Added to this are the effects of the fall in the terms of trade, high transportation costs, logistical problems in international trade, and soaring commodity prices. On the financial account side, the bigger deficit is linked to the significant increase in portfolio investment and other investments during 2021, and to the increase in foreign direct investment during 2022 (figure I.14). This, in a context where imports have been more dynamic than expected, especially in investment-related lines.

These high levels of the current account deficit are expected to be temporary. The factors behind the loss of national savings have been receding. Going forward, these phenomena are expected to be reversed via further adjustments in consumption and investment, under the assumption that the policies that spurred the sharp drop in national savings will not be repeated. The current-account deficit is projected in this Report to decline substantially in the period ahead, to 4.9% and 4.1% of GDP in 2023 and 2024, respectively.

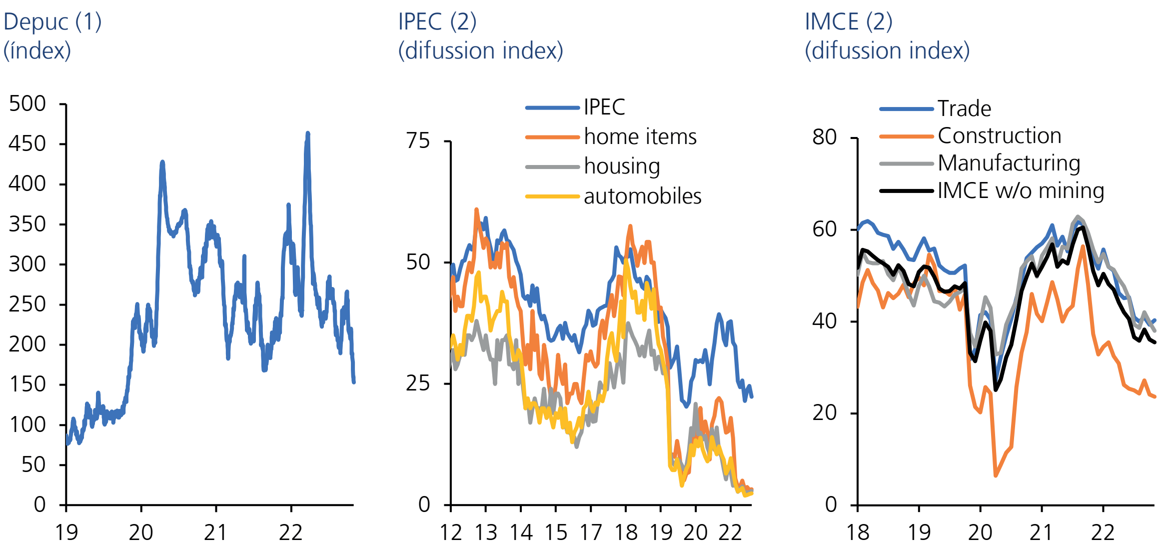
FIGURE I.14 CURRENT ACCOUNT: SAVINGS MINUS INVESTMENT BY INSTITUTIONAL SECTOR
(percent of nominal GDP, moving year)



Source: Central Bank of Chile.

Local uncertainty has decreased, but market agents remain pessimistic according to different indicators (figure I.15). In recent months, the Index of Economic and Political Uncertainty (Depuc) has decreased significantly, while companies indicate that their reluctance to invest associated with political uncertainty (EPN) has subsided. Even so, business and consumer perceptions of the economy remain negative. The Economic Perception Index (IPEC) remains near the lows it saw in the most acute phases of the pandemic. The same index reveals low willingness to purchase durable goods, such as household items, vehicles, and housing. At the same time, business confidence (IMCE) remains deteriorated in all sectors, led by construction which presents the most negative outlook.

FIGURE I.15 UNCERTAINTY AND PERCEPTION ABOUT THE ECONOMY

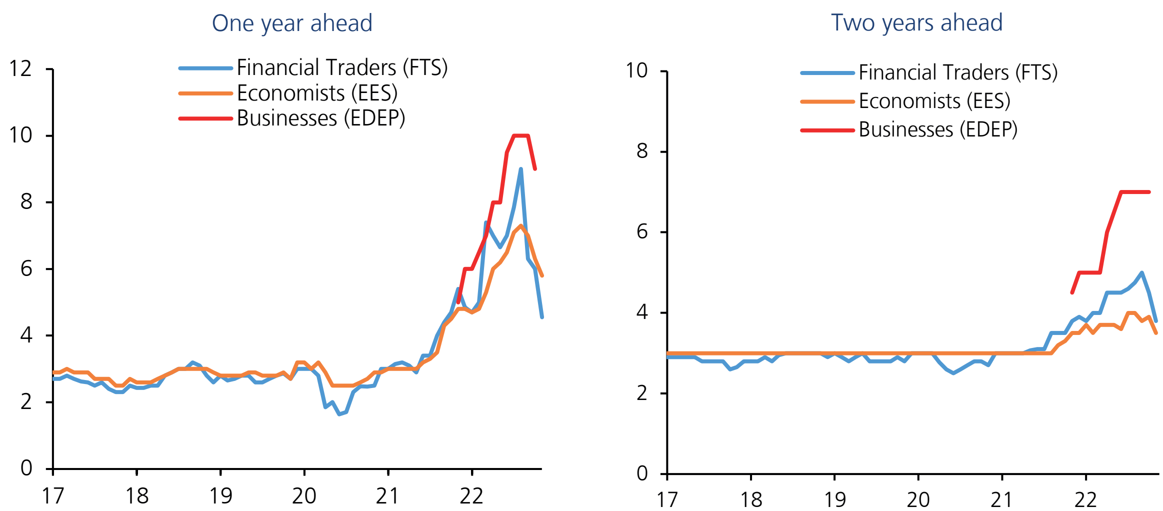


(1) Moving 30-day average. As from December 2021, the index includes an update to the dictionary of words used for its construction, as a way of incorporating new elements that influence local conditions. 2) Value above (below) 50 indicates optimism (pessimism).
Sources: Central Bank of Chile based on Becerra y Sagner (2020), Gfk/Adimark, and Icare/Universidad Adolfo Ibáñez.

The outlook for activity continues to adjust short-term growth upward and medium-term growth downward. For the year 2022, the November Economic Expectations Survey (EES) shows growth expectations at 2.3% (1.9% in August), and at -1.4% (-0.4% in August) for 2023. Meanwhile, the November Consensus Forecasts projections placed national GDP at 2.2% in 2022 and -1.1% in 2023 (1.9% and -0.4%, respectively, in the August survey).

Inflation expectations continue to exceed the target over the monetary policy horizon (figure I.16). The latest surveys to specialists (i.e., the November EES and the Financial Traders Survey (FTS) prior to the December Monetary Policy Meeting) show that for the two-year horizon inflation expectations were at 3.5% and 3.8%, respectively (4.0% and 5.3% in the surveys prior to the September Report). For the same horizon, business expectations contained in the Survey of Price Determinants and Expectations (EDEP) remained at 7%. Breakeven inflation foresee inflation rates of 4.2% and 3.0% in the two and five year terms, respectively[1]/.

FIGURE I.16 INFLATION EXPECTATIONS OBTAINED FROM SURVEYS (1) (2)
(annual change, percent)



(1) Shows median responses. (2) The FTS considers the survey of the first half of each month up to January 2018. From February 2018 onwards, it considers the last survey published in the month, including the one prior to the December 2022 monetary policy meeting. In the months where no survey is published, the latest available one is used.
Source: Central Bank of Chile.

Expected inflation one year out declined (figure I.16). Expectations contained in the latest versions of the EES and FTS stood at 5.8% and 4.6%, respectively (7.3% and 7.9% in the surveys prior to the September Report). Regarding companies' expectations, the EDEP anticipates that inflation would be close to 9% in twelve months (10% in the last Report). In any case, it is worth noting the significant dispersion in the responses of all these surveys. Over the same horizon, the outlook implicit in inflation insurance contracts also decreased, approaching 4.6%.

In this context, surveyed experts foresee an unchanged MPR until the beginning of the second quarter of 2023. Respondents to the November EES and to the FTS prior to the December monetary policy meeting foresee that the first MPR cut will take place at the April meeting, and it will amount to 75 to 100 bp. In addition, both surveys reflect a decrease in expectations for the MPR one year ahead. The EES sees it at 8%, while the FTS puts it at 6.25% (prior to the September Report they placed it at 8.5% and 9.0%, respectively). Two-year expectations also decreased, to 5.0% in both surveys.

[1]/ Two-year breakeven inflation corresponds to 1 in 1. At five years, breakeven inflation is 3 in 2.

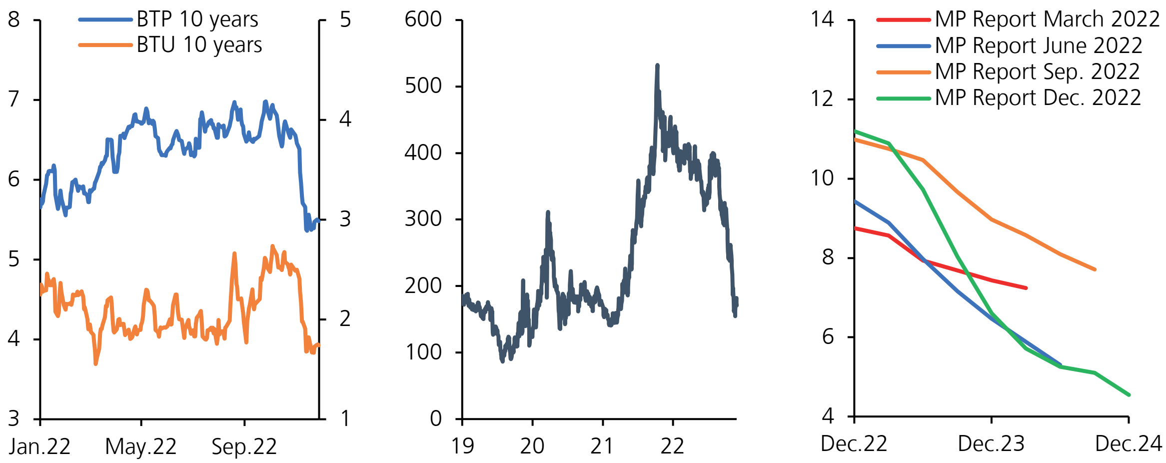
In the local financial market, there has been a significant drop in nominal rates, reflecting a lower risk premium (figure I.17). Compared to early September, 10-year nominal rates fell by 125 bp. Shorter term rates (1 and 2-year SPCs) fell by around 250 bp in the same period. At the same time, the spread with respect to international rates fell significantly. In this context, the implicit trajectory for the MPR has also declined. In any case, real rates show movements of a lesser magnitude.

