# MONETARY POLICY REPORT

**June** 2015

# MONETARY POLICY REPORT*/

## June 2015

*/ 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.

# CONTENTS*/



*/ The statistical cutoff date of the *Monetary Policy Report* was 26 May 2015.

# 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 Article 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 27 May 2015 for presentation to the Senate on 3 June 2015.

**The Board**

# SUMMARY

The macroeconomic scenario shows minor changes with respect to forecasts in March. Annual inflation fell between February and April, but it remains above 4%. Following the publication of the March *Monetary Policy Report*, private inflation expectations for this year rose as assumed in that baseline scenario. Output and demand continue to grow at a moderate pace, and the first quarter was better than expected, but incoming data suggest that the remainder of the year will be somewhat less dynamic than previously estimated. In the global economy, the growth outlook showed no major changes. The weaker U.S. figures early in the year and the consolidation of better prospects in Europe are worth mentioning. The dollar lost some of the strength it had gained during the first months of the year, while the market has pushed back its expectations regarding the beginning of the U.S. policy rate tightening process. Nevertheless, long-term rates rose in the U.S., as in most developed markets. Most commodity prices increased, in particular oil. In this context, the Board has held the monetary policy rate (MPR) at 3%, maintaining a significantly expansionary monetary policy.

In recent months, core inflation has brought no major surprises and its behavior has been largely determined by the effect of the peso depreciation and the usual indexation of the economy. However, annual CPI and CPIEFE inflation is still above 4% and, the same as in March, the baseline scenario of this *Report* assumes that it will hover around 4% for some months. At one to two years' term, expectations remain at or around 3%.

In the first quarter, domestic output and demand grew slightly more in annual terms than expected in March. This was visible in private and public consumption, and in investment in construction and other works, with the resulting increase in growth in construction, trade and some services. However, indicators for March and April —retail sales, imports of consumer goods, and expectations of firms and consumers, among others— and the sluggish figures for other expenditure components, such as investment in machinery and equipment and durable consumption, suggest that the recovery of growth in the remainder of the year will be somewhat slower than expected. Particularly worrisome is the possibility of consumer and business confidence remaining in clearly pessimistic territory, a situation that, if not reversed, will hinder the recovery of growth in the second half of the year. The evolution of credit also reflects weak private spending. Annual growth of consumer and commercial loans is still bounded, despite the low interest rates.

Job creation in the private sector has also been in line with the economic slowdown. Hirings in the most cycle-sensitive sectors, such as manufacturing and construction, show a weak performance in recent months. Nevertheless, the stronger increase in employment in agriculture and services, especially some linked to the public sector, has led total employment to grow by about 1% annually. The unemployment rate remains low, because the slower employment growth is matched by also slower growth in the labor force.

Nominal wages continue to grow strongly, slightly more than 7%. The empirical evidence suggests that this owes mainly to the indexation to higher past inflation, a phenomenon that, while not as intense as it was in past decades, is still significant. There are associated risks, however, both because of its effects on the velocity of inflation convergence, and because its behavior could be reflecting a narrowing of output gaps with respect to the baseline scenario.

World economic data have shown lower growth in the U.S. and a strengthening of the improved outlook in the Eurozone. Although the worsened U.S. data for the first quarter are believed to be mostly temporary, the dollar has depreciated globally and the moment when the market expects the Fed to begin adjusting the policy rate has been postponed. Nevertheless, in the last month long-term interest rates have increased significantly and the yield curve has steepened in the U.S. and several other economies. This phenomenon is partly related to the change in the macroeconomic outlook—firming growth prospects and higher inflation—but also to the decompression of the low term premiums associated with portfolio reallocations. Still, external financing conditions remain favorable by historic standards. In Chile, although with ups and downs, the peso has appreciated in nominal and real terms. The peso/dollar parity is around $615 as of the closing of this *Report,* after surpassing $640 in March and standing near $600 in May. At the same time, the real exchange rate (RER) has fallen from around 97 in February to about 93 most recently, a figure that is close to its average of the last fifteen to twenty years. Long-term nominal interest rates have fluctuated less than its external counterparts.

In the emerging economies, the growth outlook is not very different from the one foreseen a few months ago, confirming the slowdown in China. Latin America remains the region suffering the most profound and continuous deterioration, which is particularly intense in Brazil. Inflation remains low in much of the developed and emerging economies, with the exception of Latin America where it is still high. Moreover, the prices of most commodities, although with fluctuations, are higher than those included in the March *Report.* Copper, after trading around US$2.9 per pound for a few days, moved closer to US$2.8 at the statistical cutoff date, while WTI oil is trading near U.S.$60 per barrel. This contrasts with the decline in food prices.

With regard to projections, the baseline scenario foresees that this year GDP will grow between 2.25% and 3.25%, a range that is somewhat lower than estimated in the last *Report.* This projection considers that the floods in the north of the country and one-time effects in important mines reduce the mining growth estimate, with a downward incidence on the estimate for annual GDP growth of one tenth of a point compared with the March forecast. Meanwhile, as the partial data of recent months show weaker private expenditure, it is

**ECONOMIC GROWTH AND CURRENT ACCOUNT**

| | 2013 | 2014 | 2015 (f) |
|---|---|---|---|
| | (annual change. percent) | | |
| GDP | 4.2 | 1.9 | 2.25-3.25 |
| National income | 3.6 | 1.9 | 3.9 |
| Domestic demand | 3.7 | -0.6 | 2.6 |
| Domestic demand (w/o inventory change) | 4.6 | 0.5 | 2.2 |
| Gross fixed capital formation | 2.1 | -6.1 | 0.7 |
| Total consumption | 5.5 | 2.5 | 2.7 |
| Goods and services exports | 3.4 | 0.7 | 1.3 |
| Goods and services imports | 1.7 | -7.0 | 1.1 |
| Current account (% of GDP) | -3.7 | -1.2 | -0.4 |
| Gross national saving (% of GDP) | 20.6 | 20.3 | 21.0 |
| Gross national investment (% of GDP) | 24.3 | 21.4 | 21.4 |
| GFCF (% of nominal GDP) | 23.8 | 22.0 | 21.6 |
| GFCF (% of real GDP) | 26.1 | 24.0 | 23.6 |
| | (US$ million) | | |
| Current account | -10,125 | -2,995 | -1,150 |
| Trade balance | 1,820 | 7,767 | 7,700 |
| Exports | 76,477 | 75,675 | 70,600 |
| Imports | -74,657 | -67,908 | -62,900 |
| Services | -3,402 | -3,757 | -4,250 |
| Rent | -10,730 | -8,857 | -6,200 |
| Current transfers | 2,187 | 1,851 | 1,600 |

(f) Forecast.

