MONETARY POLICY REPORT

December 2017

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*/ This is a translation of a document originally written in Spanish. In case of discrepancy or difference in interpretation the Spanish original prevails. Both versions are available at www.bcentral.cl.

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*/ The statistical cutoff date of the *Monetary Policy Report* was 27 November 2017.

PREFACE

The main objective of the Central Bank of Chile's monetary policy is to keep inflation low, stable, and sustainable over time. Its explicit commitment is to keep annual CPI inflation at around 3% most of the time, within a range of plus or minus one percentage point. To meet this target, the Bank focuses its monetary policy on keeping projected inflation at 3% annually over a policy horizon of around two years. Controlling inflation is the means through which monetary policy contributes to the population's welfare. Low, stable inflation promotes economic activity and growth while preventing the erosion of personal income. Moreover, focusing monetary policy on achieving the inflation target helps to moderate fluctuations in national employment and output.

The *Monetary Policy Report* serves three central objectives: (i) to inform and explain to the Senate, the Government, and the general public the Central Bank Board's views on recent and expected inflation trends and their consequences for the conduct of monetary policy; (ii) to publicize the Board's medium-term analytical framework used to formulate monetary policy; and (iii) to provide information that can help shape market participants' expectations on future inflation and output trends. In accordance with Section 80 of the Bank's Basic Constitutional Act, the Board is required to submit this report to the Senate and the Minister of Finance.

The *Monetary Policy Report* is published four times a year, in March, June, September and December. It analyzes the main factors influencing inflation, which include the international environment, financial conditions, the outlook for aggregate demand, output, and employment, and recent price and cost developments. The last chapter summarizes the results of this analysis in terms of the prospects and risks affecting inflation and economic growth over the next eight quarters. Some boxes are included to provide more detail on issues that are relevant for evaluating inflation and monetary policy.

This *Report* was approved at the Board's session on 30 November 2017 for presentation to the Finance Committee of the Senate on 04 December 2017.

The Board

SUMMARY

In recent months, local economic activity has evolved according to forecasts. The greater external impulse has consolidated, financial conditions remain favorable, trading partners on average have strengthened somewhat and the terms of trade have improved. However, inflation has fallen short of projections in the September *Report*. The difference owes mainly to the more volatile items in the basket, since core inflation—the CPIEFE—is in line with projections. Going forward, the convergence of inflation is expected to take a little longer than estimated in the last *Report*, considering the effect of recent surprices in inflation, the evolution of the exchange rate up to the statistical cutoff and a steady increase in activity from its limited levels of today to above potential towards the second half of 2018. This will contribute to close the activity gap, helping the convergence of inflation within the forecast horizon. The Board has kept the monetary policy rate (MPR) at 2.5% since last May and expects that —if the baseline scenario comes true— the monetary impulse will be kept near its current levels, to begin withdrawals only when the economy begins to close the output gap. The Board estimates that any downward deviations of short-term inflation should be monitored with special care, because in a context of a weak economy, low inflation and with some measures of medium-term inflation expectations still being under 3%, the convergence of inflation could be affected, requiring deeper expansionary monetary policy action.

Headline inflation has been more volatile in recent months, accumulating a negative surprise that took it to 1.9% in October, close to 0.4 percentage points (pp) below the September forecast. The CPIEFE has behaved in line with estimates, despite significant ups and downs. Its dynamics, as has been the trend of recent quarters, has been largely driven by the exchange rate. The surprise in headline inflation came mainly from foodstuffs, particularly fresh fruits and vegetables, whose seasonal behavior was very different from historical patterns. Between August and October these prices—which account for 2.9% of the CPI basket—varied around -9% on average, compared with nearly +7% in the last ten years for the same season.

In the baseline scenario, headline inflation remains around 2% during the first half of 2018, and returns to 3% during the first half of 2019, some time later than expected in September. Core inflation is foreseen to also remain low for

INTERNATIONAL BASELINE SCENARIO ASSUMPTIONS

	Avg. 00-07	Avg. 10-15	2016	2017 (f)	2018 (f)	2019 (f)
	(annual change. percent)					
Terms of trade	8.2	0.4	1.9	11.0	1.7	-2.9
Trading partners GDP (*)	3.7	4.1	2.9	3.5	3.6	3.5
World GDP at PPP (*)	4.5	4.0	3.2	3.7	3.7	3.7
World GDP at market exchange rate (*)	3.3	3.2	2.5	3.0	3.0	2.9
Developed economies' GDP at PPP (*)	2.4	1.8	1.6	2.1	2.0	1.9
Emerging economies' GDP at PPP (*)	6.5	5.4	4.1	4.9	5.1	4.9
External prices (in US$)	4.6	0.9	-2.7	3.6	2.7	1.9
			(levels)			
LME copper price (US¢/lb)	154	332	221	280	295	275
WTI oil price (US$/barrel)	44	85	43	51	56	53
Brent oil price (US$/barrel)	42	94	44	54	61	59
Gasoline parity price (US$/m^3) (*)	366	701	389	466	501	475
Libor US$ (nominal, 90 days)	3.6	0.3	0.7	1.3	2.2	2.9

(*) For definition, see glossary,
(f) Forecast.

Source: Central Bank of Chile.

some quarters, to converge to 3% in the second half of 2019, somewhat slower than headline inflation. The medium-term behavior of prices is much related to the gradual closing of the output gap, which process is expected to begin during the second half of 2018. On this point, neither the recent data nor the projections in the baseline scenario show big changes from September's assumptions. In the third quarter, non-mining activity[1]/—which is the base of the gap estimate—continued to show limited annual growth (1.7%) and below both the economy's potential (around 2.5%) and aggregate GDP (2.2%).

As has happened in recent years, the sectoral composition of non-mining GDP reflects the better relative performance of consumption-related than investment-related activities, particularly construction. Thus, while private consumption sustains annual increases of 2% to 3%, investment in construction and other works falls, even more than expected. Tradable expenditure lines, such as durable goods consumption and investment in machinery and equipment, remain dynamic, supported by the peso appreciation of recent quarters and financial conditions that have helped to replenish inventories after several years of low growth.

Consumption and its fundamentals have evolved consistently. Employment annual growth has stayed close to 2% for several months, outperforming, however, annual growth in salaried employment, especially in the private sector. Annual growth in real wages is higher than it was early in the year, mainly as a result of low inflation. Interest rates remain at record lows, a factor that is also noted by qualitative sources such as the Banking Credit Survey and the *Business Perceptions Report.* Finally, confidence indicators show sustained improvement, although based more on the economy's expected future performance than on the current situation.

Throughout the year, the better prospects for the international scenario have tended to consolidate. Developed economies, in general, show higher growth rates than in the past few years, as do several emerging ones. Furthermore, global financial conditions are still favorable, as the main central banks continue to handle with great care and calmness the withdrawal of their large monetary stimuli, helping to keep interest rates and term premiums low. Capital has continued to flow to emerging markets and the prices of various risk assets are high. Commodity prices have also performed better than expected. Copper is above US$3 per pound, and projections for 2018 and 2019 are revised up from September, to US$2.95 and US$2.75, respectively. This will more than compensate the higher price of oil for the same period—more than 10% higher than was estimated in September—, triggering an upward revision to the earlier projections for the terms of trade.

[1]/ Starting this *Report*, for the analysis of the evolution of conjunctural activity and the measurement of the activity gap, the concpets of Natural Resources GDP and Other GDP, are replaced by Mining GDP and Non-mining GDP.

Looking ahead, the projections in the baseline scenario foresee no major events. This year, the economy will grow 1.4%, within the range expected in September. For 2018, the projection remains with the range between 2.5% and 3.5%. Part of the higher growth of 2018 compared to 2017, particularly during the first half of the year, will owe partly to the low comparison base in the mining sector, while the non-mining sector will post a slower recovery. The gradual recovery of higher rates of GDP growth leans on a favorable external scenario, the end of the decline in mining and housing investment, the absence of significant macroeconomic imbalances and a clearly expansionary monetary policy. As a working assumption, it is estimated that in 2018 the economy will receive a fiscal impulse in line with the approved budget. From then onwards, it is assumed that fiscal spending will follow a path towards consolidation.

The convergence of inflation to the target also considers that the real exchange rate (RER) will depreciate slightly, to converge it to its long-term equilibrium within the projection horizon. The baseline scenario also supposes that the prices of foodstuffs, in particular fresh fruits and vegetables, will return to its historical seasonal patterns, so their annual inflation should increase over the course of 2018.

Regarding monetary policy, in the baseline scenario, the Board estimates that the surprises that have pulled inflation below expectations do not compromise the convergence of inflation to the target. This, both because by their nature they should not propagate materially, and because the arguments that sustain the closing of the output gap remain fully in force. In this context, as a working assumption, the baseline scenario considers a monetary impulse similar to that in the September *Report*. That is, the MPR remaining fairly stable to start approaching its neutral level only once the economy begins to close the gap. In any case, the Board recognizes that in a scenario like the current one— where activity growth is still limited, inflation remains near the lower bound of the tolerance range for several months, and some measures of medium-term inflation expectations remain a tad below 3%— any downward deviation from inflation in the short term should be monitored with special care, because the convergence of inflation could be affected, requiring an even more expansionary monetary policy stance.

As usual, these projections face internal and external risks. Externally, an ongoing concern is the way and pace of the withdrawal of the monetary stimulus in the developed world. So far, the process has been carried out with great caution, keeping the financial markets calm. However, the discrepancies that still exist between the markets' perception of the Fed's decisions going forward and its announced estimates of the most likely scenario continues to be a source of significant tension. Add the fact that in different markets prices are high by historic standards, a phenomenon that could show abrupt reversals

ECONOMIC GROWTH AND CURRENT ACCOUNT

	2016	2017 (f)	2018 (f)
	(annual change. percent)		
GDP	1.6	1.4	2.5-3.5
National income	1.7	3.3	3.5
Domestic demand	1.1	3.1	3.7
Domestic demand (w/o inventory change)	2.0	1.6	3.0
Gross fixed capital formation	-0.8	-2.5	3.1
Total consumption	2.8	2.9	3.0
Goods and services exports	-0.1	0.0	4.5
Goods and services imports	-1.6	5.8	7.3
Current account (% of GDP)	-1.4	-1.1	-1.2
Gross national saving (% of GDP)	20.2	20.0	20.5
Gross national investment (% of GDP)	21.6	21.1	21.7
GFCF (% of nominal GDP)	23.2	21.4	21.4
GFCF (% of real GDP)	21.9	21.1	21.1
		(US$ million)	
Current account	-3.574	-3.000	-3.500
Trade balance	5.256	8.700	8.800
Exports	60.597	69.700	76.400
Imports	-55.341	-61.000	-67.600
Services	-3.137	-2.800	-2.900
Rent	-7.117	-10.900	-12.000
Current transfers	1.424	2.000	2.600

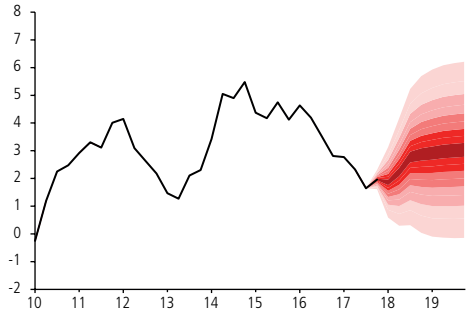
(f) Forecast.
Source: Central Bank of Chile.

INFLATION

	2016	2017 (f)	2018 (f)	2019 (f)
	(annual change, percent)			
Average CPI inflation	3.8	2.2	2.4	
December CPI inflation	2.7	2.1	2.9	
CPI inflation in around 2 years (*)				3.0
Average CPIEFE inflation	4.0	2.0	2.0	
December CPIEFE inflation	2.8	1.8	2.6	
CPIEFE inflation in around 2 years (*)				3.0

(f) Forecast.
(*) Corresponds to inflation forecast for the third quarter of 2019.
Source: Central Bank of Chile.

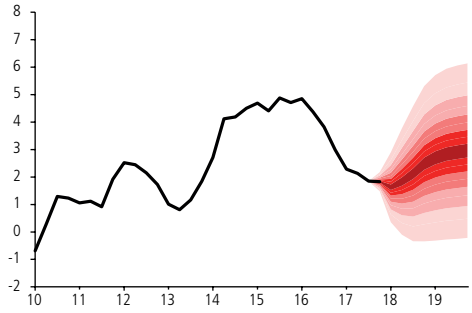
CPI INFLATION FORECAST (*)
(annual change, percent)



(*) The figure shows the confidence interval of the baseline projection over the respective horizon (colored area). Confidence intervals of 10%, 30%, 50%, 70% and 90% around the baseline scenario are included. These intervals summarize the risks on future inflation as assessed by the Board. The baseline scenario uses as a working assumption that the MPR is kept around its current levels and begins to be raised towards neutral only once the economy starts closing the activity gap.

Source: Central Bank of Chile.

CPIEFE INFLATION FORECAST (*)
(annual change, percent)



(*) The figure shows the confidence interval of the baseline projection over the respective horizon (colored area). Confidence intervals of 10%, 30%, 50%, 70% and 90% around the baseline scenario are included. These intervals summarize the risks on future inflation as assessed by the Board. The baseline scenario uses as a working assumption that the MPR is kept around its current levels and begins to be raised towards neutral only once the economy starts closing the activity gap.

Source: Central Bank of Chile.

in scenarios of tighter than expected global financial conditions. Inflation in the developed world continues to draw attention, as it has remained low despite stronger activity and higher energy prices. In addition, elements of uncertainty persist surrounding fiscal and trade policy in the United States and political issues in Europe, plus growing geopolitical risks in Asia and the Middle East. In any case, it can not be ruled out that, given the results of recent quarters, greater global growth may be observed, which could further boost world trade and boost global investment further.

The same as in recent years, the main source of risks facing the emerging world is the Chinese economy. On one hand, it still needs to resolve a number of imbalances in several critical markets. In addition, it just started a monetary adjustment that is not exempt of risks and the path the reforms agenda will take after the Chinese Communist Party Congress is still unknown, as are its effects on the economy. In any case, its growth slowdown has been milder than previously thought, so it could remain strong for longer than projected.

The baseline scenario assumes the price of copper will have a gradual decline in the coming quarters. However, there could be a quicker reversal since parts of the recent gains are related to financial phenomena. On the other hand, we cannot discard that prices remain higher for longer, as reflected by the price scenarios of some market participants. This could occur due to supply or demand factors.

With respect to economic activity, GDP is forecasted to gradually recover greater growth rates. There are several domestic factors that are risks to the forecast. On one hand, the lack of synchronization across expenditure components remains, and some sectors are still behind, especially those related to investment. On the other hand, it is possible that, since confidence among consumers and businesses have been supported by expectations on the economy's performance in the future rather than the current performance, weaker economic activity in the short run could affect the robustness and sustainability of the recovery.in the medium term. Also, the financial market, in the context of a general favorable outlook, still has pockets of vulnerability in commercial credit and consumption. In contrast, the cost of credit remains at historical lows and the international scenario has been better than expected, which could add an impulse to investment and accelerate the recovery.

In this context, the Board estimates that the risk balances for activity and inflation are unbiased. However, it reiterates its intention to monitor any possible downward deviation of short-term inflation that may jeopardize the convergence of inflation to the target within the projection horizon. Accordingly, the Board reaffirms its commitment to conduct monetary policy with flexibility, so that projected inflation stands at 3% in the two-year horizon.

MONETARY POLICY DECISIONS IN THE LAST THREE MONTHS

BACKGROUND: SEPTEMBER 2017 MONETARY POLICY REPORT

The *Monetary Policy Report* indicated that inflation and growth had been lower than expected in June. However, because the main differences were related to factors that were largely considered transitory, neither the outlook for the economy nor the general orientation of monetary policy had changed in response to these trends.

With regard to inflation, the main surprises were concentrated in the most volatile prices, in particular fresh fruit and vegetables, which had followed an atypical seasonal trend. Going forward, these prices were expected to be more dynamic, in line with their historical patterns, which would contribute to bringing inflation to the target in the second half of 2018. Core inflation (CPIEFE) was not very different from the forecast, but given the currency appreciation of the past few months, it was expected to continue fluctuating around 2% through mid–2018, before gradually returning to 3% thereafter. As a working assumption, the RER was expected to depreciate slightly in the forecast horizon.