FIGURE I.17 LONG-TERM INTEREST RATES AND MPR EXPECTATIONS

Interest rates on long-term instruments (percent)

10-year BTP-UST spread (basis points)

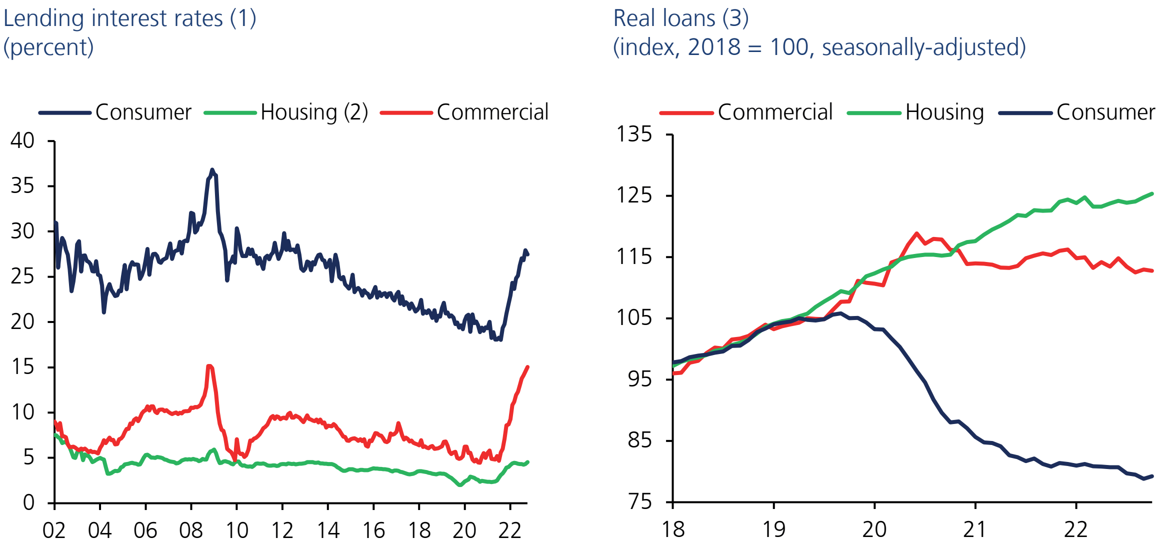
Expected MPR (1) (2) (percent)



(1) Calculated by extracting the implicit MPR considering the forward curve on the overnight index swap up to 2 years, discounting the fixed rates of each term at the simple accrual of the average index swap. (2) Quarterly average as of 23 March, 2022, 1 June, 2022, 31 August, 2022 and 30 November, 2022, respectively.
Sources: Bloomberg, Santiago Stock Exchange, and Central Bank of Chile.

Domestic bank credit is still weak, in the midst of limited demand and tight supply. Discounting inflation, the total stock of loans continues to be low (figure I.18). The consumer portfolio stands out, notoriously below pre-pandemic levels. Meanwhile, mortgage loans have remained fairly stable, in a context in which the flow of new operations has decreased. This is partly a reflection of a constrained supply of credit and weak demand in all segments, as shown in the third quarter Bank Lending Survey (BLS), as a result of persistently pessimistic economic perceptions and high benchmark rates.

FIGURE I.18 CREDIT MARKET INDICATORS



(1) Weighted average rates of all operations performed in each month. (2) UF-denominated loans. (3) Real data built with spliced CPI in 2018 annual base.
Source: Central Bank of Chile based on FMC information.

BOX I.1:

Importance of demand and supply shocks in goods inflation

The significant increase in inflation in Chile since 2021 is strongly influenced by domestic demand factors, followed by supply factors. This Box presents an analysis that confirms this view. The analysis distinguishes the relevance of both types of shocks in the evolution of goods inflation. The results show that in recent months the effects associated with demand factors have been receding, in line with the adjustment of the economy, especially consumption. On the other hand, the decline in commodity prices and the moderation of problems in global supply chains have helped to stabilize supply factors.

Background and decomposition of CPI shocks on output

The last few Reports have presented a decomposition of the factors explaining the rise in inflation based on structural projection models, estimated using aggregate macroeconomic variables. In September, this decomposition showed that roughly two thirds of the increase in cumulative inflation since the beginning of 2021 was explained by internal factors and one third by external factors (figure II.8 in September 2022 MP Report). Among the former, the increase in consumer demand stood out, driven by the strong expansion of liquidity due to fiscal stimulus measures and pension fund withdrawals, as well as the idiosyncratic depreciation of the peso influenced by rising local uncertainty. It was also noted that external factors —mainly associated with supply-side elements— had gained in importance during 2022.

These estimates use aggregate variables. An alternative strategy to analyze the determinants of inflation is to distinguish the importance of demand and supply shocks at the disaggregate level (CPI products) and then aggregate the results to obtain a macro reading. This Box presents the results obtained with this methodology[1]/.

The factors that explain the increase in goods inflation in Chile

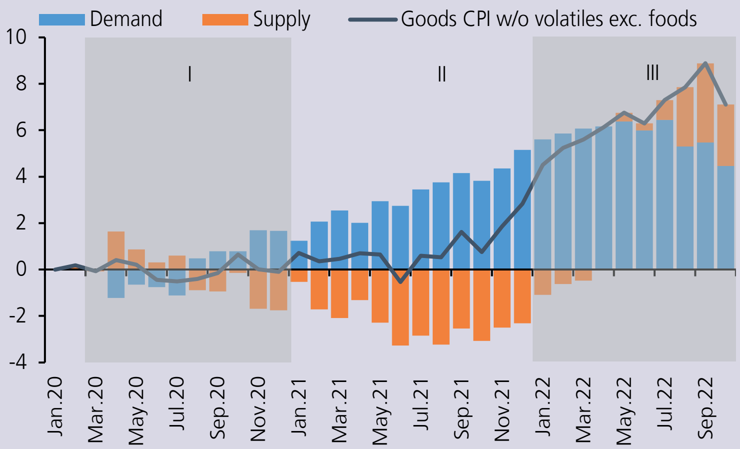
Our results indicate that the dynamics of core inflation of goods during the pandemic can be divided into three periods (figure I.19): the first, beginning in March 2020, includes the initial impact of the Covid-19 shutdown, which generated a supply shock that pushed up prices. At the same time, restrictions on mobility and precautionary savings caused a drop in demand that generated pressures in the opposite direction. In net terms, both effects tended to cancel each other out, which explains the small variation in price levels at the beginning of the pandemic.

The second period covers all of 2021. During this period, supply normalized as companies adapted and supply chains were re-established. At the same time, the easing of confinement measures and liquidity injections to households generated a strong increase in the demand for goods —reflected in a demand shock that grew steadily throughout the year— which more than offset the normalization of supply, driving a significant acceleration in inflation.

[1]/ In general, digital invoice (DI) data are used to generate price and quantity indexes for just over 170 CPI items (56% of the basket), mostly goods. A VAR model is estimated for each item, using these indexes. Based on sign constraints, demand shocks are identified as those that generate quantity and price movements in the same direction, and supply shocks that generate movements of these variables in opposite directions. Finally, shocks are aggregated using the CPI basket weights. The analysis in this Box focuses on the aggregate of non-volatile goods excluding foods, for which a coverage of 78% is achieved with the DI. For details, see Carlomagno *et al.* (2022).

Finally, during 2022, in a context of high demand, the Russian invasion of Ukraine and the zero-Covid-19 policy in China caused a significant increase in commodity prices and a disruption of global supply chains, triggering supply shocks that compounded the already very high levels of inflation[2]/.

FIGURE I.19 STRUCTURAL DECOMPOSITION OF GOODS CPI W/O VOLATILES EXCLUDING FOODS (*)
(cumulative change since January 2020, percentage points)



(*) Historical decompositions of a VAR model with sign constraints for the 177 available Digital Invoive (DI) products. The full CPI basket comprises 303 items, of which 95 are non-volatile goods excluding foods, whose coverage with the DI is 78% (74 items). The black line represents the cumulative evolution from March 2020 to October 2022. Shaded areas denote the following periods: (I) March-December 2020, (II) January-December 2021, and (III) January-October 2022.
Source: Carlomagno *et al.* (2022) based on data from the National Statistics Institute (INE), Internal Revenue Service (SII), and Central Bank of Chile.

In recent months, demand pressures have begun to ease, in line with the macroeconomic and consumption adjustments (figure I.12). Meanwhile, supply pressures have begun to stabilize at the margin, in the face of the decline in commodity prices and the easing of international supply chain problems (figure I.12).

Conclusions

The large expansion of domestic demand that began in 2021 is the main cause of the high inflation the Chilean economy is now experiencing. This conclusion is robust to the estimation strategy used: structural models estimated with aggregate variables and highly disaggregate empirical models yield similar readings. The empirical analysis presented in this Box suggests that demand pressures on goods inflation have begun to ease in recent months, while supply pressures have stabilized at the margin. In turn, services inflation —not analyzed in this Box— has continued to increase and will show greater persistence due to price indexation. Accordingly, the recently observed moderation in inflation (figure I.6) is expected to continue in the coming months, provided that no new disruptive events occur.

[2]/ It should be noted that, in this decomposition, supply shocks can represent "pure" supply shocks (e.g., cost shocks) or an exchange rate depreciation. In fact, an alternative identification strategy including exchange rate changes suggests that a portion of these supply shocks can be attributed to exchange rate movements.