Source: Central Bank of Chile.

foreseen that the recovery that was expected for the second half will occur at a slower pace than was projected in March. The *Business Perceptions Report* of last May confirmed bounded expectations regarding the performance of businesses and investments in 2015. Moreover, the CBC survey continued to point to a fall in valued projects for this year compared with 2014.

On the external front, our projection assumes trading partners' growth to drop by one tenth of a point in 2015 and 2016, to 3.3% and 3.7%, respectively. This adjustment responds largely to the reduced projection for the U.S. In the Eurozone, prospects remain unchanged because first quarter data brought no surprises other than some differences within the region. Growth is revised down for China and Latin America, because of actual first-quarter data and weaker prospects. As for the terms of trade, our estimate continues to assume an improvement over 2014, although not as big as foreseen in March. In the baseline scenario, copper is foreseen to trade at US$2.8 in 2015 and $2.9 in 2016, while the averaged Brent-WTI oil price stands at US$60 in 2015 and US$68 in 2016.

The Chilean economy has made a major adjustment in recent quarters, improving its external position and laying the foundation for a recovery without imbalances. This projection assumes that monetary policy will remain significantly expansionary and that fiscal policy will continue to contribute to expenditure growth in accordance with the fiscal rule and with the objectives set by the Administration. It also considers that the exchange rate depreciation accumulated since 2013 will continue to boost those tradable sectors that are more sensitive to the exchange rate. In addition, the price of fuels, which runs below the average of previous years, will continue to help reduce business costs and improve household income, even if its effects are smaller than expected a few months ago.

As for inflation, in the baseline scenario the CPI should hover around 4% annually still for some months, and stabilize near 3% during 2016. The CPIEFE is expected to post an annual variation of close to 3% in 2016 and stay near that figure until the end of the projection horizon, this time the second quarter of 2017.

This trajectory considers that the transmission to prices of the depreciation of the peso accumulated in the past year will be similar to its historical patterns; that real wages will be adjusted in line with productivity; and that output gaps will remain over the projection horizon. For the RER, the methodological assumption used is that, the same as now, it will fluctuate in the upper part of the range believed to be consistent its long-term fundamentals. As for the MPR, the working assumption is that the gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over a one-year horizon.

The baseline scenario reflects those events that are believed to be the most likely to occur with the information at hand at the closing of this *Report.* There are risks, however, which, if materialized, may reshape the macroeconomic outlook and, therefore, may alter the course of monetary policy.

**INTERNATIONAL BASELINE SCENARIO ASSUMPTIONS**

| | Avg. 00 - 07 | Avg. 10 - 12 | 2014 | 2015 (f) | 2016 (f) |
|---|---|---|---|---|---|
| | (annual change, percent) | | | | |
| Terms of trade | 8.2 | 4.2 | -1.4 | 1.3 | -0.2 |
| Trading partners GDP (*) | 3.6 | 4.6 | 3.4 | 3.3 | 3.7 |
| World GDP at PPP (*) | 4.2 | 4.0 | 3.4 | 3.4 | 3.7 |
| World GDP at market exchange rate (*) | 3.2 | 3.2 | 2.7 | 2.7 | 3.2 |
| Developed economies' GDP at PPP | 2.6 | 1.8 | 1.7 | 2.0 | 2.4 |
| Emerging economies ' GDP at PPP | 7.4 | 5.9 | 4.8 | 4.5 | 4.9 |
| External prices (in US*) | 4.6 | 5.2 | -0.9 | -8.5 | 1.0 |
| | | | (levels) | | |
| LME copper price (US¢/lb) | 154 | 368 | 311 | 280 | 290 |
| WTI oil price (US$/barrel) | 44 | 89 | 93 | 57 | 63 |
| Brent oil price (US$/barrel) | 42 | 101 | 99 | 63 | 70 |
| Gasoline parity price (US$/m³) (*) | 366 | 742 | 731 | 536 | 552 |
| Libor US$ (nominal, 90 days) | 3.6 | 0.4 | 0.2 | 0.5 | 1.3 |

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

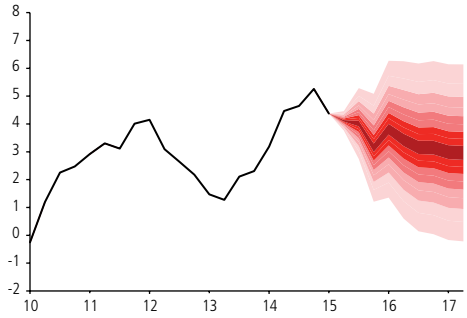
Source: Central Bank of Chile.

**INFLATION**

| | 2013 | 2014 | 2015 (f) | 2016 (f) | 2017 (f) |
|---|---|---|---|---|---|
| | (annual change, percent) | | | | |
| Average CPI inflation | 1.8 | 4.4 | 3.9 | 3.4 | |
| December CPI inflation | 3.0 | 4.6 | 3.4 | 3.1 | |
| CPI inflation in around 2 years (*) | | | | | 3.0 |
| Average CPIEFE inflation | 1.2 | 3.6 | 4.1 | 3.1 | |
| December CPIEFE inflation | 2.1 | 4.3 | 3.2 | 2.9 | |
| CPIEFE inflation in around 2 years (*) | | | | | 2.8 |

(f) Forescast.
(*) Corresponds to the projected inflation for the second quarter of 2017.
Source: Central Bank of Chile.

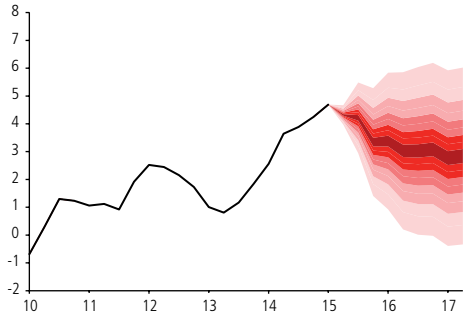
**CPI INFLATION FORECAST (*)**
(annual change, percent)




(*) 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 inflation as assessed by the Board. The baseline scenario uses as a working assumption that the gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over a one-year horizon.

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 core inflation as assessed by the Board. The baseline scenario uses as a working assumption that the gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over a one-year horizon.

Source: Central Bank of Chile.