In terms of output, second-quarter growth had been affected by differences in the number of business days, including a mandatory holiday, together with some one-off shocks in the industrial sector. Nevertheless, these factors had not had a significant effect on the baseline scenario. GDP was expected to grow 1.25 to 1.75% in 2017 and 2.5 to 3.5% in 2018, such that the economy would gradually return to higher growth rates and the output gap would begin to close toward the second half of 2018. These projections were based on the end of the adjustment in mining investment, the absence of macroeconomic imbalances, a favorable external scenario, and a clearly expansionary monetary policy. In fact, the monetary stimulus had not changed much since the June *Report*. As a working assumption, the monetary policy rate (MPR) was expected to stay around its current level and to begin rising to its neutral level only after the economy began to close the output gap.

Internationally, the terms of trade had improved. The copper price had risen above US$3.00 a pound, and the oil price, while fluctuating, was a little lower than at the cutoff date of the last *Report*. The higher copper price had coincided with a well-supplied market despite supply problems, together with the weak dollar, low interest rates, and a better performance in China. In the baseline scenario, the copper price was revised to US$2.75 in 2017 and 2018 and US$2.70 in 2019. In addition, external financial conditions remained favorable, and somewhat higher growth was forecast for Chile's trading partners in the next two years.

The main external risks continued to be tied to monetary policy in the developed world and fiscal policy in the United States, given their impact on the global economy and financial conditions. There were also geopolitical risks. China continued to be a source of risk due to the imbalances in several of its markets, while in Latin America there were a number of political uncertainties. Moreover, although the high copper price could last, its implications for monetary policy were not obvious: in the short term, the appreciation of the peso implied lower domestic inflation, but a more dynamic economy would close the output gap faster. The factors that had reduced output and inflation could be more persistent than expected, in particular investment, if confidence indices fell. Nevertheless, the possibility of a more dynamic economy could not be discarded, given that the labor market had not deteriorated, the cost of credit was low, and expectations had improved somewhat. At the same time, a number of factors could cause inflation to fall further or to remain low longer than expected, which would affect longer-term price formation and inflation expectations. The Board's balance-of-risk assessment for output was broadly balanced, while for inflation it was skewed to the downside in the short term but broadly balanced in the medium term.

SEPTEMBER, OCTOBER, AND NOVEMBER MEETINGS

For the September meeting, the news since the cutoff date of the *Monetary Policy Report* had been in line with the baseline scenario used in the *Report*. August inflation reflected the expected reversal of some volatile factors, although market expectations had declined for the very short term, incorporating the effects of the exchange rate movements. The global dollar had depreciated and risky assets had appreciated, due to an apparent market assumption that central banks in developed economies had been too passive, combined with excessive optimism on China's dynamism. The Research Division considered two main options: holding the MPR at 2.5% with a neutral bias, or cutting the MPR by 25 basis points (bp) to 2.25%, with a downward bias. The former was consistent with the

baseline scenario of the *Monetary Policy Report,* which assumed that the exchange rate appreciation would have an effect on short-term inflation but would not impede convergence with the inflation target, as the output gap would close within the policy horizon. The latter option was based on a risk-management argument. The low inflation could be a response to a larger output gap than estimated, which would push back inflation convergence. The analysis tended to discount that possibility, however, since the evolution of inflation had been very closely tied to the exchange rate and to some one-off factors. Moreover, different measures indicated that excess capacity, while present, was limited. It was not for nothing that nontradable inflation had recorded only a gradual adjustment. Another reason for a preventive action—but one that would require a larger cut than 25 bp—was the disconnect between the growth outlook and the exchange rate appreciation. This could reflect an overly optimistic financial market, which, in the event of the materialization of a negative local growth scenario (for example, due to a drop in confidence levels), could prevent the output gap from closing. On the other hand, a series of large exchange rate shocks could generate a more persistent shift in inflation, putting inflation convergence at risk due to second-round effects—similar to what happened in late 2015, but in the opposite direction. The assessment of the impacts and communication effects of risk-based alternatives was a complex exercise, and there were elements that needed to be further analyzed. The Board therefore held the MPR at 2.5%.

For the October meeting, the main news was the negative inflation surprise, for both the market and internal forecasts, which had been concentrated in fruit and vegetable prices and a few other products. Market expectations had fallen at different time frames, and real market rates had risen. It was difficult to interpret these movements for the meeting, since the CPI surprise had only just become known. Therefore, given that the general scenario had not changed relative to the last *Report's* forecast, the policy options presented by the Research Division were to hold the MPR at 2.50% with a neutral bias or to implement a cut of 25 bp, to 2.25%, with a downward bias. Maintaining the current rate was consistent with the fact that the shocks that had caused inflation to deviate were one-off in nature and thus would not have a significant impact on medium-term convergence. Moreover, given the better copper price and the improvement in expectations and confidence levels, the recovery appeared to have taken hold at the margin, reinforcing the outlook for the output gap. It was also important to bear in mind that there was no commitment to start normalizing the policy rate on a specific date; rather, policy normalization would take place only after the economy showed signs of a more solid recovery. Finally, this option was also based on the fact that the rate movements reflected portfolio adjustments and would therefore tend to disappear over time. The main argument against this option was that the increase in market rates heightened the risk of a slower recovery, a process that was still weak and was the anchor of inflation convergence. As in past months, the argument for increasing the monetary stimulus rested on managing the risks to inflation convergence, which, according to the Research Division, had increased after the release of the latest inflation data. The Board decided to hold the MPR at 2.5%.

For November, the new data tended to confirm the risk analysis of the previous month. Inflation had surprised to the upside in October, partially reversing the previous negative surprises. Nevertheless, convergence to 3% was expected to be somewhat slower, for both core and headline inflation. The outlook for the output gap had not changed and was supported by a better external scenario, especially the terms of trade. Thus, the options put forward by the Research Division at the last two meetings were still valid: either to hold the MPR at its current level or to reduce it by 25 bp, to 2.25%. Keeping the rate at 2.5% was consistent with the baseline scenario and with the assessment that the shocks that had caused inflation to deviate were one-off in nature. Moreover, neither the shocks themselves nor the fact that some measures of expectations two years ahead remained below 3% would have a significant impact on the price formation process. At the same time, there was considerable uncertainty about both the measurement of inflation expectations and their impact on the price formation process. Two-year expectations collected mainly from the financial market had been under 3% for some time, whereas other measures, like the EES, had not been. These measures had been diverging for some time, which constituted a significant risk when taken together with the low inflation forecast for the coming quarters, in particular for core inflation. This was an important concern because of the possibility of negative output surprises and the limited understanding of the inflation expectation formation process. Even so, the possible negative effects of low inflation expectations on the price formation process were limited, given that the recovery appeared to be taking hold at the margin and that the withdrawal of the monetary stimulus was anchored on the fact that the economy would have to show signs of a more solid recovery. As in past meetings, increasing the monetary stimulus rested on a risk-management argument. The argument against this option centered on the difficulty of communicating MPR adjustments based on the minimization of risks, not only because they implied changes in the policy rate that did not reflect a significant change in the baseline scenario, but also because in the event that those risk scenarios did not materialize, the extra stimulus would have to be withdrawn quickly. At any rate, the current MPR was not far from the level at which it should be in a couple of years, according to the baseline scenario. The concern over the increase in real rates had dissipated, as they had come back down over the course of the past month. Thus, the general assessment was that monetary policy had not become any less expansionary, which had been a risk a few months earlier. The Board decided to hold the MPR at 2.5%.

I. INTERNATIONAL SCENARIO

This chapter analyzes the recent evolution of the world economy and the outlook for the next two years. It also describes the most probable scenario and the main risks.

Over the last few months, the outlook for the external scenario has continued to improve. Output data confirm a higher world growth trend relative to the past few years, due to the solid performance of the developed economies and better-than-expected results in some emerging countries. This has been driven by an improvement in industrial activity, which has led to an increase in world trade and a better outlook for the manufacturing sector (figure I.1). At the same time, inflation remains low in most of the developed countries. Global financial conditions remain favorable, as central banks in developed economies continue to move forward carefully and gradually with the withdrawal of the strong monetary stimulus. This has helped keep interest rates and spreads low from a historical perspective, which has driven asset prices at the world level and favored capital inflows to the emerging world. Chile's terms of trade improved again, mainly because the copper price has been higher than forecast and has more than offset the recent increase in oil. Nevertheless, there are still significant risks in both directions.

In the baseline scenario used in this *Report*, world growth for this year and the next two years has been revised upward relative to the September forecast (table I.1). In the developed economies, output continued to solidify in the third quarter, mainly due to improvements in the manufacturing sector. The favorable evolution of the sector's fundamentals, such as the labor market and expectations indicators, suggests that these trends will hold in the coming months. In the United States, the growth rate was stable, although some components were more dynamic following the hurricanes (such as inventory replenishment and durable goods expenditures). At the same time, consumer fundamentals remain favorable, and investment indicators suggest that investment will remain dynamic, over and above any possible distortion in the reading due to the aforementioned climatic factors. In the Eurozone, output remains dynamic. The growth trend has been fairly generalized across countries, and the output gap and unemployment rates have tended to decline, albeit with differences among the member economies. In Japan, GDP performance was similar to the previous quarter, due to an increase in net exports.

FIGURE I.1
Global output: exports, industrial production, and manufacturing outlook
(diffusion index, pivot point=50; annual change, percent)

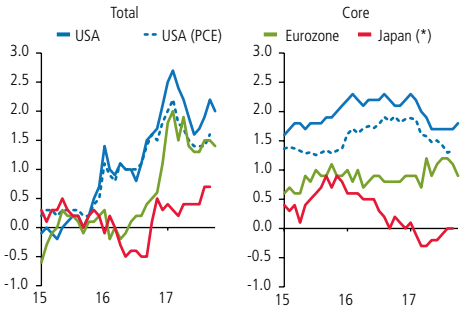
(*) A value over (under) 50 indicates growth (contraction).
Source: Bloomberg and CPB World Trade Monitor.

TABLE I.1
World growth (*)
(annual change, percent)

	Avg. 00-07	Avg. 10-15	2016	2017 (f)	2018 (f)	2019 (f)
World at PPP	4.5	4.0	3.2	3.7	3.7	3.7
World at market FX rate	3.3	3.2	2.5	3.0	3.0	2.9
Trading partners	3.7	4.1	2.9	3.5	3.6	3.5
United States	2.7	2.3	1.5	2.2	2.3	2.2
Eurozone	2.2	1.0	1.8	2.1	1.8	1.7
Japan	1.5	1.5	1.0	1.7	1.3	0.9
China	10.5	8.3	6.7	6.8	6.5	6.2
India	7.1	7.4	7.1	6.8	7.4	7.6
Rest of Asia	5.2	4.8	3.8	4.1	4.2	4.2
Latin America (excl. Chile)	3.6	2.9	-1.4	1.2	2.2	2.6
Commodity exporters	3.1	2.5	2.0	2.6	2.3	2.3

(*) See glossary for definitions.
(f) Forecast.
Sources: Central Bank of Chile, based on a sample of investment banks, Consensus Forecasts, IMF, and the statistics offices of each country.

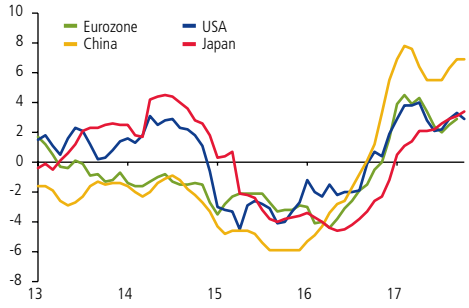
FIGURE I.2
Consumer price inflation
(annual change, percent)



(*) For 2015, excludes the effect of the VAT increase.

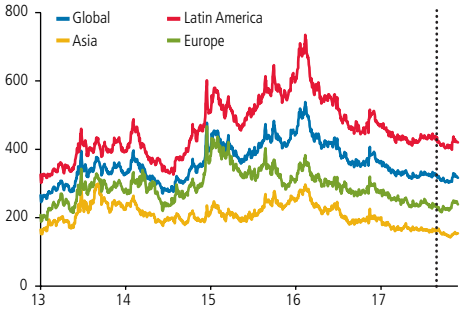
Source: Bloomberg.

FIGURE I.3
Producer price inflation
(annual change, percent)



Source: Bloomberg.

FIGURE I.4
Spreads (*)
(basis points)



(*) Measured by the EMBIs. The vertical dotted line indicates the cutoff date of the September 2017 *Monetary Policy Report*.

Source: Bloomberg.

Inflation remains contained in most of the developed economies. The most recent data reflect the higher energy prices, at least partially, but they have not responded to the improvements in output and labor indicators. Core measures remain low (figure I.2). This contrasts with the recovery of producer price indices, due to the aforementioned increase in energy costs (figure I.3). In contrast, inflation remains high in the United Kingdom, mainly due to the effects of the depreciation of the pound following the Brexit referendum. Market expectations continue to indicate that inflation will be just over 2.0% in the United States at the end of this year, while it will remain lower in Europe and Japan.

With regard to monetary policy, the developed countries' central banks have continued to proceed carefully and gradually with the withdrawal of the strong monetary stimulus, which has been reflected in interest rates in these economies. In the United States, the Federal Reserve (Fed) began to reduce its balance sheet in October, and the market expects a new increase in the federal funds rate in December. Going forward, market prices continue to diverge from the path outlined by the FOMC. The European Central Bank, in turn, has indicated that it will slow the pace of its asset purchases in early 2018, and it has not announced any adjustments to its reference rate. In Japan, the monetary authority maintained its expansionary policy, in the face of still-low inflation. In November, the Bank of England increased its policy rate for the first time in several years, signaling that the process will be gradual and that it will closely monitor the implications of the next phases of the Brexit negotiations.

Global financial conditions remain favorable, supported, as mentioned, by the cautious conduct of the developed countries' central banks. Since the last *Report*, long-term interest rates recorded limited movements in several developed economies and a mixed performance in the emerging countries. There was a sharper uptick in the United Kingdom and the United States. In the latter, the increase responded, in part, to a better growth outlook, which also translated into a strengthening of the U.S. currency in the period. However, since the start of the year, currency appreciation against the U.S. dollar has predominated, together with a drop in ten-year nominal rates in several economies, with a few notable exceptions such as China and India. In this context, the appetite for risk continues to drive a good share of asset prices at the global level, including both financial and real. Stock market indices continued to increase, recording historical peaks on a number of exchanges, while volatility measures remained low, albeit with some fluctuation (figures I.4, I.5, and I.6). In the baseline scenario of this *Report*, external financial conditions are still expected to gradually revert, in part due to monetary normalization in the developed economies.

In the emerging world, the slowdown in China has been more gradual than expected, and quarterly results continue to trigger upward revisions in the growth outlook for 2017 and 2018 (figure I.7). The tertiary sector is still underpinning GDP growth, while higher growth of disposable income and an increase of consumer confidence support private spending. Nevertheless, some

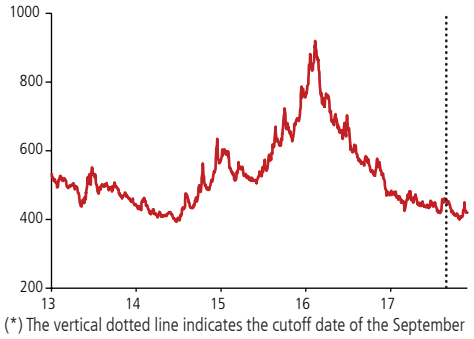
data for the third quarter and partial indicators for the fourth point to a less dynamic economy. Activity in mining and related sectors has been affected by new environmental regulations; construction, by regulatory changes in the real estate sector. The former also coincides with an across-the-board reduction in investment by origin and by sector. While this is consistent with actions by the National Congress of the Communist Party, which has shown itself willing to prioritize the quality of economic growth and to proceed with the reform of certain supply sectors and the financial system, there are doubts about the direction the reform agenda will take, in the midst of rebalancing the economy. In the most recent period, the monetary adjustment process has not been free of risks, given the potential impact of how the current imbalances are addressed, as is the case with the financial situation[1]/.