BOX I.2:

The labor market and inflation

The behavior of wage inflation is a key determinant of inflationary dynamics. This is particularly relevant in contexts of high inflation, in which nominal wages may become more sensitive to labor market conditions and even to past inflation. The analysis of administrative records and the cross-country comparison presented in this Box suggest that the current dynamics of the Chilean labor market have caused no significant additional pressures on inflation. In any case, monitoring is important to ensure the convergence of inflation to the target within the two-year horizon.

In developed economies, labor markets are showing signs of being very tight. In particular, the ratio of available vacancies to the number of unemployed persons (V/U) has been rising. Nonetheless, real wages are falling because the adjustment of nominal wages has been less than inflation (figure I.20). The results presented in Andalaft et al. (2022) suggest that in these economies nominal wages respond more strongly to past inflation increases when the labor market is very tight. This poses a risk to the inflation decline in these economies, and is one of the factors behind the more contractionary global monetary policy outlook contemplated in the central scenario of this Report.

The data available for Chile paint a different picture. The labor market shows limited dynamism and lower degrees of indexation, which reduces the risks for inflation convergence. Thus, a proxy measure to the V/U ratio —described in Andalaft et al. (2022)— indicates that the labor market has loosened, which has been accompanied by a fall in real wages over the last year[1]/. Meanwhile, the analysis of nominal labor income based on administrative records indicates that in 2021-2022 the degree of indexation to past inflation has been 50% lower than in the pre-pandemic period (see Andalaft et al. (2022) for more details), which is one of the factors that would explain the fall in real wages.

Another indicator usually used to measure how constrained the labor market is would be the evolution of the wages of workers who voluntarily change jobs. The administrative records available to the Bank allow us to construct this indicator for Chile. The evidence shows that in Chile the wages of those who change jobs are decelerating in both real and nominal terms, although they are still high compared to the period for which this information is available (figure I.21). This is a risk that must be monitored, considering also that the proportion of workers who stay in the same job and those who change from job to job have remained similar to pre-pandemic levels, which tends to rule out a widespread fragility of the labor market (figure I.22)[2]/. This imposes a degree of caution on the overall picture that points to a looser labor market and, therefore, lower risks to the convergence of inflation.

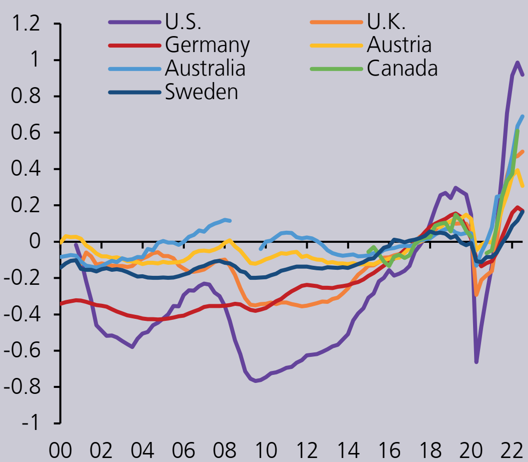
All in all, the central scenario of this Report considers that nominal wage dynamics will evolve consistently with inflation converging to the target over the two-year policy horizon. In that scenario, nominal wages will grow in line with the usual indexation patterns. This will allow real wages to gradually recover their historical average growth rate in the coming quarters.

[1]/ The V/U ratio proxy constructed for Chile informs about the change in said ratio but not about the level.

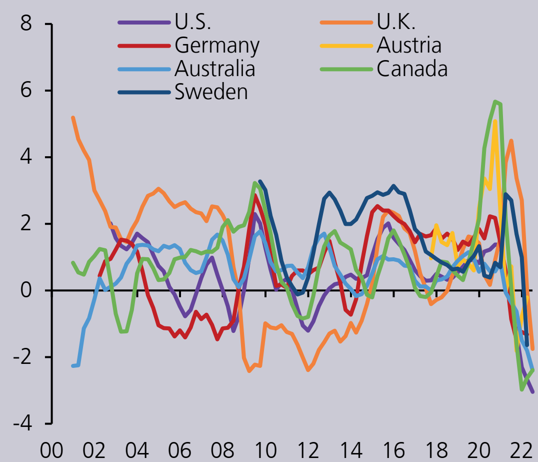
[2]/ Employment is broken down into those who maintain the same employment relationship from one month to the next, those who change from job to job, and those who, having been unemployed, appear as employed in the month. The three flows add up to 100; the proportion of those who keep the same job and those who change jobs are reported.

FIGURE I.20 LABOR MARKETS IN DEVELOPED ECONOMIES

Vacancies per unemployed person
(deviation from 2014Q1-2019Q4 average)



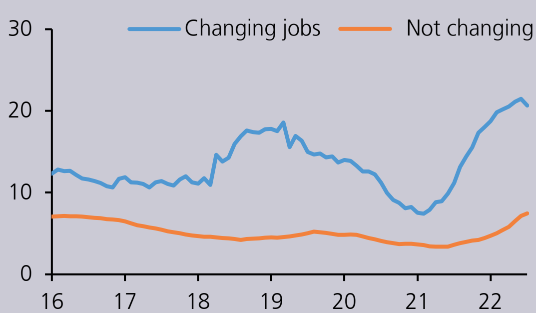
Real wages (*)
(annual change, percent)



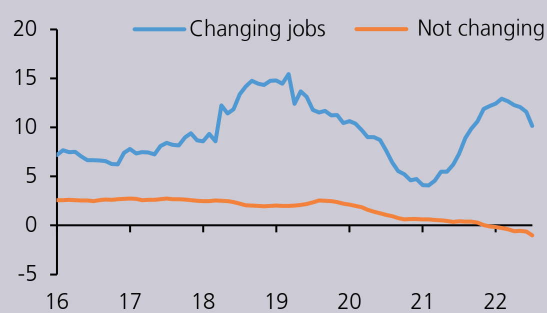
(*) Four quarters moving average. Real wages calculated using nominal wages deflated by CPI.
Sources: Bloomberg, OECD, Eurostat and respective statistical bureaus.

FIGURE I.21 WAGE GROWTH IN CHILE (*)

Median of annual growth in nominal wages
(percent)



Median of annual growth in real wages
(percent)

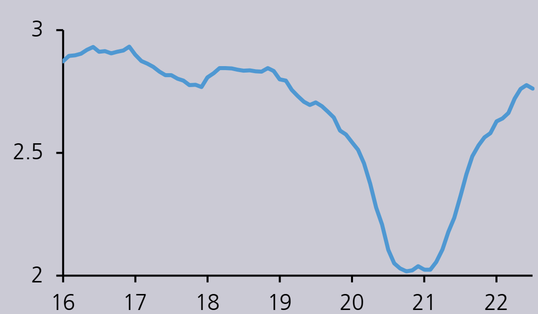


(*) Considers data up to July 2022.
Source: AFC.

FIGURE I.22 SHARES OF SALARIED EMPLOYEES WHO MAINTAIN THEIR JOBS OR FIND NEW ONES (*)

Job keeping rate
(percent)

Job change rate
(percent)



(*) Considers data up to July 2022.
Source: AFC.

BOX I.3:

Annual Conference of the Central Bank of Chile

The XXV Annual Conference of the Central Bank of Chile was held on 21-22 November 2022 and its main subject was the role that heterogeneity of different agents in macroeconomics and its implications for monetary policy. Gianluca Violante (Princeton University) co-organized the event, with the participation of leading international experts in this literature who, together with researchers from the Central Bank of Chile, presented a series of papers prepared for the event. The opening speech, delivered by the Bank's Governor Rosanna Costa, discussed the recent history of the introduction of heterogeneity considerations in macroeconomic modeling, and its implications for central banks in Chile and around the world[1]/.

Special mention must be made of the participation of 2011 Nobel Laureate for Economics Thomas Sargent. He drew a parallel between the current heterogeneous agents literature and Keynes's classical macroeconomic theory. Sargent argued that Keynes, in his 1924 book "A Tract on Monetary Reform" already outlined his interest in the interaction between macroeconomics, fiscal responsibility, and wealth distribution; and he stressed the importance of maintaining a stable price level.

The economic policy panel, moderated by Central Bank Vice-Governor Pablo Garcia, featured James Bullard, Esther George, and Claudio Borio, respectively Governor of the Federal Reserve Bank of St. Louis and Kansas City, and Manager of the BIS Monetary and Economic Department. James Bullard developed a technical line of argument, similar to the work of McKay and Wolf (2022) presented at the Conference, highlighting that, even when household heterogeneity considerations are built into the analysis, the correct design of monetary policy should not depend on such heterogeneity. Claudio Borio focused on the complex interactions between inflation, recession, and inequality and discussed, for example, that a monetary policy more concentrated on controlling inflation, while it may tend to increase inequality in the short run, tends to reduce it in the medium term through price stabilization and increased growth. At the same time, a monetary policy that aims at maintaining full employment, although in the short term it may reduce income inequality, may tend to deepen wealth inequality in the medium term via increases in asset prices and/or increases in the probability of occurrence of financial crises. Finally, and complementing the presentation of Del Negro et al. (2022), Esther George argued that macroeconomic modeling that incorporates heterogeneity in economic agents can help to better understand inflationary dynamics by providing a more complete picture of wage dynamics across different types of workers or sectors.

The topics discussed at the Conference are particularly relevant in the current context, since the recent crisis caused by the Covid-19 pandemic affected households and businesses in a very heterogeneous way, both in its initial effect and in the policies implemented to mitigate it. A better understanding of the shock transmission and policy mechanisms operating in the economy when heterogeneity considerations are incorporated will certainly result in an improved design of economic policies.

[1]/ All the Conference presentations can be found on the Bank's website and YouTube.