Abroad, the main sources of risk remain, only more moderate. The possibility of specific events generating episodes of high volatility in global financial markets persists, affecting funding costs, the exchange rate and the short-term inflation outlook. On one hand, any surprises regarding the timing or the pace at which the Fed will increase its benchmark rate can cause fluctuations in asset prices. Furthermore, there remains the risk of a default in Greece having an impact on global financial markets and GDP growth in the Eurozone. While these are still significant risks, the ability of the larger central banks to handle these situations has improved, reducing to some extent the intensity of the negative impact of such events. Another positive note is the more consolidated growth in the Eurozone, which has helped to configure a more balanced global economic scenario.

In the emerging economies, there are still significant risks. While the risk of commodity prices dropping further seems to have eased, Latin American economies have been weaker for longer than expected. This, in a context where the high fiscal and current account deficits persist in many economies, making the necessary adjustments expensive and difficult to implement. The risk of slower growth in China and its implications for copper prices remains, although the Chinese authorities have given proof of its ability and desire to avoid abrupt corrections in the economy.

Domestically, the economic recovery in the second half of the year should be accompanied by a significant improvement in confidence indicators, but so far it has not happened. To the extent that this situation continues, it is possible that domestic output and expenditure will fail to show the greater dynamism that is expected in the baseline scenario. Conversely, a scenario where expectations improve significantly would allow for a faster recovery of the economy, particularly in 2016.

Regarding inflation, pressures are somewhat milder than expected in March, due to lower activity and the appreciation of the peso. However, in a context of persistently high inflation, with bounded margins, strong wage growth, higher fuel prices and external risk scenarios that can drive a significant further depreciation of the peso, inflationary risks remain important.

After evaluating these risks, the Board estimates that the risk balance is unbiased for both output and inflation.

Inflation remains high, despite some decline in recent months. Domestic activity picked up in the first quarter, but the outlook for the second half of the year has moderated. As has been mentioned before, monetary and fiscal policies have cooperated to laying the foundation for a more consolidated recovery. The not so buoyant economy and the slightly faster convergence of inflation suggest that, under the assumptions of the baseline scenario, the discussion about the gradual withdrawal of the monetary stimulus could be delayed with respect to March expectations. However, any future changes in the MPR will depend on the evolution of domestic and external macroeconomic conditions and their implications for the inflation outlook. The Board reaffirms its commitment to conduct monetary policy with flexibility so that projected inflation stands at 3% over the policy horizon.

# MONETARY POLICY DECISIONS IN THE LAST THREE MONTHS

## BACKGROUND: MARCH MEETING AND *MONETARY POLICY REPORT*

At the March Meeting, the Research Division presented one option: holding the monetary policy rate (MPR) at 3%. Although high inflation and the associated risks determined the space for monetary policy, raising the MPR did not appear to be an option, given that output remained weak and the risks were downward. In addition, the labor market was expected to deteriorate, inflation expectations were at 3% in the two-year horizon and the recent inflation surprises appeared to be largely related to the necessary exchange rate adjustment in the current economic cycle. The option of introducing an additional cut seemed not only unnecessary, but also inconvenient, so the Research Division rejected it outright. In the market, the possibility of additional cuts had completely disappeared. The Board therefore agreed to keep the MPR at 3%.

The March *Monetary Policy Report* indicated that annual CPI inflation had been above 4% since late 2014, and the baseline scenario in the March *Report* assumed a slower return to the target. Market expectations had also risen for the short term, although they remained at 3% for the two-year horizon. Price dynamics continued to be largely explained by the depreciation of the peso. Combined with indexation and a tighter labor market, this had led to an increase in annual core inflation (CPIEFE) to 4.7% in February. The surprises were smaller in output and spending, although greater fiscal spending and tradable output had contributed to sustaining growth since late 2014. Sectors that are closely tied to the economic cycle, such as trade, manufacturing and construction, continued to perform poorly. While agents' expectations had recovered, they remained pessimistic. All told, the outlook for GDP growth in 2015 had not changed significantly.

The international scenario and the associated risks were still being determined by the imminent process of monetary policy normalization in the United States. The most recent economic data on that economy and the communications by the U.S. Federal Reserve (the Fed) had generated substantial currency fluctuations, including in the Chilean peso. In mid-March, the peso-dollar exchange rate was above $640, before dropping closer to $620 at the statistical cutoff date of the *Monetary Policy Report*. In both developed and emerging economies, monetary policy had become more expansionary again. On the whole, the growth of trading partners and the evolution of the terms of trade were in line with projections.

In this context, the Board had held the MPR at 3% and had continued to signal that future adjustments would depend on the evolution of internal and external macroeconomic conditions and their implications for the inflation outlook.

The peso depreciation cycle, which started in 2013, stood out as the longest of the past decade. It was one of the main factors explaining why inflation had stayed above 4% for so long. The data indicated that the pass-through coefficient from the exchange rate to inflation had been in line with historical patterns, albeit in the upper end of the available estimates, and the assumption in the baseline scenario was that it would continue to follow that trend. Thus, CPI inflation was expected to remain above 4% for several more months, before gradually approaching 3% over the course of 2016. The CPIEFE, in turn, was expected to be about 3% in 2016 and to fluctuate around that value through the end of the forecast horizon.

The Board kept the GDP growth range for 2015 at 2.5 to 3.5%, and the baseline scenario projected that the growth rate would increase toward the end of 2015. The critical point continued to be the assumption of a recovery in private expectations. The exchange rate depreciation was expected to keep driving tradable output, and the drop in fuel prices would help reduce business costs and improve household income. The forecast also took into account the expansionary monetary policy and increased fiscal spending, especially in investment.

With regard to risks, some new external factors had been incorporated. In the United States, the low long-term interest rates and high stock market could trigger sharp portfolio adjustments. In the emerging economies, the main risks were still related to the low commodity prices, but in Latin America the scenario was more severe because the large fiscal and current account deficits raised the costs of the necessary market adjustments and made them more difficult. China remained a source of concern, as did the geopolitical conflicts in the Middle East and some areas of Europe. In contrast, a faster

recovery in the Eurozone could provide a boost for the world and for Chile. There was also the possibility that the lower oil price would have a stronger impact on the global economy.

Domestically, the main risk was the inflation scenario, given the prolonged exchange rate depreciation and its accumulated effect on costs. In addition, margins appeared to be tighter due to the high annual growth of nominal wages and the partial pass-through of the lower fuel prices. Private expectations might not improve enough to stimulate spending, especially in terms of investment. At the same time, a stronger improvement than projected would support a faster recovery of output. An output recovery would also gain ground if the greater national income had a stronger effect on spending, given the slack in the external accounts.

Although the local risks had abated, the Board considered that the risk for output was still skewed downward, while the risk for inflation was balanced.