Commodity prices, in general, stayed above the September forecasts, in particular for copper and fuel. Copper reached US$3.20 a pound in the period, before settling at around US$3.10 as of the cutoff date of this *Report* (+3.5% in the period). This trend was seen in most metal prices, as pressure deriving from financial factors remained high and some price fundamentals improved (figure I.8). The latter include an increase in current demand and in the demand outlook, due to greater global industrial production and China's stable performance. In addition, relatively flat production has led to inventory drawdown. Over and above the recent movements, the weak U.S. dollar over the course of the year has also supported the copper price. Therefore, the baseline scenario in this *Report* incorporates an upward revision to the average copper price for this year and the next two years, to US$2.80, $2.95, and $2.75 per pound, respectively.

With regard to oil, both Brent and WTI barrel prices increased significantly in the period (22 and 20%, respectively), to around US$63 and $56, respectively. This is largely explained by a somewhat more balanced market (figure I.9). Globally, demand and the demand outlook have increased, production has been stable, and inventories have shrunk. Additional contributing factors include the announcement of another extension of the production cut agreement by OPEC members and other producers and the geopolitical tensions in the Middle East. At the same time, cost structures have not changed significantly, in a market that continues to be characterized by the quick entry and exit of shale oil producers. Finally, the smaller relative increase in the WTI barrel price versus the Brent largely reflects the impact of the hurricanes in the United States. In the baseline scenario in this *Report*, the average Brent and WTI crude oil prices have been revised to US$59 a barrel in 2018 and $56 in 2019, respectively (both up from US$50 in September).

[1]/ For more details, see the *Financial Stability Report* for the second half of 2017.

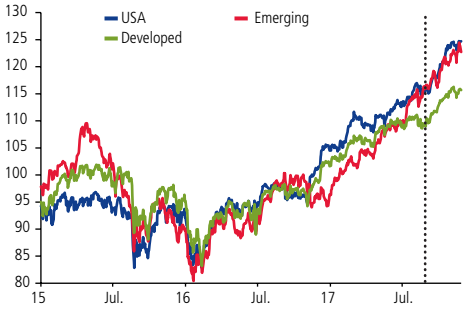
FIGURE I.5
USA: High-yield spread (*)
(basis points)



(*) The vertical dotted line indicates the cutoff date of the September 2017 *Monetary Policy Report.*

Source: JP Morgan DataQuery.

FIGURE I.6
Stock markets (1) (2)
(index: 2015–2017 average=100)

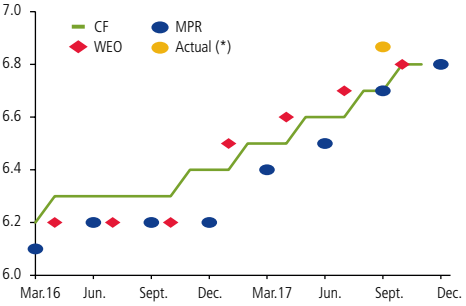


(1) The vertical dotted line indicates the cutoff date of the September 2017 *Monetary Policy Report.*

(2) USA: Dow Jones. Regions: Morgan Stanley Capital International stock indices in local currency.

Source: Bloomberg.

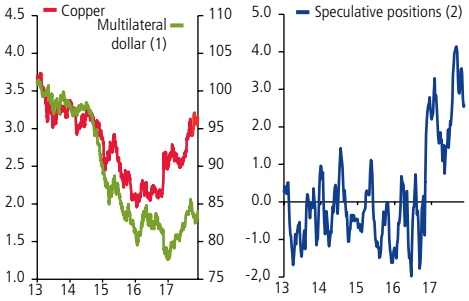
FIGURE I.7
China: 2017 growth forecast
(annual change, percent)



(*) Average annual change from the first to the third quarter of 2017.

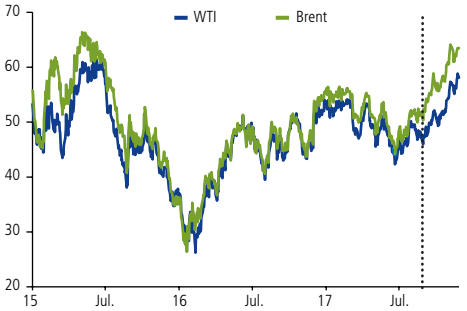
Sources: Central Bank of Chile, Bloomberg, Consensus Forecast, and International Monetary Fund.

FIGURE I.8
Copper price, dollar, and speculative positions
(dollars per pound; index: January 1997=100; standardized series for the 2006–2017 period)



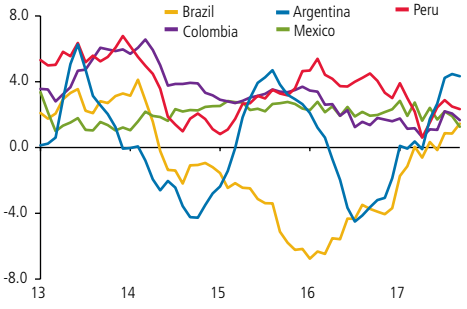
(1) An increase (decrease) indicates depreciation (appreciation).
(2) Long positions on financial contracts minus short positions.
Source: Bloomberg.

FIGURE I.9
Crude oil price (*)
(dollars per barrel)



(*) The vertical dotted line indicates the cutoff date of the September 2017 *Monetary Policy Report*.
Source: Bloomberg.

FIGURE I.10
Latin America: monthly output (*)
(annual change, percent)



(*) Three-month moving average.
Source: Bloomberg.

In Latin America, the favorable external scenario described above has continued to generate capital inflows to the region, asset appreciation, and low spreads. Moreover, some central banks have continued to increase the monetary stimulus. Even so, output has reacted slowly to these factors, and growth remains low, with a mixed performance in the most recent data (figure I.10). Consumer and business confidence indicators have generally improved, however, so the market expects higher growth in 2018 than in 2017. Nevertheless, some economies in the region still face a number of pending challenges in terms of the fiscal consolidation. There is also considerable uncertainty surrounding the upcoming policy definitions and the possible effects on financial conditions for the region—which thus far have been limited—of the downgrading of Venezuela's credit rating due to the intensification of its debt repayment crisis.

The international scenario continues to present risks in both directions, which are broadly balanced. There are still substantial risks related to how and how fast the developed economies will implement the monetary stimulus withdrawal, which thus far has not triggered any major disruptions in the financial markets. In this regard, the ongoing discrepancy between the path announced by the Fed and the market's expectations remains an important source of tension. Asset prices have increased significantly, recording historical peaks in some markets and creating a risk of a sharp reversion (box I.1). Inflation in the developed world has not responded to the more dynamic activity, a trend that should be closely monitored. There are also risks associated with political issues in Europe, the evolution of the fiscal debate in the United States, the NAFTA negotiations, and the next phases of Brexit. In Latin America, the main sources of risk are the fiscal challenges and the uncertainty surrounding political factors. Elsewhere, there are latent risks associated with the Korean peninsula and the possible implications of the tension in the Middle East on the price of oil. At the same time, world growth could be higher than expected, which would boost world trade and generate a more significant increase in investment at the global level. In this regard, what happens in China is especially relevant: while the economy's slowdown has been more gradual than expected, there are a number of persistent risks that raise a note of caution. Finally, another possibility is that the copper price will stay at its current level rather than gradually falling as projected in the baseline scenario, giving rise to the price scenarios projected by some market segments. On the other hand, a sharp reversal in financial conditions could put downward pressure on the copper price.

BOX I.1
RECENT INCREASE IN ASSET PRICES AT THE GLOBAL LEVEL

The prices of various financial assets—in particular risky assets—have recently undergone a significant increase, in some cases hitting record levels. Some real assets have also followed this price trend. For example, the Global House Price Index reported by the IMF is currently near the peak recorded in early 2008, and in some developed economies it has easily surpassed its level before the global financial crisis. This suggests that the financial market is optimistic about economic performance in the coming years. To some degree, this contrasts with the low long-term interest rates and flat yield curves (figure I.11), which are usually associated with low growth expectations[1]/[2]/ In fact, despite the recent improvement in the data, the medium-term growth outlook for the world as a whole and for the main developed economies has fallen in recent years, according to IMF reports. In this context, the risk of a reversion of asset prices constitutes an important concern. This box discusses the recent appreciation in asset prices and its possible causes.

Recent evolution of asset prices

A large number of stock indices have recorded historical peaks in recent months (figure I.6), as have bond markets. At the same time, financial risk indicators are at their lowest levels of the past few decades (figures I.4 y I.5). A considerable number of countries have also seen a significant increase in house prices, adjusted for inflation (table I.2). Chile has not evaded these global trends. Over and above some reversion at the margin, the IPSA has increased 21% in the year and 29% since early 2016. Measured in dollars, the increase is even greater, at 26 and 54%, respectively. House prices have also increased, but more moderately.

What is behind the higher asset prices?

In general, an asset's price reflects the expectation of future flows discounted at risk-adjusted rates. In this sense, the current high prices suggest some combination of lower risk-free interest rates, a compression of risk spreads, and/or a better outlook for the associated cash flows. Thus, the central question is whether the current combination of low interest rates, a higher growth outlook, and low spreads, which underpin the current valuations, is sustainable over time.

The low interest rates are explained by a series of structural and economic factors. With regard to the former, an extensive literature tries to document the secular downward trend of real interest rates. The main explanations include the aging of the population and the lower economic growth rates in the medium and long terms, factors that are difficult to reconcile with a vision of higher future growth[3]/.

With regard to more immediate economic factors, monetary policy has been ultra-expansionary at the global level for several years, operating not only on the short end of the yield curve—as usual—but also on the long end, through asset purchases and other unconventional policy measures. Most recently, although the U.S. Federal Reserve (Fed) has begun the normalization process, the European Central Bank and the Bank of Japan still have policy rates near 0% and very deep monetary stimulus programs. Going forward, whereas the weak economy of the past few years and the general absence of inflationary pressures have justified extraordinarily expansionary monetary policies, the recovery of output and the elimination of slack in the labor market should require a lower stimulus in order to avoid future real or nominal imbalances. Thus, in the event of recovery, it is reasonable to think that the yield curve will steepen at the global level[4]/

[1]/ As explained earlier, the higher asset prices are also a consequence of low interest rates. The question is whether the combination of low real rates and relatively high growth that appear to be implicit in the current valuation of some assets is sustainable over time.

[2]/ On the relationship between low real rates and a low future growth outlook, see Summers (2014). On the relationship between the slope of the yield curve and expected growth, see Estrella and Mishkin (1996).

[3]/ See box I.1 in the December 2015 *Monetary Policy Report* for a discussion of the main arguments explaining the drop in long rates.

[4]/ The tension on this point is clear in some markets, such as the United States, where the federal funds rate path implicit in market prices remains below the path communicated by the Fed.

Asset prices have been favored not only by the low risk-free rates, but also by a high appetite for risk, which has helped compress spreads and keep the different volatility measures low[5]/. The low perception of risk—or the willingness to assume it—reflects the synchronized recovery worldwide, the dissipation of certain risk scenarios (at least in the market's perception), and the greater role of monetary policy in containing high-volatility scenarios[6]/. However, it is not at all clear that the underlying risk today is any lower than the historical average, as suggested by indicators such as the VIX, in terms of both the financial markets—in fact, leverage has increased in important sectors of the world economy (IMF, 2017b)—and the geopolitical tensions[7]/, which appear to be better incorporated in tail risk measures. Nor is it the case that the central banks are as willing today to postpone the necessary normalization process as they were even recently, given that the macroeconomic context has improved substantially. Finally, while the foundations for short-term growth in the developed economies are solid, as shown by the cyclical and synchronized global economic recovery, in some cases the growth trend has lasted longer than usual. Moreover, some major economies, like China, have endemic problems of low productivity and are in need of adjustments, which calls into question the sustainability of the current growth rates, despite the better news of the past few months. A number of multilateral organizations have noted that it will be difficult to maintain the current growth rate without reforms to strengthen investment and productivity.

Conclusion

The low risk-free rates, the greater appetite for risk, and the better growth outlook have driven the demand for assets and put upward pressure on prices. However, there are arguments to suggest that this combination of factors could change as some aspects of the global economy normalize. Consequently, the possibility of a sudden reversion of asset prices is a significant source of concern.

The baseline scenario in this *Report* assumes that the external financial conditions relevant to Chile, such as interest rates and credit spreads paid by emerging economies, will gradually converge to their recent historical averages. It further assumes that the growth rates that contribute to the cash flows of different assets will remain at levels consistent with long-term risk-free rates. However, there is still the possibility of sudden sharp reversions, which could trigger unwanted episodes of financial stress. Such episodes are usually related to herd behavior by financial market participants, which, by its nature, is very difficult to predict and is usually amplified in markets that operate with a high degree of leverage. These limits, however, are not easy to identify.

TABLE I.2
Asset valuation (1) (2)
(percent range)

	Cyclically adj. price/ earnings	Future price/ earnings	Capital spread	Term spread (10 years)	Corporate spread	House price to income
United States	83	79	85	7	6	74
Germany	62	33	86	9	14	39
Japan	28	17	87	5	65	8
United Kingdom	85	60	96	8	8	92
Emerging	25	58	84	19	5	44

(1) Colors based on quartile valuation: red (dark green) indicates a low (high) spread, volatility, and issue quality, as well as a high (low) issue and house price to income.
(2) For details on the definition and calculation of the variables, see IMF (2017b).

Source: IMF (2017b).

FIGURE I.12
USA: real 10-year Treasury bond rate (1)
(percent)

(1) Constructed using one-year and ten-year inflation expectations (CPI) from the Survey of Professional Forecasters of the Federal Reserve Bank of Philadelphia.
(2) Prior to 1980, one-year inflation expectations were taken from the GDP deflator series.

Source: Bloomberg.

[5]/ See box I.1, in the June 2017 *Monetary Policy Report* for a discussion of the reasons behind the low volatility in the financial markets.
[6]/ Since the negative reaction of the markets during the Taper Tantrum, the monetary authorities in developed countries have been very careful in their communications and have shown themselves willing to soothe episodes of volatility. Two examples are the central banks' reaction after Brexit and the Fed's pause after its first rate increase in December 2015.
[7]/ These risks seem to be better captured by other measures, such as the VVIX and the SKEW index (*Monetary Policy Report*, June 2017, box I.1).

II. FINANCIAL MARKETS

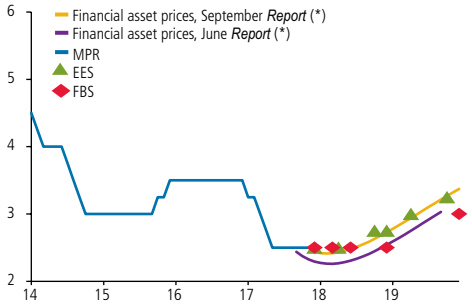
This chapter reviews the evolution of local financial markets in connection with the transmission of monetary policy.

MONETARY POLICY

Since the last *Report*, the international scenario has continued to be characterized by loose financial conditions, a sustained improvement in global output, and more favorable terms of trade. Local economic activity has evolved in line with the forecast. By component, there is still a disparity between consumption- and investment-related sectors, and construction, in particular, continues to be weak. Inflation was below the September forecast, primarily due to volatile items in the basket. Going forward, the favorable international scenario, the end of the mining and housing investment adjustment, the absence of significant macroeconomic imbalances, and a clearly expansionary monetary policy will provide the foundations for the economic recovery. Headline inflation will stay around 2% in the first half of 2018 and return to 3% in the first half of 2019, somewhat later than forecast in September. In this context, the Board has held the monetary policy rate (MPR) at 2.5% since May.

As a working assumption, the baseline scenario incorporates a similar monetary stimulus to the September *Report*, where the MPR stays around its current levels and only begins to rise toward its neutral level once the economy begins to close the output gap. The Board recognizes that given the current scenario—in which growth remains low, inflation will stay at the lower end of the target range for several more months, and some measures of medium-term inflation expectations are below 3%—any downward shift in inflation in the short term must be monitored very closely, as it could affect inflation convergence, in which case a more expansionary monetary policy would be necessary. Market expectations, in general, assume that the MPR will stay around its current level for a few more quarters, with the withdrawal of the monetary stimulus starting in the second half of 2018 (figure and table II.1).