II. FUTURE EVOLUTION OF MONETARY POLICY

Inflation remains high in annual terms, beyond a decline in recent months, in line with forecasts in the last MP Report. Inflationary surprises have also been decreasing, within a context of ongoing macroeconomic adjustment and tighter cost pressures. Investment took a significant rebound in the third quarter, mainly in a few specific sectors. The expected evolution of the economy in 2023 and 2024 is similar to forecasts in the previous Report, anticipating a few more quarters of contraction. This will allow to further correct cumulative imbalances —including the high current account deficit— which is a key assumption for the convergence of inflation. In the central scenario, GDP will close this year with an increase of 2.4%. In 2023 and 2024, growth ranges are estimated at -1.75/-0.75% and 2.0-3.0%, respectively. Inflation will continue to decline and will reach the 3% target by mid-2024, in line with the activity gap turning negative next year. The Monetary Policy Rate (MPR) is at 11.25% and will remain at that level until the state of the macroeconomy indicates that the convergence process of inflation to the 3% target has been consolidated.

STRUCTURAL PARAMETERS

As noted in September, this Report contains the Board's updated estimate for trend GDP and the neutral monetary policy rate (NMPR), which are the structural parameters used in the medium-term projections. These were last adjusted in June 2021.

In line with the June 2021 forecast, trend non-mining GDP growth is expected to continue to decline throughout the period 2023-2032. In the nearest years, this trend is related to the fact that some variables, such as hours worked and the participation rate, are already significantly ahead in their post-pandemic recovery. Accordingly, from now onwards they will no longer contribute as significantly to trend growth. Towards the end of the period, the convergence of hours worked to the OECD average becomes more important, which will reduce the contribution of the labor factor. Total factor productivity growth is still estimated to be low, based on the consolidation of a downward trend. In any case, for the period 2023-2032, the trend growth of non-mining GDP will average 2.2%. For the purposes of calculating the medium-term projections of this Report, it was decided to use the average trend GDP growth for the period 2024-2027, that is, 2.5%, because longer horizons correspond to an economy whose productive factors are projected to differ significantly from those relevant for the medium-term projection horizon (Box II.1).

The NMPR is estimated to be 3.75%, up 25 basis points (pb) from the previous estimate, in a range between 3.5 and 4%. This increase is consistent with the recent reversal of neutral rates in other economies, which altered the downward trend shown by international rates (Box II.2).

The main implication of these assumptions is apparent in the GDP forecasts for 2023 and 2024. As will be discussed below, the projection ranges for both years are revised downward with respect to September. The new trend GDP assumption is a determining factor in this result, explaining the bulk of the revision. In the short term, the activity gap is somewhat more positive than previously estimated, combining the usual re-estimation of potential growth and activity dropping somewhat more slowly than expected before. In any case, a decreasing trend of the gap continues to be observed, which will place it at negative levels at the beginning of 2023. Regarding the NMPR, the new assumption implies that at the end of the projection horizon the MPR will exceed our September forecast (+25pb).

MONETARY POLICY STRATEGY

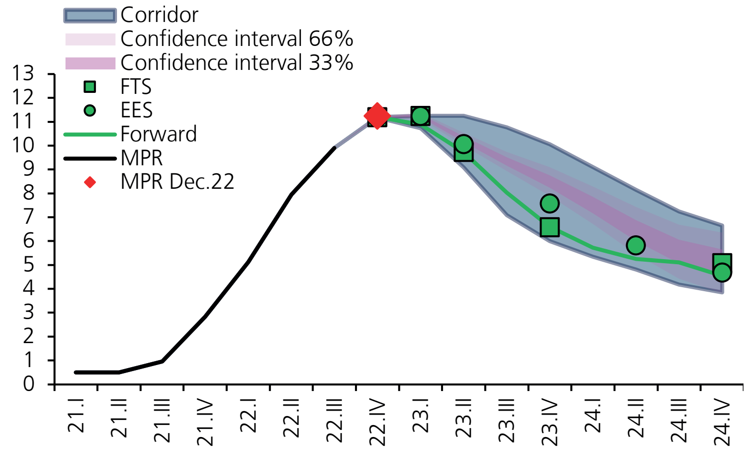
Annual inflation has receded slightly, in a context in which the economy has continued to adjust and cost factors have been easing (Box I.1). The seasonally adjusted non-mining GDP series completed two quarters of contraction: -0.3% in the second quarter and -0.8% in the third (figure I.11). Although the latest of these declines were less severe than expected, most of them were due to factors unrelated to the macroeconomic cycle; for example, increased hydric electric generation and growth in business services that seems to respond to more structural trends. Preliminary fourth quarter data —the October Imacec— confirms the downward path of non-mining activity. On the costs side, the continued normalization of global supply chains stands out, as does the decline in international shipping costs and commodity prices.

The convergence of inflation still relies on the resolution of the imbalances accumulated after the excessive levels of aggregate spending in 2021. In the central scenario, the economy is expected to contract for several quarters, with the activity gap turning negative in early 2023. At the same time, cost pressures will continue to ease. In this context, annual inflation will continue to decline in the coming quarters, returning to 3% in the second half of 2024. Core inflation —which excludes volatile items— will return to 3% by the end of the same year.

Inflation expectations two years ahead remain above 3% (figure I.16). The different expectations indicators have been adjusting in their latest measurements, a behavior that has been more noticeable in the shorter terms. In the two-year term, the November Economic Expectations Survey (EES) foresees inflation at 3.5%, while the Financial Traders Survey (FTS) prior to the December meeting projects 3.8% (4.0 and 5.3% at the close of the September Report). Breakeven Inflation anticipates around 4% in two years. In the one-year term, the EES and the FTS foresee it at 5.8 and 4.6%, respectively (7.3 and 7.9% at the close of the September Report), all with significant degrees of dispersion.

Monetary policy has made a significant adjustment and is facilitating the resolution of the imbalances present in the economy (figure II.1). However, inflation remains very high and its convergence to the 3% target is still subject to risks. The Board will maintain the MPR at 11.25% until the state of the macroeconomy indicates that this process has been consolidated.

FIGURE II.1 MPR CORRIDOR (*)
(quarterly average, percent)



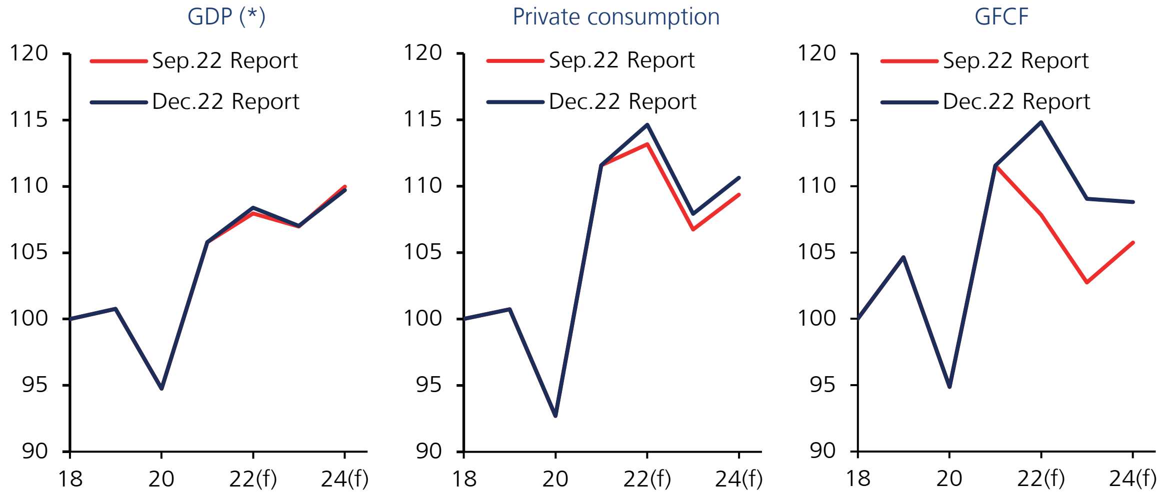
(*) The corridor is built by following the methodology described in boxes V.1 of March 2020 Report and V.3 of March 2022 Report. Includes November EES, FTS pre-policy-meeting of December and the average smoothed forward curve of quarter to 30 November. This is calculated by extracting the implicit MPR considering the forward curve on the interest rate swap curve up to 2 years, discounting the fixed rates at every maturity at the simple accrual of the ICP. For the current quarter the surveys and the forwards consider the average daily effective and are completed with the respective sources.
Source: Central Bank of Chile.

CENTRAL SCENARIO ACTIVITY AND DEMAND PROJECTIONS

The economy remains on an adjustment path, despite the recent upward surprise on the spending side. As noted above, non-mining activity contracted in the last two quarters, driven by wholesale and retail. In contrast, services activities remained dynamic, especially business, favored by the outsourcing of processes. Aggregate demand exceeded expectations in the third quarter, particularly due to a rebound in gross fixed capital formation (GFCF), that was concentrated in some specific sectors which have minor implications for the evolution of inflationary pressures. The significant improvement in the performance of spending has been offset by a greater inventory depletion, consistent with activity levels showing limited changes compared to what was projected in September (figure II.2). The inventory component is expected to contribute negatively to growth this year and the next two (figure II.3). In the central scenario, it is estimated that GDP expansion will be 2.4% in 2022 (table II.1).

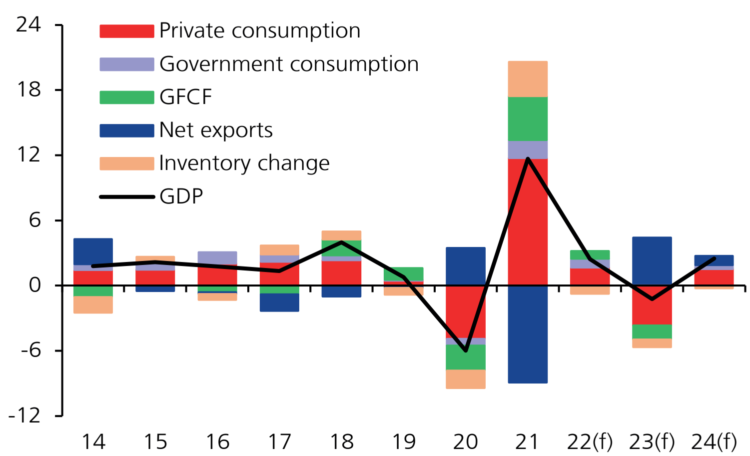
The central scenario continues to assume that the economy will see several quarters of falling activity. GDP is projected to fall in 2023 between -1.75 and -0.75% (-1.5 / -0.5% in September). In 2024 it will expand between 2 and 3% (2.25-3.25% in September) (table II.1). The downward adjustment of projections is influenced by the revision of the trend GDP assumption. For 2023, a higher base of comparison and a lower external impulse are added. Private consumption —especially of goods— and GFCF are still projected to post negative annual variation next year, with declines of 5.9 and 5%, respectively (-5.7 and -4.7% in September). Net exports will increase, which incorporates a reduction in imports due to the adjustment of domestic spending (figure II.3).