## APRIL AND MAY MEETINGS

In April, the data confirmed the projections in the March *Report*. Internationally, the recovery of the United States seemed solid, although the most recent data were somewhat weaker and the market had pushed back its expectations for the Fed's first rate hike. This had repercussions for other asset prices: exchange rates had appreciated; the stock exchanges had risen; and credit spreads had contracted. These adjustments illustrated the sensitivity of financial prices to news from the United States and the associated risks. In the Eurozone, the prospect of a more consolidated recovery was growing. In the emerging economies, the scenario was dominated by more negative news from China. The copper price had been stable, but the oil price had risen and some food prices had fallen.

Domestically, the main surprise was lower CPI inflation in March, associated with some food prices and the appreciation of the peso. These elements are highly volatile, so their movements could be either reversed or intensified in the coming months, as could international oil prices. CPIEFE inflation was in line with expectations, confirming the baseline scenario in the *Monetary Policy Report*. Market expectations two years ahead remained at 3%. Output and demand data were consistent with an annual growth rate above 2%, although they were mixed with regard to faster growth going forward. In particular, imports pointed to weaker investment. Business expectations had risen, while household expectations declined. The unemployment rate remained low, but employment was growing at the lowest rate since 2009.

With regard to monetary policy, the last *Report* had communicated that, should the baseline scenario materialize, the discussion on monetary policy normalization would take place in late 2015 or early 2016, since by then there would be a clearer idea on the convergence of inflation with the target, and the economy would be moving more clearly toward sufficient growth levels to begin to close the gaps. In the meantime, monetary policy continued and would continue to provide a stimulus for the economy. The data had been consistent with this analysis, and no rate changes were required in the coming months. Thus, the Research Division proposed a single option of holding the MPR at 3%, with a neutral bias. The Board concurred, deciding to hold the MPR at 3%.

In May, the data pointed to an internal and external macroeconomic scenario that was, in general terms, very similar to the forecast in the March *Report*. Therefore, the Research Division's preferred monetary policy option was also consistent with that *Report*. It was not considered necessary to increase the stimulus, since inflation had been above the target range for nearly a year and it was expected to stay around that level for several more months. Monetary policy was highly expansionary, and the conditions were still ripe for the economy to begin to grow faster toward the end of the year.

The option of increasing the MPR was also discarded. On the one hand, while inflation had surprised the market with an increase in three of the last four months, the inflation dynamics had been consistent with the Bank's estimates, especially in terms of CPIEFE inflation. On the other hand, the data revealed somewhat lower inflationary pressures at the margin: output data pointed to a slow recovery in what remained of the year, and the recent appreciation of the peso would contribute to a faster process of convergence than previously estimated. Given the current conditions at the time of the Meeting, the risk of a de-anchoring seemed to be very low, and although both real inflation and market expectations for the end of the year were high, medium-term expectations were stable. The MPR path expected by the market was essentially very similar to the most probable outcome in the baseline scenario. The market's output and inflation expectations were also similar to the Bank's forecasts. Finally, the recent increase in long rates in many economies, which appeared to be related to a decompression of term spreads, made the option of raising the MPR less feasible, since the trend could potentially generate upward pressure on local long rates over and above the assumptions underlying the Bank's estimates. In this context, the Board decided to hold the MPR at 3%.

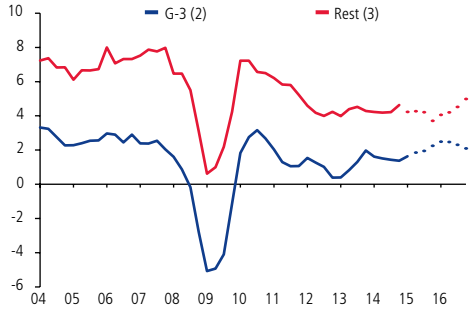
# I. INTERNATIONAL SCENARIO

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

The international scenario has not changed significantly since the publication of the March *Monetary Policy Report*. With regard to the growth of trading partners, the United States posted a meager performance in the first quarter of the year, the outlook improved for the Eurozone and output continued to deteriorate in Latin America, especially in Brazil. World growth forecasts were revised downward slightly, although growth is still expected to be higher, on average, in 2015–2016 than in 2014 (figure I.1).

Even though the data for the United States are considered to be transitory, the dollar depreciated at the world level through mid-May, and market speculation on when the U.S. Federal Reserve (the Fed) will start raising its rates was pushed back. Beginning in mid-April, long-term interest rates increased in several developed economies, which reflected, in part, the consolidation of the growth outlook and higher expected inflation. The trend was accompanied by a decompression of the low term spreads, associated with portfolio reallocations. The increase has been partially reversed in recent weeks. For the emerging economies, financing conditions continue to be favorable from a historical perspective. The terms of trade relevant for Chile are expected to improve somewhat in 2015 relative to 2014. The Chilean economy is thus expected to receive a similar boost from abroad as projected in March.

**FIGURE I.1**
GDP growth, by region (1)
(annual change, percent)




(1) PPP-weighted growth. The dots are forecasts: for the G-3, starting in the second quarter of 2015, and for the rest starting in first quarter.
(2) The United States, Japan and the Eurozone, which account for 78% of the GDP of the developed economies and 33% of world GDP.
(3) The rest of the economies, excluding the G-3.

Source: Central Bank of Chile, based on IMF data.

**FIGURE I.2**
The U.S. labor market and consumer confidence
(percent; diffusion index)


(*) Conference Board. Index: 1985 = 100.

Source: Bloomberg.

## WORLD GROWTH

For the first quarter of 2015, the U.S. data revealed a quarter-on-quarter decline in annualized GDP of 0.7%[1/]. However, this result mainly reflects transitory factors, such as the harsh winter and the port strikes, and the forecast continues to project a steady recovery over the course of the rest of the year. This is based on the ongoing recovery of the labor market and consumer expectations, which are still higher than a year ago even after falling in recent months (figure I.2). The baseline scenario has revised the growth outlook for the United States downward by 0.5 percentage points (pp) for 2015 and 0.1 (pp) for 2016 (table I.1). At the same time, the most recent indicators, such as retail sales, were weaker than expected by the market, which, together with the mixed surprises in the real estate sector, leaves open the question of the future growth rate of the U.S. economy.

[1/] Data published after the cutoff date for this *Monetary Policy Report*. The U.S. growth forecasts used in the baseline scenario are based on preliminary data, which indicated an annualized quarter-on-quarter increase of 0.2%.