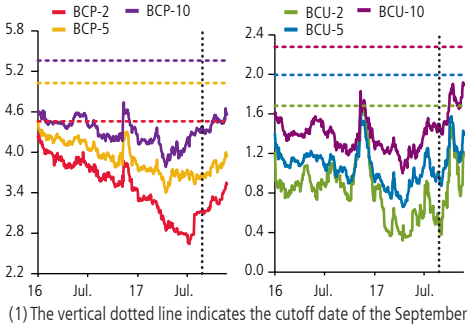
FIGURE II.1
MPR and expectations
(percent)



(*) Constructed using interest rates on swap contracts up to 10 years.

Source: Central Bank of Chile.

FIGURE II.2
Interest rates on Central Bank of Chile bonds (1) (2)
(percent)

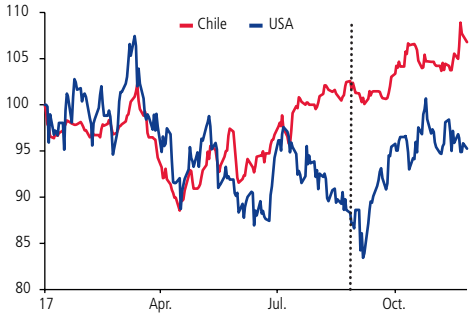


(1) The vertical dotted line indicates the cutoff date of the September 2017 *Monetary Policy Report*.

(2) Horizontal dotted lines indicate the average of the last 10 years for each series.

Source: Central Bank of Chile.

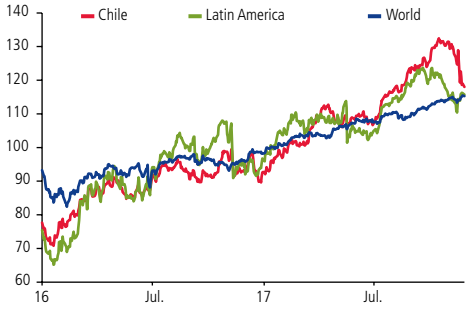
FIGURE II.3
Ten-year nominal interest rates (*)
(fixed-base index: 02.Jan.17=100)



(*) Chile: BCP-10; United States: 10-year U.S. Treasury bonds. The vertical dotted line indicates the cutoff date of the September 2017 *Monetary Policy Report.*

Sources: Central Bank of Chile y Bloomberg.

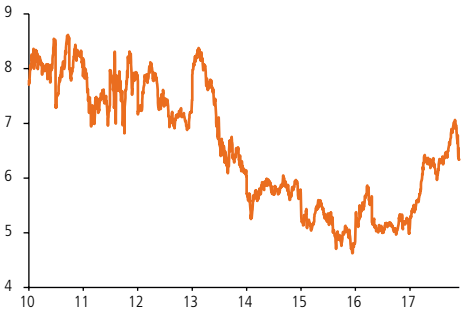
FIGURE II.4
Stock market (*)
(index: 2016–2017=100)



(*) Chile: IPSA; other exchanges: MSCI. Both are measured in dollars.

Source: Bloomberg.

FIGURE II.5
Stock price to EBITDA (*)
(ratio)



(*) Stock prices: IPSA measured in pesos.

Source: Bloomberg.

TABLE II.1
MPR expectations
(percent)

	One year ahead		Two years ahead	
	September *Report*	December *Report*	September *Report*	December *Report*
EES (1)	2.50	2.75	3.00	3.25
FBS (2)	2.50	2.50	3.00	3.00
Financial asset prices (3)	2.41	2.73	3.03	3.37

(1) August and November 2017 surveys.
(2) Surveys for the second half of August and November 2017.
(3) The September and December *Monetary Policy Reports* use the average of the last ten business days as of 29 August 17 and 29 November 17, respectively.

Source: Central Bank of Chile.

FINANCIAL CONDITIONS

International and domestic financial markets have not undergone any major changes in the past three months. Many assets continue to appreciate, reflecting a strong appetite for risk. Since the last *Report*, long-term interest rates shifted somewhat in a number of developed countries, with a sharper increase in the United Kingdom and the United States. In the latter case, the increase is, in part, a response to the better growth outlook, which has also contributed to consolidating expectations for an additional adjustment in the federal funds rate this year. In the emerging economies, interest rate movements were mixed. Turkey and Mexico recorded particularly sharp increases, in both cases due to idiosyncratic factors. In this context, the dollar appreciated against most currencies between the cutoff dates of this and the last *Reports*. The risks in the international scenario are broadly balanced.

As in other countries, bond rates in the Chilean market rose at different maturities, but they are still below their historical averages (figures II.2 and II.3). This trend mainly reflects local factors. The increase in BCP-5 and, in particular, BCP-10 rates reflected investment portfolio shifts toward foreign securities on the part of the pension fund administrators (PFAs), which also contributed to widening the gap vis-à-vis average interbank swap rates (nearly –40 bp in the case of the ten-year nominal swap spread as of the cutoff date). Rates on UF-denominated bonds were more volatile in the quarter, mostly after the CPI surprises in September and October.

The Chilean stock market index (IPSA) is still higher than at the start of the year, demonstrating higher returns than several similar indices in recent months (figures II.4 and II.5). Performance was good in most sectors, but especially in banking

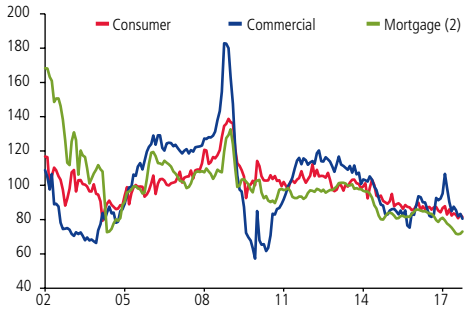
and commodities. The local stock market's rise coincided with generally positive results among IPSA firms. The latter were underpinned by margin improvements that largely reflect efficiency gains, as widely reported by the people interviewed for the *Business Perceptions Report* (BPR). However, much of the IPSA ascent was reversed in the weeks leading up to the statistical cutoff date. At the same time, sovereign and corporate spreads (five-year CDS and CEMBI) continued to contract over the last three months.

Domestic credit continues to be somewhat dynamic, with low interest rates (figure II.6). Thus far in the year, mortgage loans have outperformed other portfolios, in terms of both month-on-month and annual growth (figure II.7). Qualitative information supports this trend. According to the Bank Lending Survey (BLS) for the third quarter, mortgages are driving the improved perception of credit demand, after several years in negative territory. The November BPR also underscores the better performance of these loans, at least partially in response to lower down payment requirements by banks, especially for safer clients. The consumer portfolio has had a stable real annual growth since the September *Report*, while commercial loans were affected by the impact of exchange rate fluctuations on their valuation. With regard to other sources of financing, overseas bond placements continue to account for a large share of total corporate issues, consistent with the favorable international debt conditions (figure II.8). As discussed in the *Financial Stability Report* (FSR) for the second half of 2017, these issues continue to be oriented toward refinancing liabilities.

The opinions expressed in the last BPR are consistent with this view of the local credit market in terms of interest rates and the growth of bank lending. According to the interviewees, portfolio refinancing continues to prevail over the acquisition of new debt. They still perceive lending conditions to be less flexible in areas related to mining and construction, in contrast to an increased flexibility among car financing companies, which has been building over the past few quarters. With regard to arrears, the BPR suggests that concerns in this area have eased somewhat, albeit with differences among macrozones. According to the FSR, traditional indicators of bank arrears remain low, although alternative measures reflect higher risk in the consumer and commercial segments.

With regard to the nominal monetary aggregates, the annual growth rate of M1 continued to increase over the past few months (from 10.2% in July to 12.0% in October), but fell for M2 and M3, from 5.3 to 4.2% and from 7.7 to 5.5% between July and October, respectively (figure II.9). Low interest rates continue to favor the holding of more liquid assets. In M1, the fastest-growing component was checking accounts. In M2 and M3, the slowdown in the annual growth rate was centered on time deposits and Treasury bonds, in both cases due to the PFA portfolio shifts in recent months.

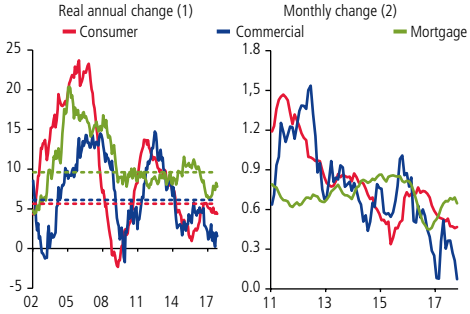
FIGURE II.6
Interest rates, by type of loan (1)
(index 2002–2017=100)



(1) Weighted average rates of all operations in the month.
(2) Mortgage interest rates are in UF.

Source: Central Bank of Chile, based on data from SBIF.

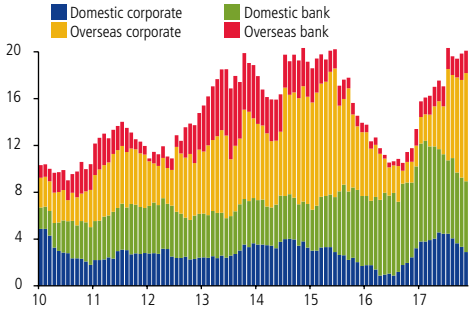
FIGURE II.7
Loans by type
(percent)



(1) Horizontal dotted lines indicate the average of the last 10 years for each series.
(2) Seasonally adjusted series; six-month moving average.

Source: Central Bank of Chile, based on data from SBIF.

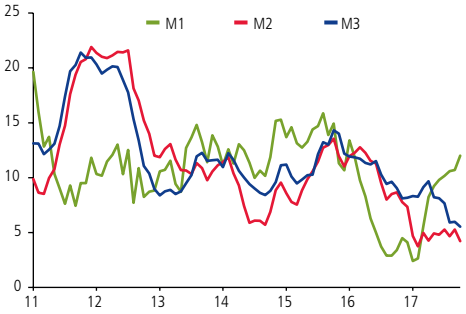
FIGURE II.8
Total issues (*)
(US$ billion, accumulated annually)



(*) Data for November 2017 are through the cutoff date.

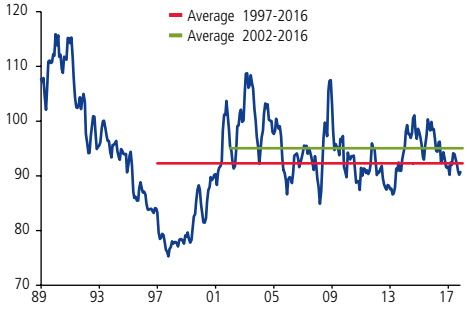
Source: Central Bank of Chile, based on data from SBIF.

FIGURE II.9
Nominal monetary aggregates
(annual change, percent)



Source: Central Bank of Chile.

FIGURE II.10
Real exchange rate (*)
(index: 1986=100)



(*) Data for November 2017 are preliminary estimates through the cutoff date.

Source: Central Bank of Chile.

EXCHANGE RATE

The peso-dollar exchange rate appreciated a little over 1% since the last *Report* (with some fluctuation), trading at just over $635 on the cutoff date. The strengthening of the peso in recent months coincides with the higher copper price and the improved growth outlook for 2018. At the same time, the U.S. dollar has appreciated since early September, although it is still more depreciated than at the start of the year. Consequently, the nominal exchange rate has dropped a total of 6% thus far in the year.

Other commodity exporters saw a weakening of their currencies since the September *Report*, due to various factors. South Africa and New Zealand, in particular, recorded a marked depreciation, essentially due to their political situation (table II.2). Most of the Latin American currencies also depreciated, including the Mexican peso, which was affected by the uncertainty surrounding the renegotiation of NAFTA. Thus, according to the different multilateral measures (MER, MER-X, and MER-5), the Chilean peso accumulated a drop of –1.5% since the last *Report*.

The real exchange rate (RER)—where 1986=100—appreciated after the September *Report*, a trend that was largely reversed in recent weeks. On the cutoff date of this *Report*, the RER was around 92 and thus remains below its historical average (figure II.10). As a working assumption in the baseline scenario of this *Report*, the RER is expected to depreciate slightly, converging with its long-term equilibrium level within the forecast horizon.

TABLE II.2
Exchange rates against the U.S. dollar (1)
(percent)

	Change in NER		
	Dec.17 *Report*/ Sept.17 *Report*	In one year	Spot/minimum 2013
Latin America (excl. Chile) (2)	**3.9**	**-5.7**	**57.6**
Brazil	3.2	-4.1	65.9
Chile	**-1.3**	**-6.2**	**36.3**
Colombia	1.2	-4.9	70.8
Mexico	6.4	-8.1	55.1
Peru	0.1	-5.1	27.5
Commodity exporters (2)	**3.6**	**-3.2**	**37.7**
Australia	4.3	-2.2	39.4
Canada	1.5	-5.3	29.9
New Zealand	6.0	2.7	24.9
South Africa	7.0	-0.9	62.7
Developed economies (2)	**0.3**	**-7.1**	**16.4**
Eurozone	0.2	-10.1	16.0
Japan	2.5	0.8	28.1
United Kingdom	-2.9	-6.1	24.3
Other emerging economies			
China	-0.6	-4.0	9.0
South Korea	-3.1	-6.7	3.7
India	1.4	-4.8	21.4
Indonesia	1.3	0.6	40.4
Poland	-0.8	-14.2	17.7

(1) A positive (negative) sign indicates a depreciation (appreciation) of the currency against the U.S. dollar. Spot rate is on the cutoff date. For the one-year comparison, the calculation uses the last ten business days as of 29 Nov. 2016; for the rest, the average of the last ten business days prior to the cutoff of the indicated *Report*.
(2) Includes the currencies of the economies included in this table. Constructed using the weights in the WEO, October 2017.

Sources: Central Bank of Chile, Bloomberg, and International Monetary Fund.

III. OUTPUT AND DEMAND

This chapter reviews the recent evolution of output and demand and their short-term outlook, in order to examine possible inflationary pressures.

OUTPUT

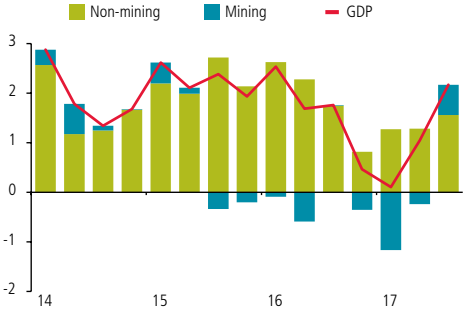
Over the last three months, the improved growth outlook for next year has been consolidated, despite the limited performance of the non-mining sectors[1]/. Overall, output and demand evolved as expected in the third quarter. The annual GDP growth rate was 2.2%, which reflects limited growth of non-mining GDP (1.7% annually) and more dynamic mining GDP, especially after the recovery of production levels in the sector following the strike at the *La Escondida* mine. In the non-mining economy, construction-related sectors continue to be weak, while consumer-related sectors had a better performance (figure and table III.1).

The growth outlook as not changed significantly, such that growth rates are expected to gradually recover. This reflects a number of factors, including the low basis for comparison in the mining sector, which will raise the annual growth rate in the first half of the year. Non-mining GDP will recovery more slowly. The gradual recovery of higher GDP growth is based on the favorable international scenario and the absence of significant macroeconomic imbalances. Moreover, all indications are that the investment adjustment process should be coming to an end in the mining and real estate sectors. Construction is expected to recover more slowly than previously projected. Consumer-related sectors are expected to continue to support the growth of the economy, in a context where real labor income has increased. Confidence indicators have improved, especially for the future. Together with an expansionary monetary policy, this should contribute to increasing the growth rate, consistent with the closing of a large share of the output gap within the forecast horizon.

Thus, the Board estimates that GDP will grow 1.4% in 2017, which is in line with the September projection, and 2.5–3.5% in 2018, which is the same range as in the last *Report*. The output gap should thus begin to close gradually starting in the second half of 2018, as projected in September.

[1]/ Starting with this *Report*, the terms natural resources GDP and other (non-natural-resources) GDP have been replaced with mining and non-mining GDP for the purposes of analyzing the current evolution of output and measuring the output gap (box III.1).

FIGUREIII.1
Contribution to annual GDP growth
(real annual change, percentage points)



Source: Central Bank of Chile.