FIGURE II.2 ACTIVITY AND DOMESTIC DEMAND
(index, 2018=100)



(*) For 2023 and 2024, the projections consider the midpoint of the forecast ranges of this Report.
(f) Forecast.
Source: Central Bank of Chile.

FIGURE II.3 GDP GROWTH AND AGGREGATE DEMAND COMPONENTS CONTRIBUTIONS (*)
(annual change, percentage points)



(*) For 2023 and 2024, the projections consider the midpoint of the GDP forecast ranges of this Report.
(f) Forecast.
Source: Central Bank of Chile.

TABLE II.1 ECONOMIC GROWTH AND CURRENT ACCOUNT

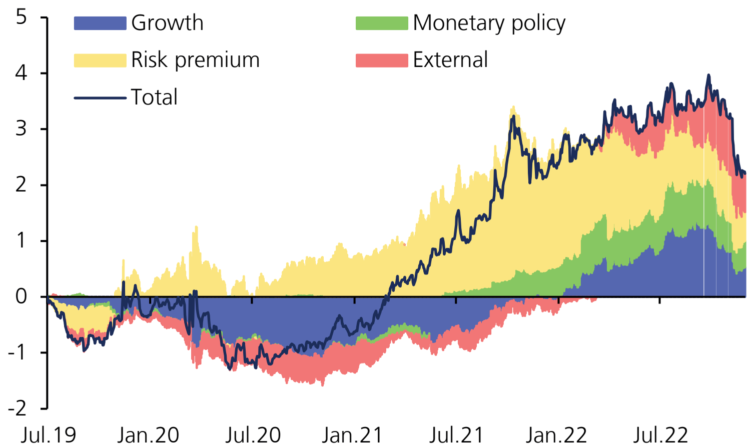
	2021	2022 (f)	2023 (f)	2024 (f)
		(annual change, percent)		
GDP	11.7	2.4	-1.75 / -0.75	2.0-3.0
National income	15.9	1.3	-0.4	2.6
Domestic demand	21.6	2.5	-5.3	1.7
Domestic demand (w/o inventory change)	18.0	3.2	-4.6	1.9
Gross fixed capital form	17.6	2.9	-5.0	-0.2
Total consumption	18.2	3.3	-4.5	2.5
Private consumption	20.3	2.7	-5.9	2.5
Goods and services exports	-1.5	0.9	6.0	3.2
Goods and services imports	31.3	1.1	-5.4	0.9
Current account (% of GDP)	-6.6	-8.7	-4.9	-4.1
Gross national saving (% of GDP)	18.8	17.7	20.2	19.8
Gross national investment (% of GDP)	25.3	26.4	25.1	23.9
GFCF (% of nominal GDP)	24.0	25.6	24.3	23.8
GFCF (% of real GDP)	24.3	24.4	23.5	22.9
		(US$ million)		
Current account	-20,307	-26,400	-15,100	-13,600
Trade balance	10,528	2,800	8,400	10,400
Exports	94,677	98,400	99,800	104,100
Imports	84,148	95,600	91,400	93,700
Services	-11,979	-13,600	-10,900	-10,600
Rent	-18,423	-16,000	-13,600	-14,500
Current transfers	-433	400	1,000	1,100

(f) Forecast.
Source: Central Bank of Chile.

Investment will continue to be affected by entrepreneurs' pessimism, unfavorable financial conditions, and a high real exchange rate (RER). The latest survey of the Capital Goods Corporation (CBC) reiterates that total investment amounts will decrease significantly in the 2023-2025 period. According to the IMCE, business confidence levels remain pessimistic, especially in the construction sector (figure I.15). In the November Business Perceptions Report (BPR), expectations in this area also fell the most. At the same time, the BPR reported that the percentage of companies planning to invest in the coming year decreased compared to the previous year's plans. Abroad, the more contractionary tone of monetary policy and the deterioration of growth prospects have affected the financial markets adversely (figures I.3 y I.4). Among other things, this results in a more depreciated RER, which will reduce the momentum of imports of capital goods. In addition, information from the Office of Major Projects (OGP) of the Ministry of Economy indicates that the number of projects that have been approved in terms of environmental compliance has dropped with respect to last year.

In any case, there are factors that could cause the GFCF adjustment to be less negative than expected. Locally, there is the reduction of uncertainty, as shown by the evolution of different indicators (figure I.15). According to the BPR, the sources of uncertainty have also changed, with doubts about economic conditions becoming the greatest concern of those surveyed, in contrast to the political situation, which has decreased. The decomposition of the 10-year nominal rate shows that local risk factors have been losing significance, in exchange for greater external risk (figure II.4). This contrasts with 2021, when the risk component was the main driver of long-term interest rates (Box V.1, December 2021 MP Report). These register significant drops since the last Report, which has been influenced by the risk premium adjustment and the fall in October inflation (figure I.17). In addition, the most unexpected investment recently has been that in the renewable energy sectors. The OGP survey data for the latter exceed the CBC projections, maybe suggesting a brighter outlook for these sectors in the near future.

FIGURE II.4 STRUCTURAL DECOMPOSITION OF 10-YEAR ZERO RATE (*)
(percentage points, accumulated since 1 July 2019)



(*) Historical decomposition of the long rate from a BVAR based on the identification strategy proposed by Eterovic and Eterovic (2022), incorporating an external block. The exogenous block encompasses all US shocks (monetary policy, growth, risk aversion and pure risk), which have been added for simplicity.
Source: Central Bank of Chile based on RiskAmerica.

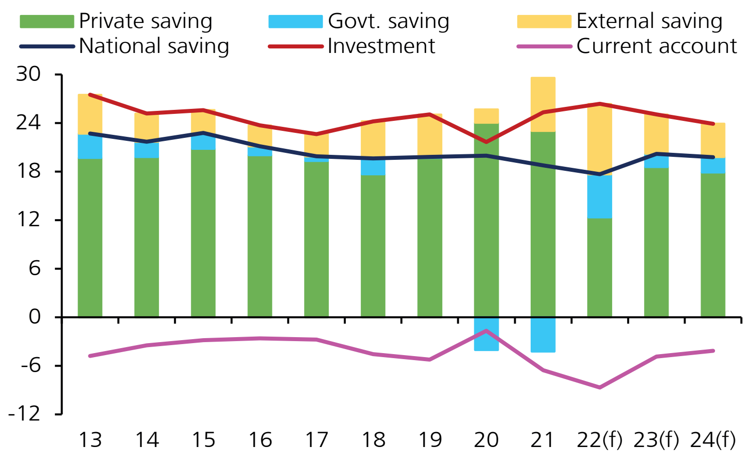
Private consumption fundamentals point to it adjusting further over the next few quarters. Individuals' liquidity has been normalizing, after the peaks reached after the measures adopted in 2021. Despite some recent upturn in revolving loans, demand of consumer credit remains weak, amid tight supply conditions (Bank Lending Survey). This continues to be counterbalanced by an increase in time deposits and loans, favored by the rise in interest rates. At the same time, consumer confidence (IPEC) remains near its historical lows (figure I.15).

Job creation is slow, with hiring expectations have worsened further. Moreover, the fall in real wages stands out (figure I.13). Total employment has not changed substantially this year, although there has been an increase in informal and self-employment replacing the formal employment. At the same time, vacancies show new setbacks, as do employment expectations and the expected staffing of companies as per the IMCE and the BPR. The real annual variation of salaries completed a year in the negative zone, which is the main factor behind the notorious deceleration of the wage bill throughout this year (figure I.12).

The central scenario includes a public spending trajectory in line with the budget approved for 2023, which maintains a consolidation path for the new few years. The public spending will attain levels compatible with the projected trajectory for the cyclically adjusted balance, with a 4.2% real annual increase in 2023, ending with an effective fiscal balance of -2.7% of GDP. For 2024, and considering this information, the Public Finances Report for the third quarter points to a 6.9% real annual increase in spending and a balance of -2.2% of GDP.

The current account will adjust more slowly than was foreseen in September, largely because of the higher levels of investment projected in the central scenario (figure II.5 and table II.1). The high values of the MPR and the depreciation of the peso will contribute to the rise in private savings (+6 percentage points of GDP between 2022 and 2023) and to the reduction of imbalances between investment and savings. Public savings will be positive, meaning that the fiscal stimulus of 2020 and 2021 will not be repeated. Another contributing factor will be the return of high transportation costs at the global level, especially in the services balance. Accordingly, the current-account deficit is expected to begin to narrow from the current quarter onwards, to close 2022, 2023 and 2024 at 8.7, 4.9, and 4.1% of GDP, respectively (6.3, 3.6 and 3.3% in September). Measured at trend prices[1]/, the deficit will be 8.2% in 2022, 4.5% in 2023 and 3.8% in 2024 (58%, 27%, and 2.7% in September, respectively).

FIGURE II.5 CURRENT ACCOUNT: SAVINGS AND INVESTMENT (*)
(percentage of annual GDP)

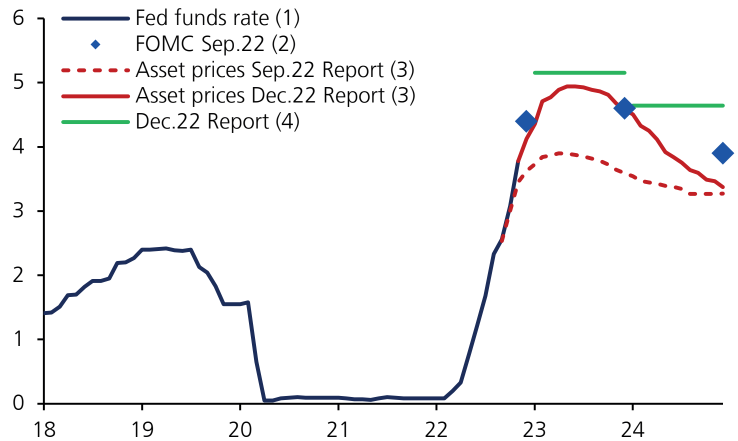


(*) The government saving component considers the general government balance as effective data until 2021; for 2022 to 2024, government saving from the central government balance are used as a projection.
(f) Forecast.
Source: Central Bank of Chile.