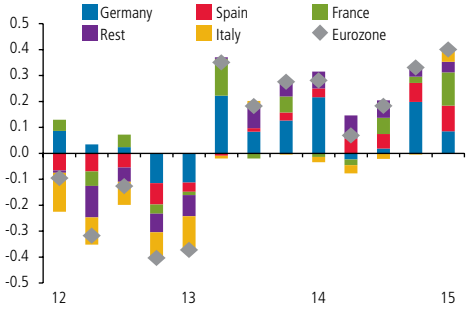
**TABLE I.1**
World growth (*)
(annual change, percent)

| | Avg. 00-07 | Avg.. 10-12 | 2013 (e) | 2014 (e) | 2015 (f) | 2016 (f) |
|---|---|---|---|---|---|---|
| World at PPP | 4.2 | 4.0 | 3.1 | 3.4 | 3.4 | 3.7 |
| World at market exchange rates | 3.2 | 3.2 | 2.4 | 2.7 | 2.7 | 3.2 |
| Trading partners | 3.6 | 4.6 | 3.5 | 3.4 | 3.3 | 3.7 |
| United States | 2.6 | 2.4 | 2.2 | 2.4 | 2.5 | 2.9 |
| Eurozone | 2.2 | 1.0 | -0.4 | 0.9 | 1.5 | 2.0 |
| Japan | 1.7 | 2.0 | 1.5 | -0.1 | 1.0 | 1.4 |
| China | 10.5 | 9.1 | 7.7 | 7.4 | 6.9 | 6.5 |
| India | 7.1 | 7.3 | 4.7 | 7.2 | 7.5 | 7.8 |
| Rest of Asia | 5.1 | 5.3 | 3.9 | 3.9 | 4.2 | 4.5 |
| Latin America (excl. Chile) | 3.5 | 4.5 | 2.3 | 1.0 | 0.2 | 1.8 |
| Commodity exporters | 3.1 | 2.6 | 2.2 | 2.6 | 2.3 | 2.5 |

(*) See glossary for definitions.
(e) Estimate.
(f) Forecast.

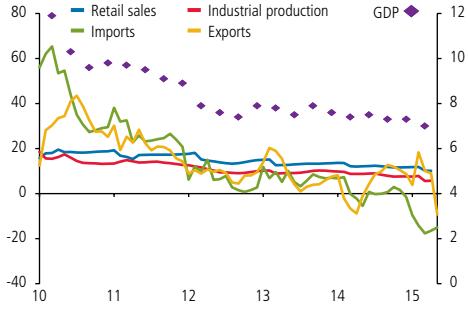
Sources: Central Bank of Chile, based on a sample of investment banks, Consensus Forecasts, the IMF and the statistics offices of each country.

**FIGURE I.3**
Eurozone: GDP growth and contributions
(quarterly change, percent)




Source: Bloomberg.

**FIGURE I.4**
Output indicators for China
(annual change, percent)




Sources: Bloomberg and the Chinese Statistics Institute.

In the Eurozone, the gradual recovery process has strengthened, while the differences in the economic performance of the countries in the bloc have decreased. This reflects the accumulated effects of a more expansionary monetary policy, low energy costs and the depreciation of the euro in recent months. In the first quarter of 2015, the region recorded an annualized quarter-on-quarter growth rate of 1.6%, where the stronger performance of Italy and France and the ongoing recovery of Spain offset the lower growth of Germany (figure I.3). The most recent output data, including industrial production, retail sales and exports, are positive on aggregate, and the expectations of purchasing managers remain favorable.

In the United Kingdom, the annualized quarter-on-quarter growth rate of GDP was 1.2% in the first quarter of the year. This was lower than the previous quarter due to lower growth of manufacturing and financial and business services, as well as a reduction in mining and construction. Japan, in contrast, surprised the market on the upside in the same period, thanks to an increase in inventories and more dynamic private consumption. On aggregate, the annual growth forecast for the developed economies in 2015 decreased from 2.2% in March to 2.0% in this *Report,* mainly due to the lower forecast for the United States. Given that the inflation outlook has been stable in these economies, for the most part they did not implement any monetary policy adjustments and, if anything, in some cases postponed the normalization of their policy rates. Australia was the exception, lowering its reference rate by 25 basis points.

In the emerging economies, growth continued to slow. China's GDP grew 7% in annual terms in the first quarter of 2015 (versus 7.3% in the last quarter of 2014). The adjustment in the real estate market has put a brake on investment in construction and related activities, and manufacturing investment also declined. The most recent data still point to more moderate output going forward. Thus, retail sales, industrial production and the external sector continue to record declining growth rates (figure I.4). Given the slowdown in output and annual inflation below 1.5% since late 2014, the Chinese authorities increased the economic stimulus again, and the possibility of new fiscal and/or monetary stimulus measures cannot be ruled out. The baseline scenario assumes a growth rate of 6.9% in 2015 and 6.5% in 2016.

Within the emerging world, Latin America continues to record the largest and most continuous downtrend. The growth forecasts for the region have been revised downward significantly in the last few quarters (figure I.5). Thus, whereas the June 2014 *Monetary Policy Report* projected that the region would grow 3% in 2015, the forecast in this *Report* has dropped to 0.2%. Although the forecast revision has been generalized across the countries in the region, the situation is particularly grim in Brazil, where expectations signal that the economy will experience its worst recession since 1990. The government's fiscal and monetary adjustments have tended to be oriented toward addressing the delicate situation of the fiscal accounts and the rising inflation. At the same time, the country is also facing corruption scandals and a severe drought.

In other economies in the region, the fiscal accounts are still a source of concern, especially where combined with a high current account deficit. Given that inflation in the region is higher than in other areas, the authorities have

limited space for applying countercyclical policies. In Mexico, the low oil price continues to affect the fiscal accounts, but the better performance projected for the United Sates is reflected in a higher growth forecast for Mexico for 2016. Colombia has also been affected by the low oil price, with a deterioration of its terms of trade and public accounts and an increase in the current account deficit. In addition, public spending cuts aimed at containing inflation have translated into lower investment in construction. In Peru, the maturing of the mining cycle has slowed down output, which has been exacerbated by political problems and climatic factors. For 2016 and 2017, large mining projects in operation should allow the economy to post a somewhat higher growth rate than its peers in the region. In the case of Chile, the fiscal policy framework has been an important anchor for the public accounts and, following a sharp adjustment, the external accounts are in balance[2]/.

## FINANCIAL MARKETS

The lower output data for the United States and the prospect of annual inflation below 2% led the market to push back its estimate of when the Fed will start raising its policy rate. This has been confirmed by the Fed's own communications. Thus, both market expectations and the Fed's projections indicate that the first rate increase will come toward the end of this year or even the beginning of the next (figure I.6). Despite this convergence between the Fed and market expectations, there are still key differences in terms of the expected speed of the adjustment.