TABLE III.1
Gross domestic product
(share of GDP; real annual change, percent)

	Share	2016				2017		
	2016	I	II	III	IV	I	II	III
Agriculture, livestock, and forestry	3.2	6.3	-1.4	2.0	8.3	-2.0	0.3	-1.3
Fishing	0.7	-6.9	0.1	0.8	1.6	37.7	8.9	14.0
Mining	8.1	-1.4	-6.1	-0.8	-3.3	-14.2	-3.0	7.5
Manufacturing	11.0	0.2	-0.9	-0.8	-2.2	1.2	0.4	1.0
EGW and waste management	3.0	9.6	10.0	-2.8	-7.6	-0.1	0.8	4.1
Construction	6.6	5.7	3.3	2.2	-0.2	-1.5	-3.7	-6.0
Trade	9.1	2.9	4.3	3.4	3.0	5.8	3.5	4.4
Restaurants and hotels	2.1	1.8	-0.8	-1.4	0.2	0.6	1.1	0.9
Transport	5.2	3.3	3.7	4.2	2.0	0.7	0.8	2.0
Communications and info. serv.	2.9	4.1	4.0	2.6	1.7	2.8	4.0	3.8
Financial services	4.9	5.6	3.7	2.7	2.9	2.7	3.6	4.3
Business services	10.4	0.0	-1.4	-2.1	-3.5	-3.7	-2.3	-1.7
Residential property and real estate services	7.7	2.3	4.1	2.2	2.1	1.8	2.9	2.5
Personal services (*)	11.8	5.0	6.2	6.4	3.0	3.8	2.8	3.1
Public administration	4.8	3.2	3.5	2.9	2.5	1.2	2.3	1.8
Total GDP	**100.0**	**2.5**	**1.7**	**1.8**	**0.5**	**0.1**	**1.0**	**2.2**
Non-mining GDP	**91.9**	**2.9**	**2.5**	**2.0**	**0.8**	**1.4**	**1.4**	**1.7**
Mining GDP	**8.1**	**-1.4**	**-6.1**	**-0.8**	**-3.3**	**-14.2**	**-3.0**	**7.5**

(*) Includes education, health, and other services.
Source: Central Bank of Chile.

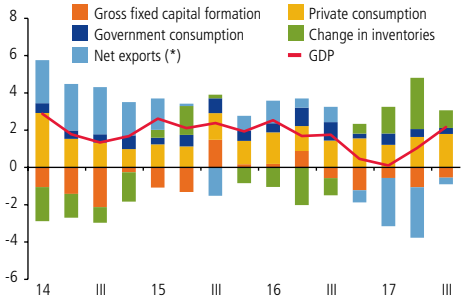
TABLE III.2
Domestic demand
(share of GDP; real annual change, percent)

	Share	2016				2017		
	2016	I	II	III	IV	I	II	III
Domestic demand	**99.2**	**1.4**	**1.2**	**0.9**	**1.1**	**2.8**	**3.8**	**2.5**
Domestic demand (excl. change in inventories)	100.7	2.5	3.3	1.8	0.5	1.3	1.0	1.5
Gross fixed capital formation	23.2	1.1	4.1	-2.4	-5.0	-2.6	-4.6	-2.3
Construction and works	14.8	2.7	0.8	-2.0	-4.9	-6.4	-7.6	-7.5
Machinery and equipment	8.4	-1.8	10.9	-3.1	-5.2	4.2	0.7	6.4
Total consumption	77.6	3.0	3.1	3.1	2.3	2.4	2.7	2.7
Private consumption	64.0	2.7	2.1	2.3	2.4	1.9	2.6	2.8
Durable goods	5.5	4.3	2.8	4.9	5.5	11.3	10.7	11.5
Nondurable goods	27.0	2.3	1.4	1.5	1.9	1.4	1.9	1.7
Services	31.6	2.7	2.6	2.4	2.3	0.7	1.8	2.2
Government consumption	13.5	4.7	7.4	7.1	1.7	5.3	3.0	2.2
Change in inventories (*)	-1.6	-0.5	-1.0	-1.2	-1.1	-1.2	-0.5	-0.3
Goods and services exports	28.5	0.8	0.6	0.1	-2.0	-4.0	-3.0	3.0
Goods and services imports	27.6	-3.4	-1.1	-2.0	0.0	4.8	6.7	4.4
Total GDP	**100.0**	**2.5**	**1.7**	**1.8**	**0.5**	**0.1**	**1.0**	**2.2**

(*) Ratio of inventory change to GDP, at average prices of the previous year, accumulated in the last 12 months.

Source: Central Bank of Chile.

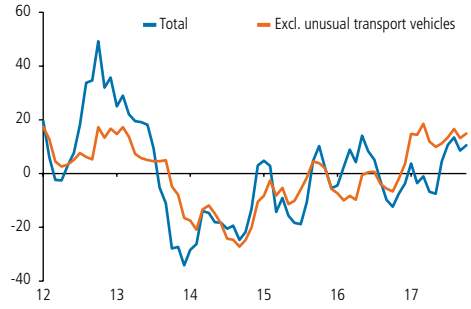
FIGURE III.2
Contribution to annual GDP growth
(real annual change, percentage points)



(*) Goods and services exports less imports.

Source: Central Bank of Chile.

FIGURE III.3
Capital goods imports (*)
(annual change, percent)



(*) Three-month moving average.

Source: Central Bank of Chile.

There are a number of risks that could affect the economy's growth, in the event they materialize. In the labor market, employment has grown, but the growth rate of wage jobs is low. Moreover, the recovery of the construction sector could be delayed further, and there are some negative risks in the international scenario described in this *Report* that could potentially result in a lower external stimulus. The increase in confidence indicators mentioned early should also be read with caution, since it is mainly related to an improvement in expectations for the future performance of the country and businesses, rather than the perception of a better current situation. In the opposite direction, there are factors that could drive growth higher than projected: financial conditions remain very loose, and the international scenario has improved. The external scenario could also become more favorable. For example if the copper price stays above the forecast, it could generate a faster recovery of mining investment. Similarly, higher external demand would give a stronger boost to exports.

Private expectations also anticipate faster economic growth in 2018, in line with the baseline scenario in this *Report*. The November Economic Expectations Survey (EES) projects an annual growth rate of 3.0% (2.6% in August). Other sources have also been moving their growth forecasts upward for next year. Consensus Forecasts rose from 2.8% annually in August to 3.0% in November. The International Monetary Fund—which has a lower growth forecast—nevertheless incorporated an increase, from 2.3% in April of this year to 2.5% in October (IMF, 2017b).

DOMESTIC DEMAND

Private consumption grew somewhat more than in the previous quarter, while investment remained weak, although the poor performance of construction and other works was partially offset by more dynamic machinery and equipment. The annual growth rate of final demand—excluding changes in inventories—rose from 1.0% in the second quarter to 1.5% in the third. However, the annual growth of domestic demand fell from 3.8 to 2.5% in the same period, due to lower inventory accumulation relative to the second quarter (table and figure III.2)[2/].

The components of investment continued to be marked by divergent trends, with an increase in the annual growth rate of machinery and equipment and another contraction in construction and other works. As a result, gross fixed capital formation fell less in the third quarter than in the second (–2.3% annually versus –4.6%), as machinery and equipment went from annual growth of 0.7% in the second quarter to 6.4% in the third. In October, capital goods imports (excluding unusual transport vehicles) remained dynamic (+16% annually) (figure III.3), which reflects the need to replenish stocks after several years of stagnation, as well as the exchange rate evolution and low interest rates.

[2/] The ratio of the change in inventories to GDP reported in table III.2 uses inventory accumulation in the last 12 months. Therefore, it is not directly comparable to the quarter-on-quarter change in inventories.

The weak investment in construction and other works mainly reflects lower expenditures on building and engineering works, which recorded a similar contraction to the previous quarter: -7.5% in annual terms. Going forward, this component is still expected to recover, but the forecast has been pushed back somewhat. Most sectoral indicators continue to record negative annual rates, but several contracted less than in the first half of the year, in line with a stabilization of demand (figure III.4). The outlook of sectoral participants has improved, although they remain pessimistic on aggregate.

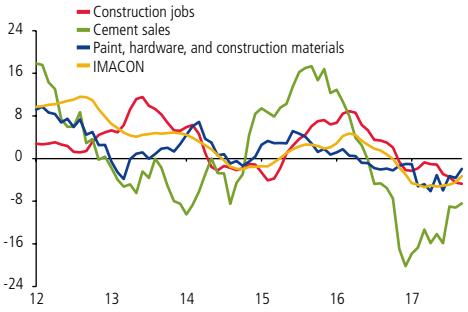
In the residential sector, third-quarter data from the Chilean Chamber of Construction (CChC) point to a slight increase in new home sales in Greater Santiago relative to the second quarter. The available inventory of homes for sale shrank, but it is still above the average of the last ten years, as is the average time to sell. The November *Business Perceptions Report* (BPR) also points to more dynamic private home sales, especially subsidized housing, in some areas of the country.

The September survey carried out by the Capital Goods and Technological Development Corporation (*Corporación de Desarrollo Tecnológico y de Bienes de Capital*, CBC) incorporated an upward revision to investment in construction and other works for 2018–2019, but this mainly reflects projects that have been pushed back into that period. The projected amount of investment is lower than in years past.

Private consumption continues to be driven by dynamic spending on durable goods, while nondurable consumption remains weak (figure III.5). The nondurable component grew 1.7% annually, which is somewhat lower than in the previous quarter, with the strongest performance in clothing, footwear, and food. Durables grew at a similar rate to the second quarter 12% annually), mainly due to car sales. According to interviewees for the November BPR, this is largely explained by more aggressive sales strategies by the car companies, which are offering larger discounts than normal. Data for October show that car sales remain dynamic (+18% annually, according to the ANAC), while consumer goods imports are higher than last year. The better performance of durable consumption is consistent with the assessment that the growth of consumption may, in part, reflect the replenishment of stocks, the exchange rate evolution, and the low cost of financing.

The performance of consumption has been in line with the evolution of its determinants. The annual growth rate of labor income, measured by the real wage bill, increased from 2.5% in the second quarter to 3.5% in the third, largely thanks to the decline in inflation. The labor market continued to do better than in the first half (figure III.6). Total employment grew around 2% annually in the last three months, although wage jobs grew less. By component, public wage jobs grew at higher rates, while private jobs decreased in annual terms in the most recent period. Self-employment grew more in annual terms relative to mid-year. As mentioned in previous reports, this raises concerns for consumption, to the extent that self-employment is more precarious (*Monetary Policy Report*, June 2017, box III.1). The unemployment rate fell slightly in the

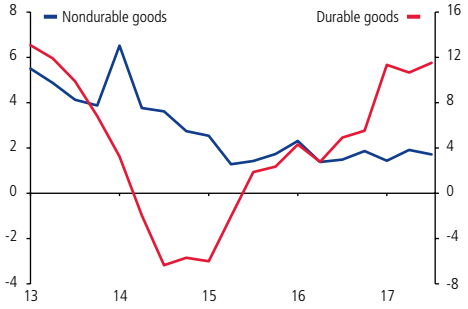
FIGURE III.4
Construction and building indicators (*)
(annual change, percent)



(*) Three-month moving average.

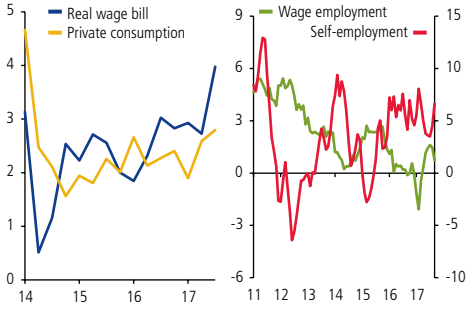
Sources: Central Bank of Chile, Chilean Chamber of Construction (CChC), and National Statistics Institute (INE).

FIGURE III.5
Private consumption
(real annual change, percent)



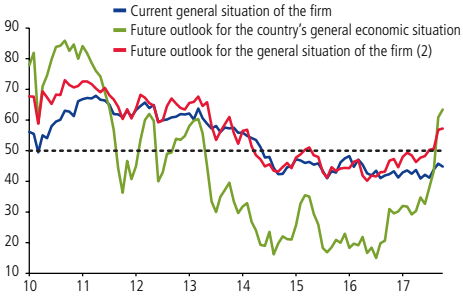
Source: Central Bank of Chile.

FIGURE III.6
Labor market and consumption
(annual change, percent)



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

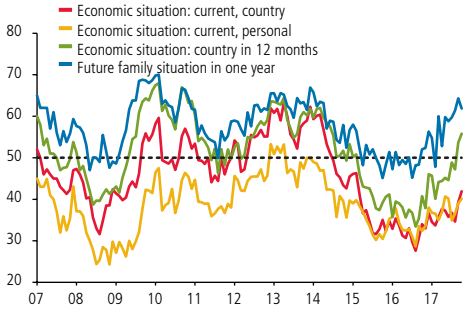
FIGURE III.7
Business expectations: IMCE (1)
(original series)



(1) Simple average of trade, construction, industry. A value over (under) 50 indicates optimism (pessimism).
(2) Construction sector: expectations on the company's financial situation.

Source: Icare/Universidad Adolfo Ibáñez.

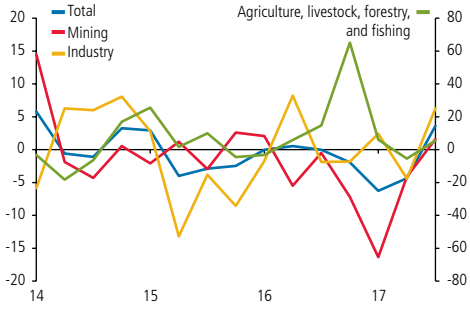
FIGURE III.8
Consumer expectations: IPEC (*)
(original series)



(*) A value over (under) 50 indicates optimism (pessimism).

Source: Adimark.

FIGURE III.9
Volume of goods exports
(annual change, percent)



Source: Central Bank of Chile.

last three months. With regard to wages, the annual growth rate of nominal wages declined to a range of 4.0 to 4.6% in September (versus 4.4–5.0% in June), while that of real wages held at 2.6–3.1% (based on a spliced series with base year 2016=100). Even with the decline, these rates are higher than at the start of the year, mainly due to lower inflation.

Both business and consumer expectations have improved, especially with regard to the future evolution of the economy. Both the IPEC and the IMCE have been positive for the past few months, although perceptions of the current economic situation remain negative, despite some improvement (figures III.7 and III.8). In the BPR published in early November, the interviewees are clearly more positive, mostly based on a more optimistic outlook for their businesses' performance in 2018, whereas current results are not substantially different from past BPRs. Sectors tied to construction and investment remain weak, in some cases with falling annual growth figures.

With regard to financial conditions, the cost of credit remains low, at around the minimum of the last several years. Mortgage growth has been more dynamic in recent months, while the consumer and commercial portfolios were stable. The November BPR highlights the low interest rates, but suggests that new business is limited. Firms are more interested in refinancing, and mortgages have increased. The Bank Lending Survey for the third quarter reports more dynamic demand for mortgage loans, while the other loan segments have not changed. However, supply conditions continue to tighten.

In the third quarter, inventories remained high, a reflection of inventory accumulation in manufacturing and mining. The latter could be associated with a lag between production and exports. Data from the IMCE still show undesirably high levels in trade and industry, although the latter has declined since the last *Report*.

The better international scenario of the past few quarters has translated into an increase in the value and volume of exports (figure III.9). Thus, the trade balance improved in the moving year ending in the third quarter. The volume of total shipments grew 3.6% annually, with increases in all categories—including mining, after a year of negative annual growth. Prices also increased for most products. With regard to imports, the volume of capital goods grew 10.6% annually (1.1% in the first half). The annual growth of consumer goods imports remained high, but lower than in the first half: 14.3 versus 19.7%. The import trend is consistent with the better performance of spending and lower import prices. Together with the greater profit remittance in line with the higher copper price, this brought the current account deficit to 1.7% of GDP in the moving year ending in the third quarter (2.0% in the second).

BOX III.1
MINING AND NON-MINING GDP[1]/

The evolution of output is a key determinant of inflation. The relationship between these two variables is complex, however, since it depends on whether changes in output are generated by changes in demand or supply[2]/. This problem is greater in countries where natural resources account for a larger share of GDP, because these sectors are exposed to supply shocks, which tend to be transitory and difficult to anticipate. To improve their short- and medium-term analysis, some countries use measures that exclude this type of sector. In Chile, the Central Bank has long employed a separation of natural resource GDP and other GDP, where the former includes mining, fishing, and electricity, gas and water (EGW)[3]/. The latter, which includes all the non-natural-resource sectors, is used to calculate trend and potential GDP and the output gap.