Chile's expected impulse from abroad is again reduced. This reflects the impact of greater and more prolonged global monetary tightening, mainly in the U.S. Since the September Report, the Federal Reserve (Fed) raised the Fed funds rate by 150bp, to a range between 3.75% to 4%. Markets have paid close attention to its messages, correcting upwards the levels expected for the Fed funds rate. Asset prices have an implicit rate of 4.6% at the end of 2023, which compares with 3.6% at the previous statistical cut-off and 4.6% in the Fed's projections in the September FOMC. By the end of 2024, the adjustments were minor. The implicit rate in asset prices reached 3.4%, similar to the previous statistical cut-off (3.3%) and below the FOMC projections in September (3.9%). Considering the tightness of the labor market and the strength of consumption in the U.S., which rule out rapid inflationary convergence (Box I.2), the central scenario of this Report assumes values of 5.2 and 4.6% on average for the Fed funds rate in 2023 and 2024, respectively, above that suggested by asset prices (figure II.6).

[1]/ This measure adjusts the value of mining exports and fuel imports considering deviations of copper and oil prices from their long-term values. The same is done for rents and transfers associated with copper exports. Other exports and imports are valued using current prices. In addition, it does not correct for possible changes in the quantities exported or imported due to movements in copper and oil prices. The calculation considers long-term prices of US$3.3 per pound for copper and US$60 per barrel for oil (see Box V.2 in MP Report of September 2012, and Box V.3 in MP Report of June 2021).

FIGURE II.6 EVOLUTION AND FORECASTS FOR THE FED FUNDS RATE
(percentage points)



(1) Effective Fed funds rate.
(2) Forecast by the Federal Open Market Committee (FOMC) at the indicated meeting.
(3) Asset prices consider the statistical cut-off dates of each Report.
(4) Annual average for the Fed funds rate in 2023 and 2024, according to the central scenario of this Report.
Sources: Bloomberg and Federal Reserve.

In the central scenario, a considerable group of economies will enter a recession in the coming quarters (table II.2). Beyond the positive surprises in the recent figures of several of them, which affect the 2022 projections, there are different factors behind the worsened outlook. Some examples are the slowdown confirmed by partial activity and demand data for the fourth quarter and pessimistic business expectations (PMI) in most countries. The fiscal consolidation process that most of these economies are undergoing will also undermine their momentum. The withdrawal of monetary stimulus has negatively affected the conditions of access to bank financing. This has dampened credit performance and spending plans, especially in investment. Meanwhile, the adjustment in consumption is expected to be slower, given the resilience of labor markets, mainly in the U.S.

A contraction is expected in 2023 in the U.S. and the Eurozone (table II.2). In the latter, the longer-lasting impact of the gas shortage associated with the war in Ukraine stands out, a factor that has hit agents' confidence hard. In China, a lower potential growth outlook has been consolidating, which combines the fragility of the real estate sector —with home prices and sales falling again—, doubts about the continuity of the zero-Covid policy and the effects of weaker world demand in the export sector. Adjustments for Latin America are limited, although the milder external impulse and other idiosyncratic factors confirm the low growth outlook.

TABLE II.2 WORLD GROWTH (*)
(annual change, percent)

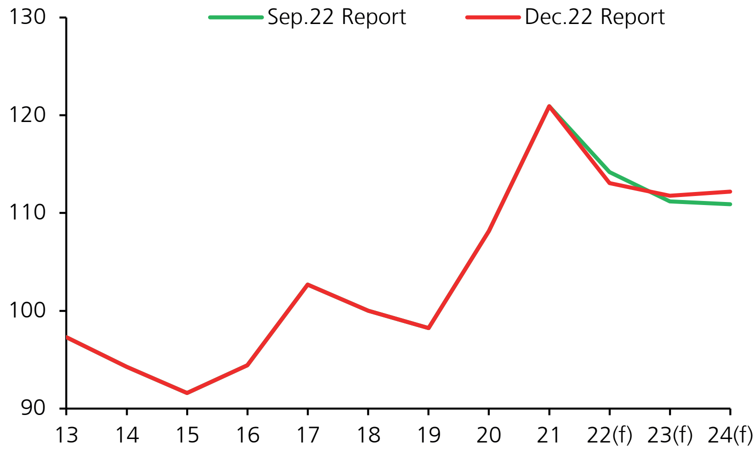
	Aveg. 10-19	2020	2021	2022 (f)	2023 (f)	2024 (f)
World GDP at PPP	3.7	-3.0	6.3	3.2	1.9	2.8
World GDP at market exchange rate	3.1	-3.2	6.0	2.9	1.3	2.3
Trading partners	3.9	-2.0	6.4	3.0	2.1	2.7
United States	2.3	-2.8	5.9	1.9	-0.1	1.4
Eurozone	1.4	-6.3	5.3	3.3	-0.4	1.4
Japan	1.2	-4.7	1.7	1.4	1.2	1.1
China	7.7	2.2	8.1	3.4	4.3	4.3
India	7.1	-6.6	8.7	6.7	5.9	6.3
Rest de Asia	4.7	-2.3	4.2	4.2	2.5	3.2
Latin America (excl. Chile)	1.8	-7.5	6.2	3.7	1.2	1.5
Commodity exp.	2.2	-3.9	4.6	3.2	0.5	1.1

(*) For definitions, see Glossary.
(f) Forecast.
Source: Central Bank of Chile based on a sample of investment banks, Consensus Forecasts, the IMF, and statistics bureaus of respective countries.

The outlook for commodity prices combines opposing forces. On one hand, there is the expected poor world economic performance and, on the other, the tight conditions of several of these markets. Commodity prices have fallen generally after peaking early this year, but by historical standards they are still high (figure I.9). Oil and copper inventories remain near minimum levels, although for copper some indicators point to a rather structural shortage. Food supply has improved, but uncertainty about the impacts of the Ukrainian war continues to hit hard on some items, especially grains and cereals.

In this context, for 2023 and 2024 the prices of oil and foods are revised down, while the copper price is marginally revised up, resulting in improved terms of trade (figure II.7 and table II.3). In all cases, the prices will remain above their pre-pandemic levels, albeit with a down-sloping path as the projection horizon plays out. For copper, the revisions apply mainly in the short term, to end the period in levels close to those assumed in September. For the two years 2023 and 2024, the copper price is expected to average US$3.50 per pound (US$3.45 in September), and the oil price to stand at US$79 per barrel (WTI-Brent average) (US$85 in September).

FIGURE II.7 TERMS OF TRADE
(level, 2018=100)



(f) Forecast.
Source: Central Bank of Chile.

TABLE II.3 INTERNATIONAL BASELINE SCENARIO ASSUMPTIONS

	Aveg. 10-19	2020	2021	2022 (f)	2023 (f)	2024 (f)
			(annual change, percent)			
Terms of trade	1.0	10.1	11.8	-6.5	-1.1	0.4
External prices (in US$)	0.6	-1.1	9.3	5.0	2.7	3.5
				(levels)		
LME copper price (US$cent/pound)	306	280	423	400	355	345
WTI oil price (US$/barrel)	72	39	68	95	78	73
Brent oil price (US$/barrel)	80	42	70	100	84	79
Gasoline parity price (US$/m3) (*)	610	333	579	850	625	586
Federal Funds Rate (%)	0.7	0.5	0.3	1.9	5.2	4.6

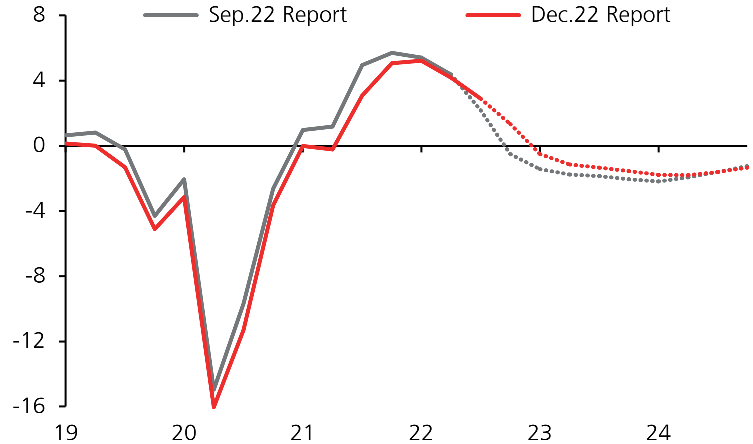
(*) For definition, see Economic Glossary.
(f) Forecast.
Source: Central Bank of Chile.

ACTIVITY GAP AND INFLATION'S CONVERGENCE TO THE TARGET

In the central scenario, the economy will see several quarters of contraction, which will turn the activity gap negative in early 2023 and will stay negative for the rest of the policy horizon (figure II.8). A gap reassessment yields somewhat higher levels than those estimated in September. This combines third-quarter activity that contracted less than expected and the usual re-estimation of potential GDP. All in all, the gap is still on a downward trend, consistent with the notion that the economy is undergoing an adjustment process that will contribute to the convergence of inflation to the target within the two-year horizon. Potential growth[2]/ is assumed to be in the vicinity of 2.4% on average in 2023-2024 (around 3% in September).

[2]/ The concept of potential GDP refers to the level of GDP consistent with stable inflation and is therefore appropriate for measuring the activity gap associated with short-term inflationary pressures.