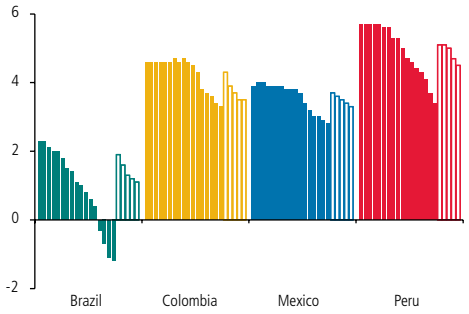
Comparing the statistical cutoff dates of this and the last *Report,* the long-term interest rates on government bonds increased in a number of developed economies. Combined with the smaller movements in short-term rates, this has produced a steepening of the yield curves. In principle, this phenomenon can be attributed both to the consolidation of the growth outlook in these economies and to the higher expected inflation. There has also been a decompression of term spreads, which were very low in the recent period, associated with portfolio reallocation by investors (figure I.7). Given the partial reversal in recent weeks, at the cutoff date for this *Report*, the interest rates on ten-year government bonds in Germany and the United States were a little more than 30 and 20 basis points over their level on the March cutoff, respectively (figure I.8).

Between mid-March and mid-May, the dollar depreciated at the global level, by nearly 4.5% at its peak. It subsequently recovered, and the multilateral exchange rate at the cutoff for this *Report* was similar to the last cutoff date.

The portfolio adjustments, together with low volatility and low risk aversion, have generally given rise to capital inflows to emerging economies, with an increase in fixed-income flows to Latin America and variable-income flows to Asia (figure I.9). In this context, Chile placed sovereign debt totaling almost 1.4 billion euros. This trend has also coincided with a generalized increase in the emerging stock exchanges. The developed economies did not record any major changes (figure II.7).

[2]/ *Monetary Policy Report,* March 2015, box I.1.

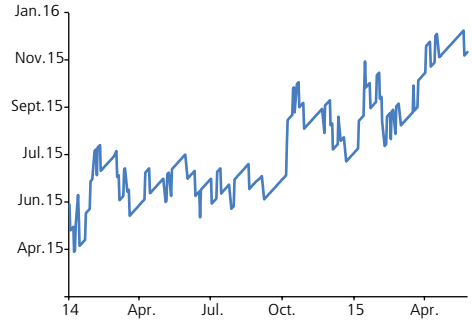
**FIGURE I.5**
Growth forecasts for 2015 and 2016 (*)
(annual change, percent)




(*) Each solid bar represents forecasts for 2015 from January 2014 to date; the outlined bars represent forecasts for 2016 from January 2015 to date.

Source: Consensus Forecasts.

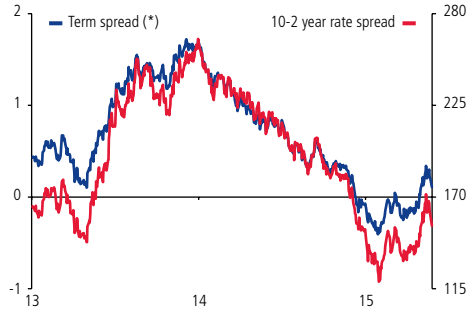
**FIGURE I.6**
First expected increase in the Fed funds interest rates (*)
(month of first increase)




(*) The vertical axis shows the month in which the first increase in the Fed funds rate is expected to occur.

Source: Morgan Stanley.

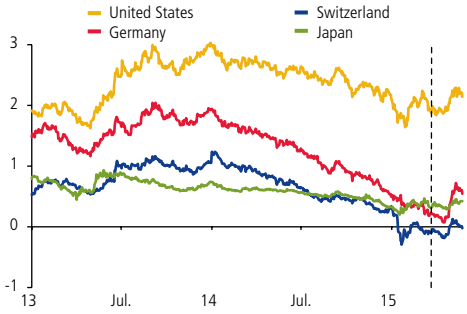
**FIGURE I.7**
Term spreads and nominal interest rate spreads in the United States
(percent, basis points)




(*) Decomposition based on Adrian et al. (2013).

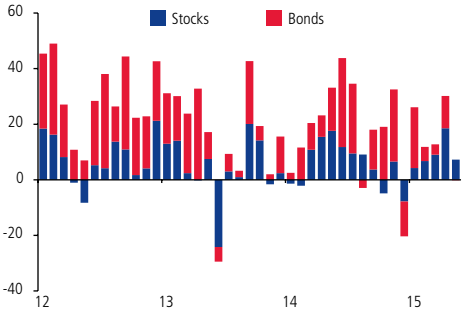
Sources: Bloomberg and New York Federal Reserve.

**FIGURE I.8**
Interest rates on ten-year government bonds (*)
(percent)



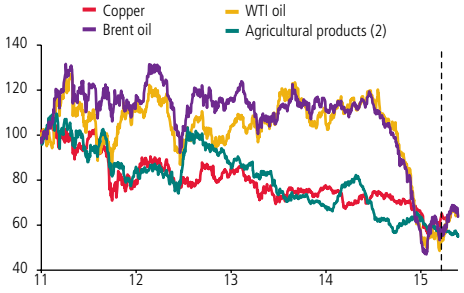

(*) The vertical dashed line indicates the cutoff date of the March 2015 *Monetary Policy Report*..
Source: Bloomberg.

**FIGURE I.9**
Capital inflows to emerging economies
(US$ billion)




Source: Institute of International Finance.

**FIGURE I.10**
Commodity prices (1)
(fixed-base index: January 2011=100)




(1) The vertical dashed line indicates the cutoff date of the March 2015 *Monetary Policy Report.*
(2) Goldman Sachs aggregate index.
Source: Bloomberg.

## COMMODITIES

Relative to March, most commodity prices increased. Oil, in particular, reversed some of the drop recorded since mid-2014 (figure I.10). The increase was related to supply factors that coincided with the dollar depreciation and the portfolio changes implemented by investors moving toward more liquid assets, including commodities.

Comparing the ten business days prior to the cutoff dates for this and the last *Report*, the WTI and Brent oil prices increased around 30 and 20%, respectively, with a partial reversal of the latter. This trend reflects the drop in crude oil production and the negative surprises in U.S. inventories, as well as higher world demand forecasts by some international organizations. Toward the cutoff date for this *Report*, Brent and WTI oil were trading at US$63 and US$58 per barrel, respectively. Crude oil prices are thus still low from a long-term perspective. The baseline scenario assumes an average price of US$60 for 2015 and US$66 for 2016.