This box reviews the main factors that justify the exclusion of certain sectors from the analysis of output and the output gap. The sectors that have been excluded until now are, in fact, more volatile and less persistent and generally have a more restricted relation with the rest of the economy than is the case for the main other sectors. Nevertheless, for its economic analysis, the Central Bank has decided to replace natural resources and other GDP with mining and non-mining GDP. This change is appropriate from a communication perspective, which is facilitated by the use of a measure that excludes the least number of sectors. It is also in line with the monthly publication of the Imacec, which uses the mining/non-mining division, and it is more consistent with the practices of other commodity producers. Beyond the communication issues, the change has very few practical implications, given that the inclusion or exclusion of the fishing and EGW sectors does not generate major changes in the GDP series due to their relative size, which is not the case with mining.

Statistical aspects of the sectoral GDP series

The quarterly growth analysis of the natural resource sectors reveals two key characteristics: high volatility and low persistence (figure III.10)[4]/. For example, fishing has a standard deviation of over 9%, almost eight times its average. Mining and fishing both have a zero or negative coefficient of persistence, indicating that changes in quarterly growth are usually reversed in the short term. Finally, mining has the largest weight of the natural resource sectors, as indicated by the size of its representative circle in the figure. With regard to each sector's contribution to the variance of total GDP (the size of the circles in figure III.11), the mining and manufacturing sectors contribute the most, while fishing and EGW are not very important despite their high volatility, due to their weight in GDP. It is important to note that the contribution of mining to the variance of total GDP has more to do with the sector's own variance than with its relationship to other sectors, which is not the case with manufacturing[5,6]/. In sum, the natural resource sectors are generally more volatile, less persistent, and less interrelated with the rest of the economy than are the non-natural-resource sectors. Of these, mining contributes the most to the variance of total GDP due to its volatility and greater weight in total GDP.

Impact on measures of the output gap and potential GDP

Table III.3 shows the impact of excluding each of the natural resource sectors on different statistics, using GDP at factor cost as a point of reference[7]/. Mining is the only sector whose exclusion generates significant changes in the behavior of GDP, with a reduction in average growth and volatility (measured by the coefficient of variation) and a higher autocorrelation. Finally, when we look at the number of times that the seasonally

[1]/ All the analysis in this box is conducted using quarterly changes in the seasonally adjusted series. An Excel file is being published in conjunction with this *Report* to facilitate the calculation of GDP for any subset of sectors.

[2]/ This is due, in part, to the fact that the impact on the output gap differs depending on the source of the change in output. Demand shocks only effect real GDP and not potential GDP, whereas supply shocks affect both and thus do not alter the output gap.

[3]/ The agriculture, livestock, and forestry sector could also be considered a natural resource sector, since supply shocks are also very significant in determining production levels. However, the sector is usually considered as part of other GDP because of its higher degree of interrelation with the other sectors of the economy.

[4]/ For volatility (vertical axis in figure III.10), a higher (lower) value indicates that the sector's quarterly growth varies more (less) from one period to another. For persistence (horizontal axis), a positive (negative) value indicates that a positive change is usually followed by changes of the same (different) sign. The size of the circle is proportional to the sector's weight in total GDP.

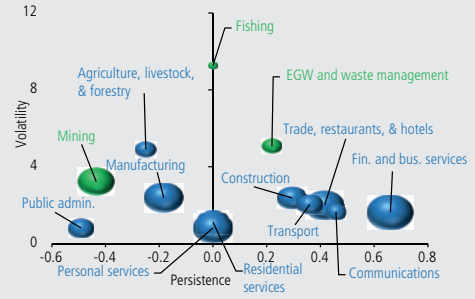
[5]/ Total contribution to the variance of GDP can be divided into two components, one related to a given sector's variance (vertical axis in figure III.11) and one related to its comovement with other sectors (horizontal axis in figure III.11). See Fornero et al. (2017) for details.

[6]/ The latter is consistent with the results of the Granger causality test, which shows that trade and industry are the sectors with the highest statistical precedence, while natural resource sectors, in particular mining, do not have precedence over almost any other sector. A review of the production chains also places the natural resource sectors at the lower end of the statistics. See Fuentes et al. (2017) for more details on these statistics.

[7]/ Because VAT and import rights cannot be allocated to a specific sector, the comparisons use GDP at factor cost, which discounts VAT and import rights.

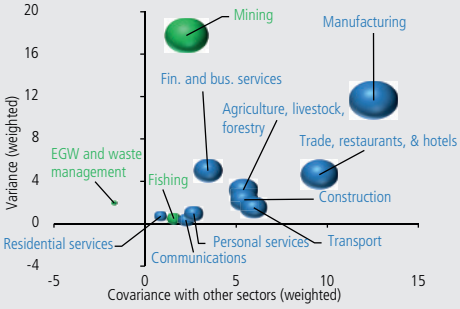
adjusted quarterly growth of the series excluding a given sector has diverged from GDP growth at factor cost by more than 0.3 or 0.4 percentage points, there are significant differences only for the series that excludes mining. Specifically, between the first quarter of 2003 and the third quarter of 2017, the difference between total GDP and non-mining GDP was over 0.3 percentage points in 41% of the quarters.

FIGURE III.10
Volatility, persistence, and GDP share
(percent)



Source: Fornero et al (2017).

FIGURE III.11
Sectoral contribution to the variance of GDP at factor cost
(percent)



Source: Fornero et al (2017).

TABLE III.3
Descriptive statistics of GDP measures excluding natural resource sectors

	GDP	GDP at factor cost	GDP at factor cost excluding			Other GDP
			Fishing	EGW	Mining	
Average	0.97	0.92	0.92	0.92	1.06	1.07
Std. deviation	0.98	0.97	0.96	1.01	1.01	1.03
CV	1.02	1.05	1.04	1.10	0.95	0.96
P95 - P95	2.80	3.04	2.98	3.09	2.95	3.06
Autocorrelation	0.34	0.30	0.31	0.29	0.38	0.41
Frequency with which the quarterly change differed from GDP at factor cost by more than(%)						
Divergence ± 0.3	1.69		0.00	3.39	40.68	40.680
Divergence ± 0.4	0.00		0.00	0.00	30.51	35.59

Source: Fornero et al (2017).

With regard to the estimation of potential growth and the calculation of the output gap, there are no significant differences when the measure uses non-natural-resource GDP versus non-mining GDP (table III.4). This is in line with the above discussion indicating that only the exclusion of the mining sector has an impact on average growth rates.

TABLE III.4
Real and potential growth and the output gap
(annual change, percent)

	Real GDP growth		Potential GDP growth		Output gap (level)	
	Other	Non-mining	Other	Non-mining	Other	Non-mining
2001-2005	4.9	5	5.6	5.3	-1.3	-1.3
2006-2011	4.9	4.9	4.8	4.7	0	-0.1
2012-2017	2.8	2.9	3.1	3.2	0.5	0.4
2001-2017	4.2	4.3	4.3	4.3	-0.2	-0.2

Source: Central Bank of Chile.

Practices of other central banks

Practices vary among other central banks that base their monetary policy on inflation targeting and that are in countries with significant natural resource sectors. Like Chile, the majority give special treatment to these sectors in their analysis. Some also periodically report a measure that filters out the impact of the natural resource sectors, although only a few make separate forecasts for that measure, which often excludes only the main natural resource sector. Finally, the analysis of investment usually distinguishes between the main natural resource sector(s) and the rest of the economy. However, the majority use total GDP when analyzing the output gap. Norway—which directly excludes energy generation and related activities—is the closest to Chile.

Conclusion

Quarterly changes in GDP have many origins, whose implications for inflation can be very different. An important factor to take into account is that the variations in the natural resource sectors are usually associated with supply shocks, which are volatile and not very persistent. Due to its larger contribution to the variance of GDP, mining has a larger impact than fishing or EGW, the other two sectors that are currently excluded from non-natural-resource GDP.

Finally, there are communication advantages to excluding fewer sectors in the benchmark series used to construct potential GDP and the output gap. This is a common practice among central banks in comparable countries. Therefore, the Board has decided to replace the other GDP measure with non-mining GDP, which is also consistent with the way it is currently reported in the Imacec.

IV. PRICES AND COSTS

This chapter analyzes the recent evolution of the main components of inflation and costs, identifying the current sources of inflationary pressure and their likely evolution in the future.

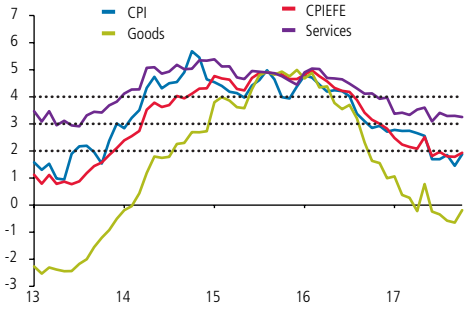
RECENT EVOLUTION OF INFLATION

In the last three months, annual inflation stayed just under 2%, which is lower than projected in the September *Report* (figure IV.1). Annual CPIEFE inflation fluctuated around 2%, in line with the forecast, as it was strongly influenced by the evolution of the peso-dollar exchange rate and the dynamics of the output gap. The biggest news of the period came from food prices, which fluctuated significantly less than expected. This pattern diverged from the usual seasonal behavior of fresh fruit and vegetable prices. In the baseline scenario, annual inflation is expected to remain around its current level for at least two more quarters, before starting to converge toward 3% in mid-2018 and reaching the target in the first half of 2019. This forecast implies that, on average, inflation will be on the order of 0.3 percentage points lower in 2018 than forecast in September. The downward revision mainly reflects the effect of the accumulated surprises in food prices and the annual appreciation of the peso through the cutoff date, which also largely explains the lower CPIEFE inflation forecast. for 2019, the forecast revisions are smaller.

As mentioned, annual CPIEFE inflation stayed around 2%, in line with the last *Report* (figure IV.2). The goods component recorded slightly negative annual inflation, very much due to the exchange rate trend (figure IV.3). The services component was similarly stable, with an annual inflation rate of over 3%. By item, inflation fell in indexed and/or regulated services and rose in other services. For both measures of services, annual inflation is lower than a year ago, consistent with the usual indexation and with the widening of the output gap in the period, as expected.

With regard to the more volatile components, energy prices were in line with expectations, recording an annual inflation rate of just over 4% in October (1.1% in July). The increase in fuel prices was the main determinant of this

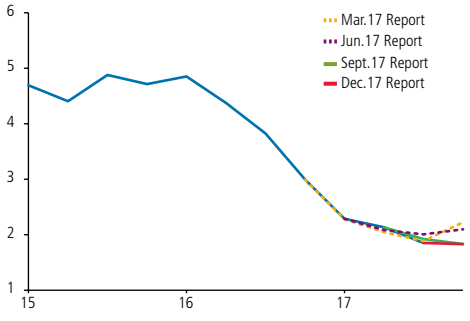
FIGURE IV.1
Inflation indicators (1) (2)
(annual change, percent)



(1) See glossary for definitions.
(2) Starting in January 2014, calculations are based on the new indices with base year 2013=100, so they may not be strictly comparable with earlier figures.

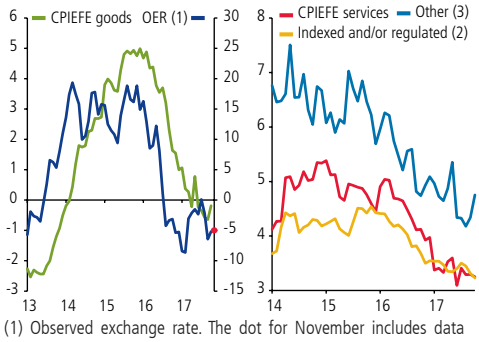
Sources: Central Bank of Chile and National Statistics Institute (INE).

FIGURE IV.2
Real and projected CPIEFE through the fourth quarter
(annual change, percent)



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

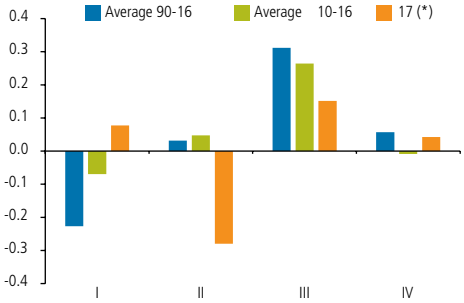
FIGURE IV.3
CPIEFE: Main components
(annual change, percent)



(1) Observed exchange rate. The dot for November includes data through the cutoff date.
(2) Excluding financial expenditures and transport costs associated with this component.
(3) Excluding transport costs associated with this component.

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

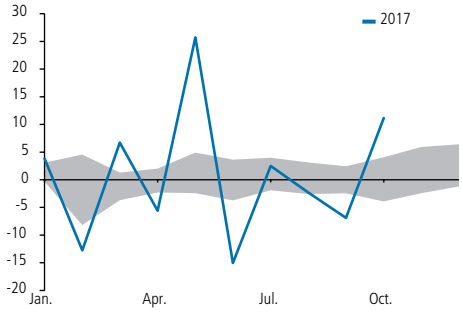
FIGURE IV.4
Fresh fruit and vegetables: quarterly contribution to headline inflation
(percentage points)



(*) The fourth quarter only includes data for October.

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

FIGURE IV.5
Tour packages (*)
(monthly change, percent)



(*) The gray area represents minimum and maximum values from 2002 to 2016.

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

higher inflation, a trend that should intensify in the coming period given the rise in international prices in recent weeks. Electricity rates also recorded positive annual inflation (around 1% in October), after several quarters of declining in annual terms.

The food component deviated the most from the September forecast, as a number of products, especially fresh fruit and vegetables (F&V), accumulated a surprise of nearly –40 basis points. Over the course of the year, F&V prices have tended to follow an atypical seasonal pattern, with a negative contribution in the second quarter and a positive contribution below the historical average in the third (figure IV.4). Thus, between August and October these prices—2.9% of the CPI basket—averaged an annual inflation around –9%, versus around +7% in the last ten years for the same period. In annual terms, almost half of the F&V prices have reverted somewhat, while tomatoes and potatoes (which together represent almost 25% of the F&V basket) fell in annual terms by 30 and 20%, respectively. The remaining food items also recorded lower-than-expected inflation, but the surprise was of a much lower magnitude than in the case of F&V prices. Given that the unexpected shocks to food prices are characterized by low persistence and/or propagation to the rest of the prices in the economy, and that inflation expectations are anchored in the forecast horizon, the monetary policy response was practically null (box IV.1).

The unusual behavior of F&V prices coincided with higher volatility of some non-food prices, in particular tour packages. This year, the monthly inflation in this last item widely exceeded its historical patterns, which reflects the new INE methodology for measuring this price since January 2017 (figure IV.5)[1]/. Electricity rates were also volatile, due to the implementation of decrees on regulated tariffs that generated sharp movements in the opposite direction. In this context, forecast error has recently increased significantly for both private and internal monthly inflation forecasts (figure IV.6).

With regard to labor costs, the annual inflation of nominal unit labor costs has fallen over the last two years, albeit with some fluctuation (figure IV.7). This is in line with reports by the people interviewed for the *Business Perceptions Report,* who indicate that costs—especially labor costs—have fallen due to increases in efficiency and/or productivity, achieved via measures such as replacing workers with more skilled but not necessarily more expensive personnel, the redefinition of positions into multifunctional jobs, and investment in process automation. In terms of other costs, the interviewees did not report any major changes, but they did mention cost-reduction efforts, given that there is no room to adjust prices: they face strong competition in their markets and relatively stable demand. Some interviewees—mainly in aerial transport and telecommunications companies—also mentioned the effect of the entry of new competitors with low-price business models.

[1]/ For more information on the methodological change in the calculation, see "*Separata técnica: Cambio metodológico cálculo de producto paquete turístico,*" available online at www.ine.cl.

External prices, measured in dollars, recorded positive annual inflation, as has been the pattern this year. The imported price index for consumer goods (IVUMC) continued to grow at under 2% annually in the third quarter, after recording annual growth rates of –3%, on average, between 2015 and 2016. The external price index (EPI) grew 3%, on average, between July and October, which is similar to growth in the first half of the year, after falling nearly 6% annually on average the two years previous. The annual EPI inflation in 2017 reflects higher annual inflation in the rest of the world and a lower multilateral appreciation of the U.S. dollar annually than in past years.