FIGURE II.8 ACTIVITY GAP (1) (2)
(level, percentage points)



(1) Dotted lines show forecast.
(2) Forecast assumes structural paramenters updated in Desember 2022 Report (trend GDP) with methodological review of potential GDP.
Source: Central Bank of Chile.

Inflation forecast is changed little, after several quarters of substantial upward corrections. The main revisions are for the short term, especially in the volatile CPI component, which is influenced by the higher exchange rate. This will raise the cost of imported items, which for food and fuels cannot be offset by their lower prices in international markets. The projection considers that the RER will remain around its current values in the coming quarters, contributing to resolve local imbalances. It should begin to decline by 2024, in line with the adjustment of such imbalances and the convergence of other fundamentals[3]/.

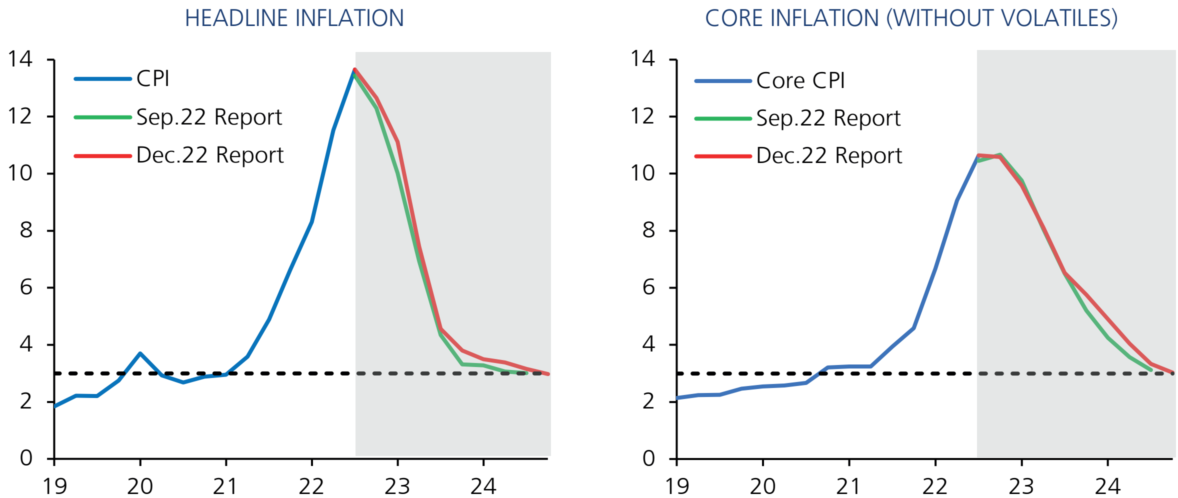
Second round and indexing effects will still be present. In the immediate future, a hike in services inflation will be observed due to programmed rate adjustments. Inflation of administered and indexed services has risen further, contrasting with the moderation seen in all other services. For the first quarter of 2023, increases in the prices of electricity and road tolls are considered, plus a possible adjustment in public transportation prices has been announced.

Cost pressures are expected to subside over the projection horizon. The projections assume that commodity prices will continue to decline, which combines with the relief of the supply disruptions noted above. The cost perspectives reflected by the IMCE show significant drops with respect to the peaks of some months ago, while the BPR reports that cost increases have been milder and companies foresee that they will continue to normalize (figure I.8). The BPR also reports that margins have moderated their narrowing, largely due to the ease of cost pressures, a trend that the respondents expect to continue going forward.

The annual CPI variation is expected to end 2022 at 12.3% and 2023 at 3.6% (12 and 3.3% in September) and converge to the target in the second half of 2024 (figure II.9 and table II.4). The adjustment of the local economy is critical following the convergence of inflation to the target. The gradual reduction of costs must also be considered. The impact of inflation on indexation processes will gradually dissipate as inflation continues to recede. As for core inflation, it will end at 10.4 and 5.3% annually in 2022 and 2023, respectively (10.5 and 4.7% in September), approaching 3% by the end of 2024.

[3]/ Cortés *et al.* (2022) present a revision of the models that determine the equilibrium RER that are regularly used to calibrate the Central Bank's projection models.

FIGURE II.9 INFLATION FORECAST (*)
(annual change, percent)



(*) Gray area, as from the fourth quarter of 2022, shows forecast.
Sources: Central Bank of Chile and National Statistics Institute (INE).

TABLE II.4 INFLATION (1)
(annual change, percent)

	2021	2022 (f)	2023 (f)	2024 (f)
Average CPI	4.5	11.6	6.6	3.2
December CPI	7.2	12.3	3.6	3.0
CPI in around 2 years (2)				3.0
Average core CPI	3.8	9.3	7.5	3.8
December core CPI	5.2	10.4	5.3	3.0
Core CPI around 2 years (2)				3.0

(1) Core inflation is measured using the CPI without volatiles.
(2) Inflation forecast for the fourth quarter of 2024.
(f) Forecast.
Sources: Central Bank of Chile and National Statistics Institute (INE).

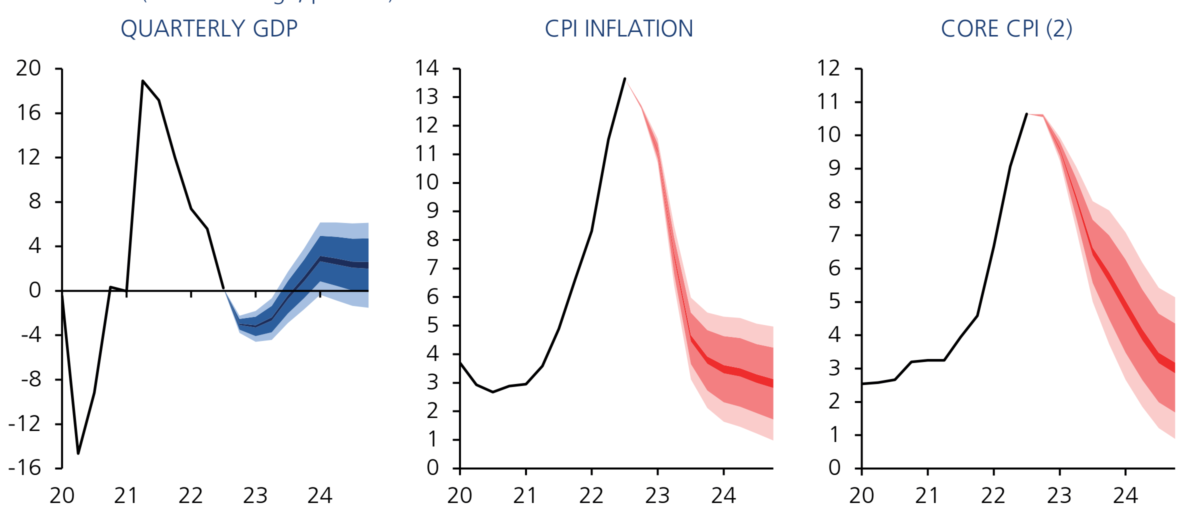
SENSITIVITY AND RISK SCENARIO

The borders of the MPR corridor reflect scenarios where the speed of the inflation convergence process allows for earlier or later adjustments of the rate with respect to the central scenario estimate (figure II.1). A relevant factor is the assessment of inflationary persistence, either by the magnitude and sign of new inflation surprises or by the degree of adjustment of expectations. Scenarios where these variables denote a lower (higher) inflationary persistence could lead to a sooner (later) than expected process of MPR reduction. Another relevant factor would be the speed of the economy's adjustment. The external scenario has seen steady deterioration, and household and business expectations are in pessimistic territory. In this context, a faster adjustment of the economy leading to an earlier reduction of the MPR cannot be ruled out. In any case, the opposite scenario cannot be ruled out either, since demand, particularly investment, has been slightly more dynamic than expected in recent times. The Board estimates that the lower and upper bounds of the MPR corridor, respectively, capture the alternative MPR trajectories associated with these events.

In addition to the sensitivity tests, scenarios are analyzed in which changes in the economy would be more significant and where the monetary policy reaction would cross the boundaries of the MPR corridor (figure II.10).

The external scenario has become a major source of concern and events leading to a major disruption of financial conditions and an abrupt deterioration of external impulse should not be disregarded. In such case, the short-term inflationary effects could be considerable —due to the global appreciation of the dollar—, although mitigated in the medium term by their impact on growth. On the other hand, measures that prevent the expected adjustment in spending, and give a new impulse to inflation, would lead to MPR hikes to ensure the convergence of inflation to the target.

FIGURE II.10 GROWTH AND INFLATION FORECASTS (1)
(annual change, percent)



(1) The figure shows confidence interval of central projection at the respective horizon (colored area). Confidence intervals of 10%, 70%, and 90% around the baseline scenario are included. Confidence intervals are built using the RMSE of XMAS-MEP models' 2009-2017 average. (2) Measured with the CPI without volatiles.
Sources: Central Bank of Chile and National Statistics Institute (INE).

BOX II.1:

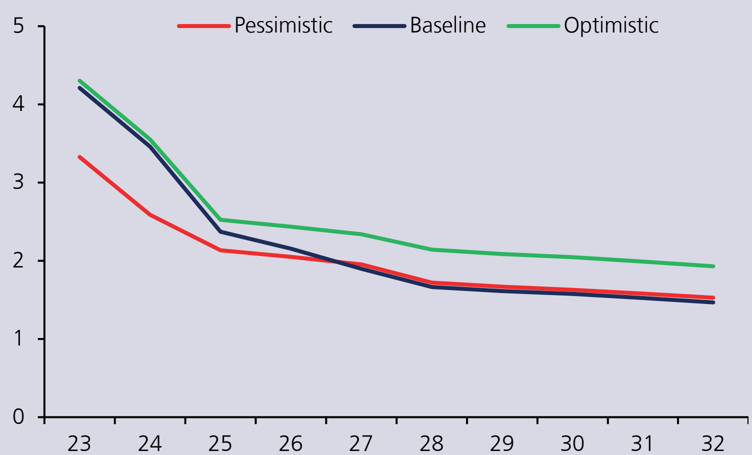
Trend GDP

This box presents an update of the trend growth estimate, a variable associated with the economy's medium and long-term growth capacity[1]/. In line with the June 2021 projection (Box V.1 in June 2021 MP Report), a downward trajectory of non-mining trend GDP is estimated for the next years (figure II.11). Thus, in the period 2023-2032, the trend growth of non-mining GDP will average 2.2%.