The copper price was around the same level on the cutoff dates of this and the last *Report*, at just under US$2.80 per pound. In the first half of May, however, copper was trading at around US$2.90. The higher prices in the most recent period have led to an upward revision of the price forecast for 2015. For 2016, the increase is based on a tight market. Thus, the baseline scenario projects prices of US$2.80 per pound in 2015 and US$2.90 in 2016.

Food prices have declined in recent months, due in part to excess supply in the cereal and milk markets.

## RISKS IN THE BASELINE SCENARIO

One of the risks in the baseline scenario of this *Report* is Greece, given the potential impact of a sudden change in the situation on the international financial markets. According to estimates, however, such an event would have a relatively short duration, and the effects on world growth would be limited. Regardless, the Greek situation has become undeniably complex. Over and above the question of whether the financial markets are prepared for such an event, it is very difficult to predict the consequences of a Greek default and a possible Greek exit from the Eurozone. Another risk involves the surprises surrounding the timing or speed of the Fed's policy rate normalization and the fluctuations it could cause in the international financial markets. Other external risks stem from the continuation of low commodity prices, which could affect growth in Latin America despite the slight upturn in the most recent period. Low growth in China is also a risk, together with its effect on the copper price, which is mainly related to the evolution of the country's financial system and real estate sector.

# II. FINANCIAL MARKETS

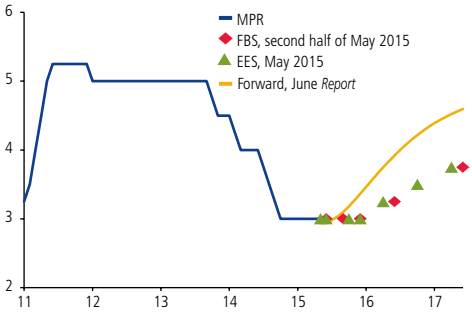
*This chapter reviews the evolution of local financial markets in connection with the transmission of monetary policy.*

## MONETARY POLICY

The macroeconomic scenario has undergone minor changes relative to the forecast in March. Annual inflation declined between February and April, but it is still over 4%. After the publication of the March *Report*, private inflation expectations for this year rose in line with the assumption in that baseline scenario. Output and demand continued to grow at a moderate pace, with a better first quarter than projected. According to the most recent data, however, the rest of the year will be somewhat less dynamic than estimated in March. Internationally, the world growth scenario similarly did not change significantly, with a weaker start to the year in the United States and a strengthening of the improved outlook in Europe. The dollar partially reversed the strengthening trend of the first months of 2015, while the market pushed back its expectation on when rates will start to rise in the United States. Nevertheless, long-term rates increased in that economy, as in the majority of the developed markets. Copper and oil prices rose, in line with the movement in most commodities. In this context, the Board has held the monetary policy rate (MPR) at 3%, thus maintaining a fairly expansionary monetary policy stance, and has signaled that any future adjustment in the MPR will depend on the evolution of internal and external macroeconomic conditions and their implications for the inflation outlook.

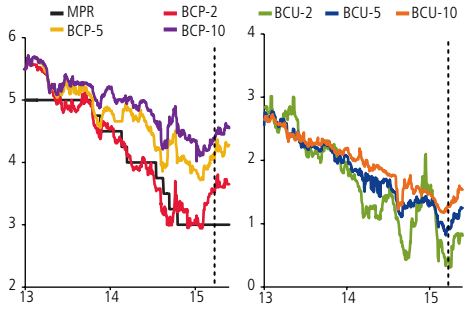
The market expectations surveys—namely, the Economic Expectations Survey (EES) and the Financial Brokers Survey (FBS)—indicate that the MPR will begin normalizing in early 2016. Expectations derived from financial asset prices suggest that the MPR will start to rise between the end of this year and the beginning of the next. The different measures of expectations thus indicate that the MPR will be between 3.25 and 3.9% in one year (between 3.0 and 3.6% in the March *Report*) and between 3.75 and 4.6% in two years (between 3.5 and 4.3% in March) (figure II.1 and table II.1). In the baseline scenario for this *Report*, the working assumption on the MPR is that the gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over one-year horizon.

**FIGURE II.1**
MPR and expectations
(percent)




Source: Central Bank of Chile.

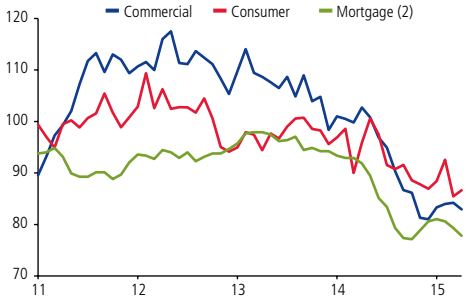
**FIGURE II.2**
MPR and interest rates on Central Bank of Chile bonds (*)
(percent)




(*) The vertical dashed line indicates the cutoff date of the March 2015 *Report*.

Source: Central Bank of Chile.

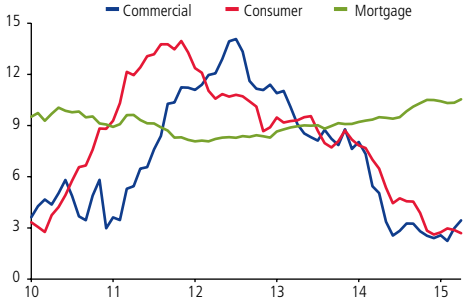
**FIGURE II.3**
Lending rates (1)
(fixed-base index:2002-2015=100)




(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.

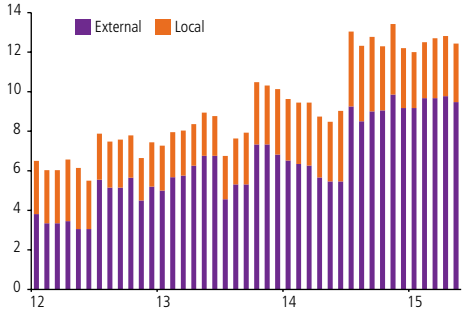
**FIGURE II.4**
Real annual growth rate of loans (*)
(percent)




(*) Data for April 2015 are preliminary.

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

**FIGURE II.5**
Bond placements by nonfinancial firms (*)
(US$ billion accumulated in 12 months)




(*) Includes state-owned companies.

Source: Central Bank of Chile, based on Bloomberg and Santiago Stock Exchange.