INFLATION OUTLOOK

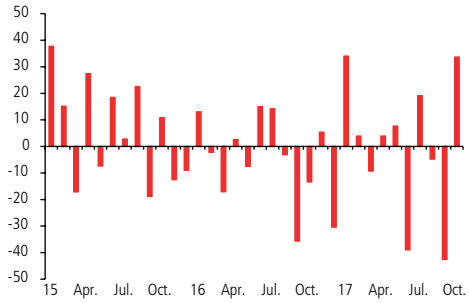
Annual inflation will stay around its current level in the short term. It will begin to rise in mid-2018, reaching 3% in the first half 2019, somewhat later than projected in September. CPIEFE inflation will gradually increase more slowly than headline inflation, to reach 3% toward the end of the forecast horizon.

In the short term, annual CPIEFE inflation will continue to fall, due to the appreciation of the peso relative to a year ago as well as the usual indexation. The effects of the latter process will be sharper in the first four months of 2018. F&V prices are expected to return to slightly positive annual inflation, and energy is expected to continue providing a positive contribution.

In the medium term, the baseline scenario assumes that food inflation, especially for F&V prices, will return to its historical average. This should more than offset the lower contribution of energy as future fuel prices come down. CPIEFE inflation will rise as the output gap begins to close, a process that is still expected to begin in the second half of 2018. For the real exchange rate (RER), the working assumption is a slight depreciation in the forecast horizon.

Market expectations were revised down after September, mainly for the short term, but inflation is still expected to gradually increase to 3% (figure IV.8). The downward adjustments in the short term mainly occurred after the negative surprise in September, combined with the evolution of the peso. For December 2017, inflation expectations were between 2.0 and 2.1% according to inflation insurance on the cutoff date and the November EES, respectively (both were 2.4% on the September cutoff). One year ahead, the different market measures were between 2.2 and 2.5% (2.6 to 2.7% in the last *Report*). Two years ahead, the FBS for the second half of November puts inflation at 2.7% (2.8% in the second half of August), while the EES projects 3%, and expectations derived from financial asset prices (no spreads) were also stable relative to the forecasts on the last cutoff date, at 2.6 and 2.9% for swaps and bonds, in that order.

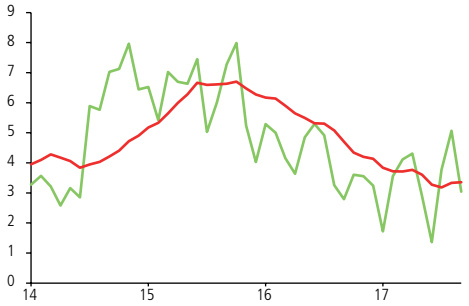
FIGURE IV.6
CPI: monthly market expectations surprise (*)
(basis points)



(*) The average of the FBS for the second half of each month and the Bloomberg survey.

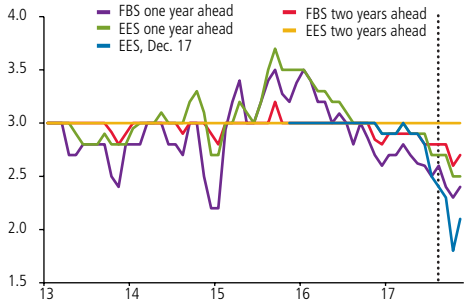
Sources: Central Bank of Chile, Bloomberg, and National Statistics Institute (INE).

FIGURE IV.7
Nominal unit labor costs (*)
(annual change, percent)



(*) Red line: annual moving average.
Source: Central Bank of Chile.

FIGURE IV.8
Inflation expectations surveys (*)
(percent)



(*) The vertical dotted line marks the cutoff date of the September *Report*. The FBS is for the first half of each month, except for November, which is for the second half.

Source: Central Bank of Chile.

BOX IV.1
PROPAGATION OF FOOD AND ENERGY PRICE SHOCKS

Annual CPI inflation has been lower than expected over the past few months. Relative to the forecasts contained in past *Reports*, the surprises have been concentrated in some fresh fruit and vegetable prices, which are not included in core inflation (the CPIEFE). Thus, while core inflation is low, the trend is in line with expectations and consistent with the behavior of the exchange rate and the output gap (figures IV.2, IV.3, and IV.4).

The inflation surprises and, in general, its volatility are not unusual. From 2000 to date, annual inflation in Chile has averaged 3.3%, which is very close to the Central Bank's target, but it has fluctuated significantly around that level. As in the past few months, some of these fluctuations are associated with items that are not included in the CPIEFE, which represent just under 30% of the consumer basket yet are 3 to 6 times more volatile than the CPIEFE.

With regard to the monetary policy reaction to changes in inflation, the persistence of the shift is far more important than the short-term inflation level. Given the lags with which monetary policy usually operates, it is very difficult and costly to control inflation in the short term. It is therefore important to analyze the persistence of the shocks that are behind the inflation changes and their propagation to other prices[1]/. This box contributes to the analysis by exploring the effects of shocks to food and energy prices on the evolution of medium-term inflation.

The analysis shows that movements in inflation associated with a shock to food prices have a low pass-through to headline inflation and, therefore, a low impact on the MPR. Shocks to energy prices, which have more general transmission mechanisms, generate higher pass-through. Importantly, the impact of shocks to food and energy prices is clearly lower for both headline inflation and monetary policy than the impact of demand shocks. Consequently, the monetary policy reaction to changes in inflation should not always be the same, but rather should depend crucially on the origin of the shift[2]/.

The impact of food and energy price shocks

Inflation is the result of price-setting decisions by multiple agents, which, in turn, are based on the recent and expected evolution of a series of factors. The underlying factors can be divided into two large groups: those that affect demand through the good that is sold and those that affect production costs, including labor costs, the exchange rate, and input prices. The relative importance of each of these elements varies among products. For example, in the case of imported goods, which are subject to exchange rate exposure, shocks that affect the currency will play a predominate role, whereas services that are more exposed to labor market pressure will be more strongly affected by shocks that alter labor market conditions. In the case of food and energy, prices are determined to a large degree by changes in the supply conditions specific to those markets, conditions that are usually more volatile and less persistent. Consequently, the general macroeconomic conditions of a country play a smaller role in the evolution of these prices, such that are not included in core inflation and are analyzed separately from other prices.

[1]/ Persistence is understood as the duration of the shock; propagation or pass-through is the intensity and duration of the effects generated on other variables.

[2]/ The analysis is based on an extended version of the analysis and forecast model originally developed by Medina and Soto (2007). See García et al. (2017) for a more detailed description.

How much does the volatility of these prices contribute to the volatility of headline inflation? Table IV.2 shows the contribution of food and energy shocks to the variance of quarterly and annual inflation (first and second rows). Together, they explain almost 30% of the change in quarterly inflation and almost 20% for annual inflation. The weight of these two shocks falls over time, and their impact on inflation variance declines as we move from the short- to the medium-term inflation forecast (table IV.2). Food prices explain less than 1% of the variance of inflation in one and two years, which is a huge drop from the 12% contribution to contemporaneous quarterly inflation. In the case of energy, the reduction is smaller, but still significant, falling from 15 to 10% two years ahead.

TABLE IV.2
Variance decomposition, actual and projected inflation (*)
(percent of total variance)

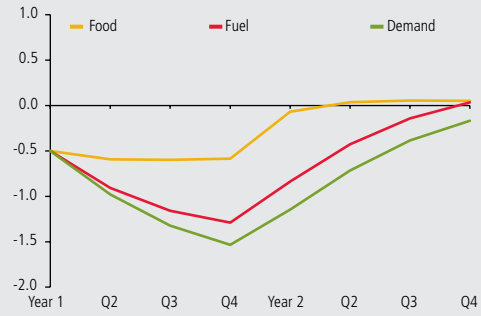
	Food	Energy	Other
Quarterly change	12.2	14.6	73.2
Annual change	6.0	15.6	78.4
Annual in 3 months	5.1	15.8	79.2
Annual in 6 months	4.0	15.8	80.2
Annual in 1 year	0.3	15.1	84.6
Annual in 2 years	0.7	10.0	89.3

(*) The share of the variance of actual quarterly or annual CPI inflation (first and second rows) and projected annual inflation at the indicated horizon (third to last rows), explained by the different shocks (columns).

Source: García et al. (2017).

The declining impact of energy and especially food price shocks over longer horizons has to do with their low pass-through to other prices (figure IV.9). This can be illustrated with an exercise that simulates the response of inflation over time to three different shocks, all calibrated to generate a drop of 50 basis points in contemporaneous inflation. The shocks analyzed are a shock to food prices, a reduction in fuel prices, and a contraction of domestic demand.

FIGURE IV.9
Effect of the different shocks on CPI inflation (*)
(annual change, percentage points)



(*) The lines graph the effect of a given shock on the annual CPI inflation rate, relative to the scenario with no shock.

Source: García et al. (2017).

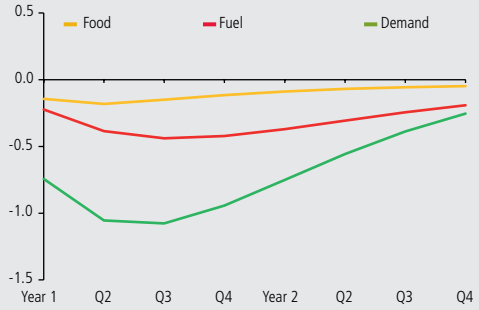
There are substantial differences in the propagation of the shocks to inflation, stemming from the degree of persistence of the shocks and their respective transmission mechanisms. In particular, the food price shock has a very low pass-through: in the first year, its effect on inflation is practically stable and thereafter, when the shock leaves the basis of comparison, the effect on annual inflation is basically null. The energy price shock, in turn, demonstrates a higher degree of propagation, mainly due to its effect on the cost structure of the economy: the effect on inflation intensifies in the first year and then gradually eases off. In comparison, both shocks have a lower degree of pass-through than the demand shock.

The monetary policy response

Because the monetary policy response largely hinges on the persistence of the inflation deviations, the above analysis suggests that for a given decrease in inflation in the short term, the policy response will depend crucially on what kind of shock caused the shift. If the decline in inflation originates in food prices, the policy response should be practically null, as it is impossible or very costly to alter inflation in the short term, which is the horizon in which the shock has an impact (figure IV.10). Other shocks require a more decisive action by the authority, with demand shocks requiring the strongest response[3]/.

[3]/ The inflation path presented in figure IV.9 is conditional on the policy reaction shown in figure IV.10, so the degree of pass-through is not totally independent from the reaction assumption for the Central Bank. In all cases, however, the same monetary policy rule is used.

FIGURE IV.10
Effect of the different shocks on the MPR (*)
(percent)



(*) The lines graph the effect of a given shock on the MPR (in annual terms), relative to the scenario with no shock.

Source: García et al. (2017).

The role of inflation expectations

This leads to the conclusion that monetary policy should respond very little to shocks with a low pass-through. This result, however, rests on a series of working assumptions, one of the most important of which is that inflation expectations are well anchor. In particular, forecasts are constructed under the assumption that market agents do not doubt the Central Bank's commitment and/or ability to bring inflation to 3% within the policy horizon. This assumption seems reasonable for Chile, where, with the exception of a few isolated instances, the different measures of inflation expectations two years ahead are consistently at 3%.

Under certain circumstances, however, the risk of inflation expectations becoming unmoored increases. Little is known about the mechanisms that affect the formation of expectations and their implications for the economic cycle, so they need to be carefully monitored. The following exercise—while by no means comprehensive—illustrates the effects of an unmooring of expectations on inflation and monetary policy.

Assume there is a food price shock such as the one described above, but it triggers an unmooring of inflation expectations. In that case, the monetary policy reaction must be stronger, because medium-term inflation expectations (due to the unmooring) end up affecting short-term inflation through their influence on price- and wage-setting decisions. To achieve inflation of 3% within the policy horizon, monetary policy must be more aggressive in incentivizing demand and employment, so as to offset the effect of unmoored expectations and induce market agents to adjust prices in line with the target (which is still 3% in two years). Thus, to the extent that monetary policy is consistent with an inflation objective of 3%, through a more aggressive monetary policy reaction, market agents gradually learn that the Central Bank's objective never changed, and they come back around to centering their inflation expectations at 3% in two years (table IV.3)[4/].

Conclusions

TABLE IV.3
Effect of a food price shock on average annual CPI inflation, expectations two years ahead, and the MPR (*)
(percent)

	Anchored expectations		Unmoored expectations	
	Year 1	Year 2	Year 1	Year 2
Actual inflation	-0.6	0.0	-0.7	0.0
Expectations two years ahead	0.0	0.0	-0.4	-0.2
MPR	-0.1	-0.1	-0.5	-0.3

(*) The average effect, in the indicated year and scenario (anchored/unmoored expectations), of a food price shock on actual annual CPI inflation, agents' expectations for annual CPI inflation two years ahead, and the MPR (in annual terms), relative to the scenario with no shock.

Source: García et al. (2017).

The monetary policy response to changes in contemporaneous inflation will depend crucially on the specific causes of the price shift. Shocks with a low persistence and/or pass-through to the rest of the economy are associated with milder policy reaction, even if the short-term inflationary effects are the same. Food price shocks are a good example of this type of short-lived shock. These conclusions, however, assume that inflation expectations remain well anchored. If that is not the case, monetary policy will need to respond more aggressively to align expectations with the 3% inflation target within the policy horizon.

[4/] The unmoored expectations scenario is calibrated such that annual inflation expectations two years ahead fall 0.5% below the inflation target. For more details, see García et al. (2017).

V. INFLATION SCENARIOS

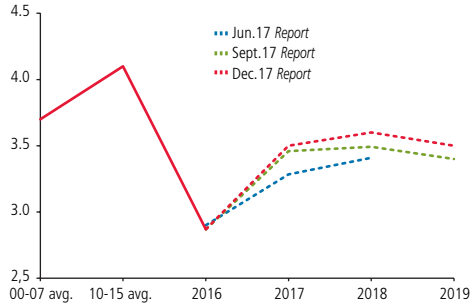
This chapter presents the Board's assessment on the Chilean economic outlook over the next two years. Projections of the most likely inflation and growth trajectories are included. As these trajectories are conditional on the assumptions in the baseline scenario, the Board's assessment of the risk balance for activity and inflation is also provided.

BASELINE PROJECTION SCENARIO

Since the most recent *Report*, the main difference with respect to the baseline scenario was related to inflation, which was lower than anticipated in September. Most of the difference was due to the behavior of fresh fruits and vegetables. Going forward, the baseline scenario expects inflation to remain close to current levels in the short-term, and is expected to return to 3% during the first half of 2019, somewhat later than anticipated in September. Separately, economic activity has been in line with what had been anticipated, and thus growth forecasts do not have significant changes. As such, the output gap will gradually close towards the second semester of 2018, contributing to the convergence of inflation within the forecast horizon. Greater growth will be supported by the favorable external impulse, an economy that does not present relevant macroeconomic imbalances, an improvement in confidence indicators, and an expansionary monetary policy.

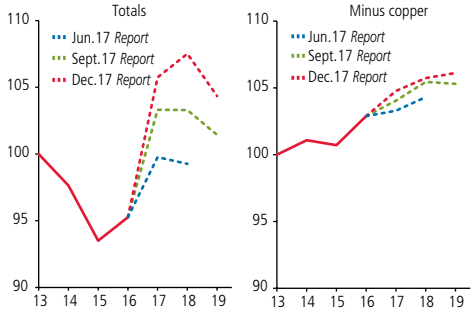
The improvement in the external impulse is related to the persistent improvement in activity across major trading partners, financial conditions that remain favorable, and elevated terms-of-trade, mainly due to the increase in the copper price. Regarding activity, incoming data has reaffirmed a growth outlook in which average growth during 2017-2019 will be greater than in previous years, both in developed and emerging economies. The improvement in global activity has been evidenced in greater industrial output, which in turn, has had a positive impact on global trade. With respect to September, China's growth outlook for the 2017-2019 period is increased, as the growth deceleration has been more gradual than had been anticipated. The better outlook for China will have a positive impact on other emerging economies in Asia, where forecasts have also been adjusted upwards. Similarly, the growth forecast for Latin America is also increased (4 decimals in the forecast horizon), driven by better signs in Argentina and Brazil, economies that have already left behind the growth contractions of 2016 and where, as in other economies in the region, growth is starting to look more balanced across sectors and expenditure components (figure V.1)

FIGURE V.1
Trading partners growth
(annual change, percent)



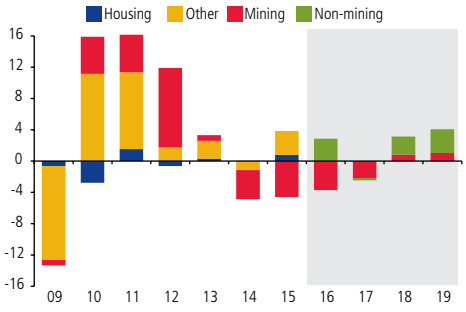
Source: Central Bank of Chile.