The same as in June 2021, the downward trajectory of trend growth is based on the following assumptions: first, in the next two years, the boost to trend growth coming from the pending recovery of the participation in the labor force of lagging groups will be lower than in 2021 and 2022[2]/; second, capital stock growth will be decreasing over time; third, hours worked will decline to converge to OECD averages, which implies a diminishing labor factor contribution to trend growth. Finally, the projection continues to consider a slow growth in total factor productivity (TFP), based on the consolidation of a decreasing trend of this factor[3]/.

Along with the central estimate, two alternative scenarios are shown, both of which yield descending trajectories for trend growth. The optimistic path considers a more favorable convergence of variables such as hours worked and participation rates to OECD levels, while the pessimistic path assumes a less favorable convergence[4]/.

FIGURE II.11 TREND GROWTH TRAJECTORY
(percent)



Source: Central Bank of Chile.

[1]/ The concept of trend GDP differs from potential GDP in that the latter refers to the level of GDP consistent with stable inflation and is therefore the appropriate to measure the activity gap associated with short-term inflationary pressures. Since trend GDP is related to the medium-term growth capacity of the economy, in the long run both measures converge to the same number. However, in the short term, transitory elements that alter productive capacity, such as temporary productivity shocks and factor use limitations, can generate differences between the two measures. Hence the importance of analyzing them separately. For details, see chapter 1, in Central Bank of Chile (2017).

[2]/ Much of the recovery in labor participation after the pandemic shock has already taken effect, so its boost to trend growth over the next years will be minor. The present estimate assumes that the labor force participation of the age brackets that are still lagging behind (those under 25 and over 60) will fully recover by the end of 2024. This explains the difference between this estimate and the previous one, when trend non-mining GDP growth of 2.9% was estimated for the period 2021-2030.

[3]/ See Box V.1 in June 2021 Monetary Policy Report.

[4]/ See Bauducco *et al.* (2022).

Trend growth estimation

Following the logic of the 2019 and 2021 exercises, the estimation of trend growth splits GDP into mining and non-mining sectors. For the non-mining sector, the methodology is based on a Cobb-Douglas type production function, in which trend growth can be decomposed thus:

$$\Delta Y = \Delta TFP + \alpha\ \Delta L + (1-\alpha)\ \Delta K$$

where ΔY denotes trend GDP growth, ΔTFP is trend growth of total factor productivity, α is the share of labor in GDP (assumed to equal 0.5, as in previous exercises), ΔL is trend growth in the labor factor (i.e., labor force times hours worked times a human capital index), and ΔK is capital growth.

In this exercise, the contribution of the labor factor to non-mining GDP growth in the 2023-2032 decade is 0.7 percentage points (pp) (table II.5). This is lower than the 1.4pp estimated in 2021 for the 2021-2030 decade, because a significant part of the recovery in hours worked and labor participation took place in 2021 and 2022, and therefore will no longer contribute to growth from 2023 onwards. Estimated TFP growth remains at 0.35%.

The contribution of the capital stock is 1.2pp, quite close to the 1.1pp of the previous exercise. For 2023 and 2024, capital stock growth is consistent with the investment projected in the central scenario of this Report. Thereafter, it is assumed to converge to growth at the same rate as non-mining GDP, which is consistent with a balanced growth trajectory.

TABLE II.5 TREND GROWTH FORECAST
(percent)

	Trend growth (*)			Contribution to non-mining GDP growth		
	Non-mining GDP	Mining GDP	Total GDP	Capital	Labor	TFP
2023-2032	2.2	1.5	2.1	1.2	0.7	0.35

(*) Mining accounts for 12% of total GDP.
Source: Central Bank of Chile.

To obtain total trend GDP growth, a growth projection for the mining sector is added, which is estimated to be 1.5% annually in 2023-2032. This value is lower than the one used in the latest trend growth updates (2%). This revision takes into account the sector's low growth records of recent years (1% in the 1997-2021 average), as well as Cochilco's expected production of copper and other minerals (e.g., lithium)[5]/. Under this assumption, total trend GDP growth will average 2.1% annually in the ten-year period 2023-2032.

Finally, due to the downward trajectory of trend GDP growth over the next decade, for the purposes of calculating the medium-term projections of this MP Report, it was decided to use the average trend GDP growth for the period 2024-2027, which is 2.5%. This time horizon is the appropriate one to inform the medium-term projections, because longer horizons correspond to an economy whose productive factors are projected to be significantly different from those relevant for the medium-term projection horizon. Excluding the year 2023, on the other hand, avoids considering a year of high trend growth due to the ongoing recovery of labor participation.

[5]/ See Bauducco *et al.* (2022).

BOX II.2:

The neutral interest rate

This Box presents the new estimates of the neutral monetary policy interest rate (NMPR), understood as the rate consistent with GDP on its long-term equilibrium path —trend— and inflation at target, i.e., in a situation where the effects of economic shocks have dissipated [1]/. The NMPR is an important parameter for the calibration of projection models, since it marks the level towards which the monetary policy rate converges in the long term, but typically does not substantially affect short-term projections of this or other variables. The NMPR is revised upwards by 25bp to 3.75%, within a range between 3.5% and 4% (3.5%, within a 3.25% to 3.75% range in the previous estimate).

The NMPR estimates are revised periodically because they may vary depending on changes in the structural conditions of the Chilean and world economies. The latest revision to the NMPR (see Box V.2 in June 2021 Report) used data up to the first quarter of 2020. This update extends the sample to the third quarter of 2022 and adds new methodologies [2]/. This allows for a more robust estimation of the NMPR, in a context where the economy has experienced multiple shocks, some of them unusual, such as the Covid-19 pandemic.

In June 2021, a real NMPR of 0.5% was estimated, with an uncertainty-adjusted range between 0.25% and 0.75%. The re-estimation of the real NMPR suggests a rise in both the previous and new methodologies. The median of the estimates places it around 0.75%, which is chosen by the Board as the new real neutral rate level. Considering the 3% inflation target, the nominal NMPR is placed at 3.75%. All in all, there is some dispersion in the estimates. Trimming out the extremes, a range is obtained for the real NMPR between approximately 0.5% and 1%, or between 3.5% and 4% for the nominal NMPR (table II.6).

This revision is consistent with the recent increase of neutral rates in other economies, which partially reversed the downward trend of global rates. This has led to increases in short, risk-neutral, long-term expected rates, which are directly associated with longer-term MPR expectations (figure II.12).

[1]/ As with the concept of potential GDP, in the case of the NMPR there is another concept that refers to cyclical fluctuations. See, for example, Woodford (2003) or Galí (2015).

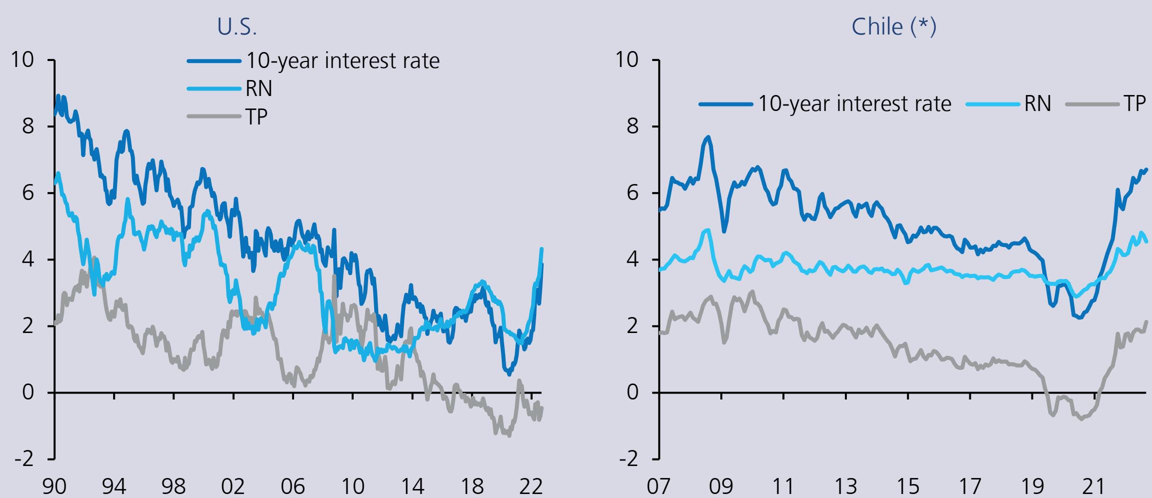
[2]/ The methodologies include: (i) models that estimate stochastic cycles and trends using inflation series and long and short interest rates; (ii) models based on financial asset prices that correct for term premia; (iii) a semi-structural model based on the Euler equation and the Phillips curve; (iv) recursive estimates of the long-term rate with Taylor rules; and (v) other methodologies: interest rate parity, common stochastic trend and consumption models. For references and details, see Arias *et al.* (2022).

TABLE II.6 REAL NEUTRAL RATE ESTIMATES
(percent)

Method	Real NMPR
1. Stochastic trend – BCP10	1.4
2. Stochastic trend – Convenience yield	1.1
3. Term premium correction	0.6
4. Euler equation and Phillips curve	1.4
5. Taylor rule	1.0
6. Taylor rule – expectations	0.5
7. Interest rate parity	0.8
8. Model of consumption with habits	0.1
9. Common stochastic trend model	0.8
Median	**0.8**
Range (*)	**0.5 – 1.1**

(*) Excludes lowest estimates (0.1) and the highest (1.4).
Source: Arias *et al.* (2022).

FIGURE II.12 DECOMPOSITION OF 10-YEAR INTEREST RATE INTO TERM PREMIUM (TP) AND RISK NEUTRAL (RN) RATE
(percent)



(*) Estimates based on Beyzaga & Ceballos (2016) and Abrahams et al. (2016) with House Average Swap nominal rates.
Sources: Central Bank of Chile and New York Federal Reserve.

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