FIGURE V.2
Terms of trade
(index 2013=100)



Source: Central Bank of Chile.

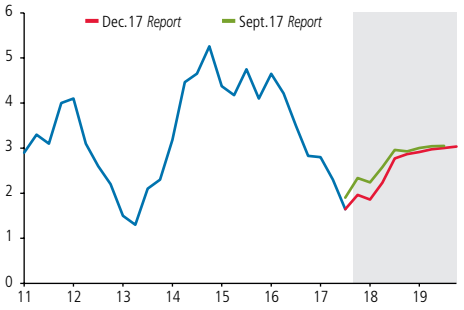
FIGURE V.3
Real annual contribution to GFCF (*)
(percentage points)



(*) For the year 2016 mining investment is estimated using FECU information. Housing investment uses household investment data taken from the National Accounts by institutional sector. the other GFCF component is a residue. Reported projections for the years 2017, 2018 and 2019 as forecasting models of the Central Bank and sectoral sources, including the Capital Goods Corporation (CBC)'s investment plans and surveys.

Source: Central Bank of Chile.

FIGURE V.4
CPI inflation forecast (*)
(annual change, percent)



(*) Gray area, as from the fourth quarter of 2017, shows forecast.

Source: Central Bank of Chile.

Better terms-of-trade originate mainly due to the copper price, which contrary to what had been expected, has remained in levels above US$3 per pound. As a result, copper price forecasts have also been raised: US$2.95 and 2.75 per pound for 2018 and 2019 respectively. Copper prices have been supported by the improvement in industrial sectors across the globe, and the corresponding impact these sectors have on copper demand. In addition, in line with the elevated risk appetite and the generalized increase of prices across asset classes, speculative positions have remained elevated in the market. Better terms-of-trade are also related to still high prices for other Chilean export goods, especially industrial goods. These movements more than compensate the effect of the increase in the price of oil, which is expected to remain on average between U$55 and US$60 per barrel in 2018-2019 (figure V.2).

International financial conditions remain favorable, supported by central banks that continue managing the removal of the elevated monetary stimulus with great caution, facilitating low interest rates and term premiums. Capital flows continue to enter emerging economies sustaining high asset prices. The baseline scenario considers that these financial conditions should gradually reverse as developed economies continue with the normalization of monetary policy.

Domestic activity has been in line with what had been expected, thus growth forecasts do not have significant changes. For this year, the economy is expected to grow 1.4%, within the range outlined in September. For 2018, the baseline scenario considers that the economy will grow between 2.5-3.5%, as forecasted in September. In this range, the strike in *La Escondida* mine has an important comparative base effect, which will drive high annual growth rates in mining activity during the first half of 2018. The non-mining sector will have a more gradual recovery. The forecast still considers that GDP will gradually recover annual growth rates, led by the external sector, the end of the mining and housing investment adjustment cycle, the absence of relevant macroeconomic imbalances, and a clearly expansionary monetary policy. As a working assumption, during 2018 the economy will have a fiscal impulse as suggested with the approved budget. From then on, it is assumed that fiscal policy will continue along its consolidation path.

One of the characteristics of the demand-side during recent quarters has been the relatively better performance of consumption and weaker investment in construction and works, which is reflected in certain adjustments to the baseline scenario forecast. In private consumption, better data, especially the dynamism of durables consumption, are reflected in better forecasts for this year. Going forward, forecasts are supported by a better labor market, consistent with higher economic activity and consumer expectations that continue to recover.

On investment, one can separate a different performance between machinery and equipment on one side, and construction and works on the other. Regarding the former, the more favorable performance has responded to the necessary replenishment of stocks after several years of stagnation and has benefited from an exchange rate appreciation and low interest rates. On the latter, the contraction has persisted for longer than had been anticipated, mainly due to lower expenditure in residential building and engineering works, which make the contraction in gross fixed capital formation (GFCF) forecast for 2017 larger than anticipated in September. Moreover, it is estimated that the recovery of

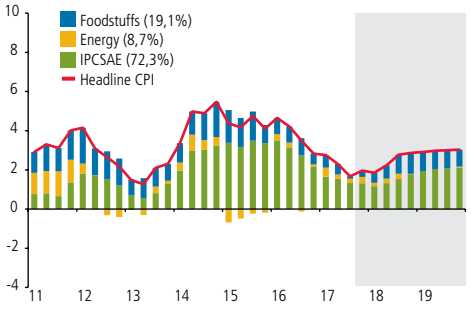
this expenditure component will be somewhat slower than anticipated. The mining investment adjustment cycle is still expected to end towards 2018, and will gradually reflect the effects of higher copper prices. Non-mining investment is adjusted down slightly, due to a cyclical downturn of residential investment that has been longer than anticipated (figure V.3). As a result, GFCF will reach 21.1 and 21.4 percent of GDP in 2018, real and nominal, respectively.

On the external sector, recent data show an improvement in exports across sectors. As such, given the performance during the first half, it is expected that export volumes have a contraction in the year. However, for 2018 they will recover due to a favorable external impulse, which complemented with better prices will increase next year's estimated trade balance. The lower base given by *La Escondida* strike in the beginning of 2017 will also have an impact on better mining exports in 2018. Thus, in 2018, the current account deficit will be lower than anticipated in September, close to 1% of GDP, similar to what is expected for 2017. At trend prices[1]/, the current account deficit remains at 2.7% on average in 2017-2018.

On inflation, it is expected that prices of fresh fruits and vegetables return to their regular seasonal patterns, with prices showing positive annual growth rates in 2018, while energy will reflect the annual increase in international energy prices. The CPIEFE forecast reflects the combination of a slight depreciation of the RER throughout the forecast horizon and an output gap that is expected to close towards the second half of 2018. As such, in the baseline scenario, annual CPI inflation will remain close to current levels in the short-run and will increase towards the second half of next year, reaching 3% in the first half of 2019 (figure V.4). CPIEFE will increase gradually towards 3% towards the end of the forecast horizon, in this case the fourth quarter of 2019 (figure V.5).

With respect to monetary policy in the baseline scenario, the Board believes that the surprises that have led to lower than anticipated inflation do not alter the convergence of inflation to the target. This is due to their nature that should have limited propagation, and because the arguments that support the scenario of the closing of the output gap remain valid. In this context, as a working assumption, the baseline scenario considers a monetary impulse similar to the September *Report*. That is, a MPR that will remain close to its current levels and will begin to increase towards its neutral level only once the economy begins to close the output gap. In any case, the Board recognizes that in the current scenario—where growth is still low, inflation is expected to remain around the lower bound of the tolerance range for several months, and certain measures of medium-term inflation expectations remain below 3%—downward deviations in inflation in the short-term must be closely monitored, since the convergence of inflation may be affected, in which case an additional monetary policy impulse would be required.

FIGURE V.5
Contribution to annual CPI Inflation (*)
(percentage points)



(*) Starting in January 2014, calculations are based on the new indices with base year 2013=100, so they may not be strictly comparable with earlier figures. Gray area, as from fourth quarter of 2017, shows forecast.

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

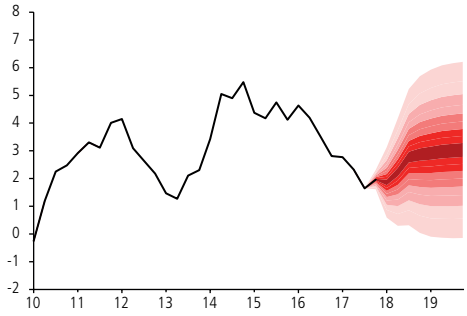
FIGURE V.6
Quarterly GDP growth scenarios (*)
(annual change, percent)

(*) The figure shows the confidence interval of the baseline projection over the respective horizon (colored area). Confidence intervals of 10%, 30%, 50%, 70% and 90% around the baseline scenario are included. These intervals summarize the risks on growth as assessed by the Board. The baseline scenario uses as a working assumption that the MPR is kept around its current levels and begins to be raised towards neutral only once the economy starts closing the activity gap.

Source: Central Bank of Chile.

[1]/ This measurement adjusts the value of mining exports and fuel imports considering the deviations of the prices of copper and oil from their long-term estimates. The same for rents and transfers associated with copper exports. The rest of exports and imports is valued using the current prices. It does not correct for possible changes in quantities exported or imported due to changes in the prices of copper or oil. The calculation uses long-term prices of US$2.7 per pound of copper and US$70 per barrel of oil (boxes V.2 in the September 2012 and December 2015 *Monetary Policy Reports*).

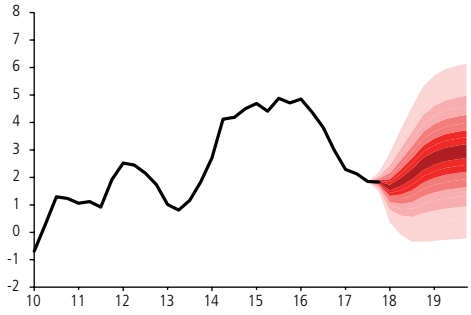
FIGURE V.7
CPI inflation forecast (*)
(annual change, percent)



(*) The figure shows the confidence interval of the baseline projection over the respective horizon (colored area). Confidence intervals of 10%, 30%, 50%, 70% and 90% around the baseline scenario are included. These intervals summarize the risks on future inflation as assessed by the Board. The baseline scenario uses as a working assumption that the MPR is kept around its current levels and begins to be raised towards neutral only once the economy starts closing the activity gap.

Source: Central Bank of Chile.

FIGURE V.8
CPIEFE inflation forecast (*)
(annual change, percent)



(*) The figure shows the confidence interval of the baseline projection over the respective horizon (colored area). Confidence intervals of 10%, 30%, 50%, 70% and 90% around the baseline scenario are included. These intervals summarize the risks on future inflation as assessed by the Board. The baseline scenario uses as a working assumption that the MPR is kept around its current levels and begins to be raised towards neutral only once the economy starts closing the activity gap.

Source: Central Bank of Chile.

RISK SCENARIOS

As always, monetary policy conduct and possible adjustments to the policy rate will be conditional on the effects of incoming information on projected inflation dynamics (figures V.6, V.7 and V.8). The Board estimates that the risk balance is unbiased for both inflation and activity.

Externally, there are still risks related to the method and pace that monetary policy normalization takes place in advanced economies. Although the process has been followed with great care and relative calm in financial markets, discrepancies persist between the market-implied policy path and the path signaled by the Fed, which continues being a relevant source of tension. Asset prices have reached elevated levels from a historical perspective, which could be abruptly reversed if global financial conditions become tighter than anticipated. Low inflation in advanced economies remains an important watch point, and uncertainty persists on fiscal and trade policy in the U.S., political uncertainty in Europe, and additional geopolitical risks in Asia and the Middle East. Moreover, China remains an important source of risk. In any case, as a result of stronger than expected performance in recent quarters, we cannot rule out a more favorable global scenario, which could lead to greater growth in global trade and a more meaningful increase in global investment.

The baseline scenario assumes the price of copper will have a gradual decline in the coming quarters. However, there could be a quicker reversal since parts of the recent gains are related to financial phenomena. On the other hand, we cannot discard that prices remain higher for longer, as reflected by the price scenarios of some market participants. This could occur due to supply or demand factors.

With respect to economic activity, GDP is forecasted to gradually recover greater growth rates. There are several domestic factors that are risks to the forecast. On one hand, the lack of synchronization across expenditure components remains, and some sectors are still behind, especially those related to investment. On the other hand, it is possible that, since confidence among consumers and businesses have been supported by expectations on the economy's performance in the future rather than the current performance, weaker economic activity in the short run could affect the robustness and sustainability of the recovery.in the medium term. Also, the financial market, in the context of a general favorable outlook, still has pockets of vulnerability in commercial credit and consumption. In contrast, the cost of credit remains at historical lows and the international scenario has been better than expected, which could add an impulse to investment and accelerate the recovery.

GLOSSARY

CDS: Credit default swap. A derivative instrument that provides insurance against the credit risk of the issuer of a given underlying sovereign or corporate bond. The premium implicit in the cost of this coverage (the CDS spread) is commonly used as an indicator of sovereign or corporate risk.

CEMBI: Corporate Emerging Market Bond Index. A corporate risk index maintained by JP Morgan. Measures the differential return on corporate bonds in dollars issued by banks and corporations in emerging economies, relative to U.S. Treasury bonds, which are considered risk-free.

Commodity exporters: Australia, Canada, and New Zealand.

CPIEFE: CPI excluding food and energy prices, leaving 72% of the total CPI basket.

EPI: External price index for Chile, calculated using the wholesale price index (WPI)—or the CPI if the WPI is not available—expressed in U.S. dollars, of the main trading partners included in the MER.

FOMC: Federal Open Market Committee. Committee of the U.S. Federal Reserve tasked with setting monetary policy in that country.

Growth of trading partners: The growth of Chile's main trading partners, weighted by their share in total exports over two moving years. The countries included are the destination for about 94% of total exports, on average, for the 1990–2016 period.

IVUM: Import price index.

Latin America: Argentina, Bolivia, Brazil, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela.

MER-X: MER excluding the U.S. dollar.

MER: Multilateral exchange rate. Multilateral exchange rate. A measure of the nominal value of the peso against a broad basket of currencies, weighted as for the RER. For 2017, the following countries are included: Argentina, Belgium, Bolivia, Brazil, Canada, China, Colombia, France, Germany, India, Italy, Japan, Mexico, Netherlands, Paraguay, Peru, South Korea, Spain, Thailand, United Kingdom, and United States.

Output gap: A key indicator for measuring inflationary pressures, defined as the difference between the economy's actual output and its current production capacity in non-natural-resource sectors (other GDP).

Potential GDP: The economy's current production capacity. Also called short-term potential GDP.

RER: Real exchange rate. A measure of the real value of the peso against a basket of currencies, which includes the same countries used to calculate the MER.

Rest of Asia: Hong Kong, Indonesia, Malaysia, Philippines, South Korea, Singapore, Taiwan, and Thailand.

Trend GDP: The medium-term growth potential of the Chilean economy, where the effect of shocks that usually alter production capacity in the short term have dissipated and the productive factors are thus used normally. In this context, growth depends on the structural characteristics of the economy and the average growth of productivity, variables that, in turn, determine the growth of productive factors.

World growth at market exchange rate: Each country is weighted according to its GDP in U.S. dollars, published in the IMF *World Economic Outlook* (WEO, October 2017). The sample of countries used in the calculation represent around 90% of world growth. For the remaining 10%, average growth is estimated at 1.8% for the 2017–2019 period.

World growth: Regional growth weighted by its share in world GDP at PPP, published in the IMF *World Economic Outlook* (WEO, October 2017). World growth forecasts for the period 2017–2019 are calculated from a sample of countries that represent about 86% of world GDP. For the remaining 14%, average growth is estimated at 3.4% for the period.

ABBREVIATIONS

BCP: Central Bank bonds denominated in pesos
BCU: Indexed Central Bank bonds denominated in UFs
BLS: Bank Lending Survey
BPR: *Business Perceptions Report*
CPIEFE: Consumer price index excluding food and energy
EES: Economic Expectations Survey
FBS: Financial Brokers Survey
IMCE: Monthly Business Confidence Index
IPEC: Consumer Confidence Index
LCI: Labor cost index
MPR: Monetary policy rate
SNA: System of National Accounts
UF: *Unidad de Fomento* (an inflation-indexed unit of account).
WI: Wage index

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CENTRAL BANK OF CHILE
Institutional Affairs Management
Publications Department
DECEMBER 2017

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BANCO CENTRAL
DE CHILE

MONETARY POLICY REPORT December **2017**