**TABLE II.1**
MPR expectations
(percent)

| | December 2015 | | One year ahead | | Two years ahead | |
|---|---|---|---|---|---|---|
| | March *Report* | June *Report* | March *Report* | June *Report* | March *Report* | June *Report* |
| EES (1) | 3.00 | 3.00 | 3.00 | 3.25 | 3.50 | 3.75 |
| FBS (2) | - | 3.00 | 3.13 | 3.25 | 3.50 | 3.75 |
| Forward curve (3) | 3.34 | 3.37 | 3.62 | 3.92 | 4.28 | 4.60 |
| Swap contracts (4) | 3.21 | 3.22 | 3.39 | 3.52 | 3.94 | 4.01 |

(1) March 2015 and May 2015 surveys.
(2) Survey for the second half of March and May 2015.
(3) Constructed using the interest rates on swap contracts up to one year and the interest rates on BCPs.
(4) Constructed using the interest rates on swap contracts up to two years.

Source: Central Bank of Chile.

Indexed interest rates on Central Bank and Treasury bonds, at all maturities, have increased on the order of 40 basis points, on average, comparing the last ten business days prior to the cutoff dates for this and the last *Report*. The largest fluctuations were on two-year UF-denominated bond rates (figure II.2). Nominal interest rates rose less, averaging 20 basis points at the different maturities. The increase in nominal rates in Chile was lower than in other economies. This behavior could be related to a higher demand for fixed-income instruments by institutional investors, who account for a large share of that market, as described in the *Financial Stability Report* (FSR) for the first half of 2015. There is still a risk that domestic interest rates could rise sharply in response to international financial volatility or a greater decompression of the term spreads. For the immediate future, the divergence between what the market expects and what the Fed decides in terms of the timing and speed of the increase in the policy rate continues to be an important risk factor, although it has lessened in the most recent period.

## FINANCIAL CONDITIONS

The cost of credit remains low, in part as a consequence of a clearly expansionary monetary policy. Lending rates are thus at or near their lowest levels of the last ten years. The biggest change was in the interest rates on consumer loans, which dropped 160 basis points between this and the last *Report*, more than reversing the increase earlier in the year (figure II.3).

Despite the low cost of credit, the real growth of commercial and consumer loans was sluggish, with annual growth rate of about 3% in April. For housing, mortgage loans continued to grow strongly year-on-year (10.5% in April) (figure II.4). These trends are consistent with the economic scenario in terms of domestic spending and the residential real estate market.

With regard to supply and demand conditions, the Bank Lending Survey (BLS) for the first quarter of 2015 reveals that the demand for credit weakened and the supply tightened, albeit in a small fraction of banks. On the demand side, the BLS points to a weakening in the market for both personal and business loans, although not across the board. The exception was applications from real estate companies, which strengthened. Similarly, in the May *Business Perceptions Report*, the general assessment was that the cost of credit is fairly low. However, several of the firms interviewed indicated that they have not sought out additional debt because they do not have investment projects in the works, a situation corroborated by the banks. The latter also cited the difficulty of placing consumer loans, because people do not want to acquire more debt. A large share of the loans issued have been for refinancing the portfolios of clients looking to reduce their financial burden.

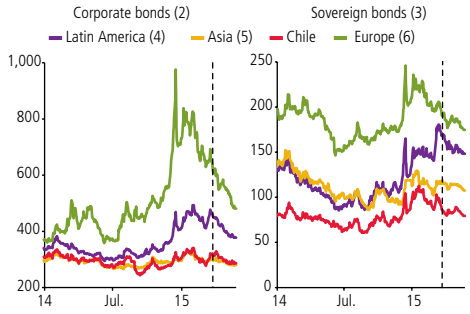
As described in the FSR, however, the total debt of the corporate sector has continued to increase. Bond placements in both the local and overseas markets have remained high in the past three months. According to the firms, the main objective of these issues is the restructuring of liabilities. This goal was cited in almost 75% of the cases so far in 2015, which is the highest percentage of the last decade (figure II.5 and chapter II of the FSR).

External financial conditions remain favorable from a historical perspective, although the long-term interest rates on government bonds have risen since the last *Report*, primarily in the developed economies. In the emerging economies, including Chile, both sovereign and corporate spreads have fallen (figure II.6). Private bond placements in foreign markets by Chilean firms remain dynamic, in line with the lower external financing costs. In addition, Chile issued sovereign debt totaling nearly 1.4 billion euros.

The emerging stock markets posted a favorable performance over the past few months, in line with the capital inflows to these regions. Domestically, the IPSA, measured in local currency, rose 5% relative to the last *Report* (figure II.7).

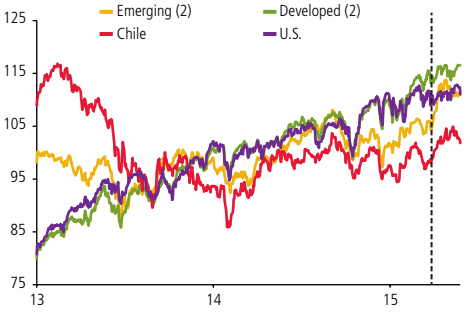
With regard to the monetary aggregates, the available data for April indicate that the nominal annual growth rate of M1 dropped to around 13% since February, with some fluctuation. The annual growth rate of M2 increased to 8.8% in the same period. For M3, the year-on-year growth rate was 9.7% (10.3% in February).

**FIGURE II.6**
Emerging economies spreads (1)
(basis points)




(1) The vertical dashed line indicates the cutoff date of March 2015 *Report*.
(2) Measured by the CEMBI index.
(3) Measured by five-year CDS spreads. Simple average of the countries in each region.
(4) Includes Brazil, Colombia, Mexico, Panama and Peru.
(5) Includes China, Indonesia, Malaysia, Philippines and Thailand.
(6) Includes Bulgaria, Croatia, Czech Republic, Hungary, Russia and Turkey.
Source: Bloomberg.

**FIGURE II.7**
Stock markets (1)
(fixed-base index: 2013–2015=100)



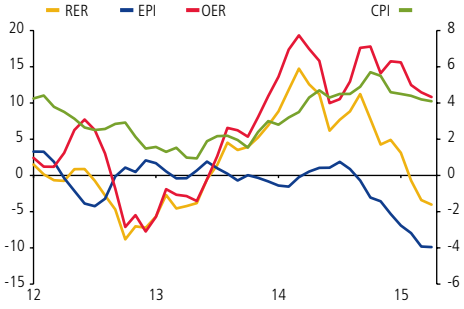

(1) Data measured in local currency. For Chile, the IPSA; for the United States, the DJIA. The vertical dashed line indicates the cutoff the of the March 2015 *Report*.
(2) Morgan Stanley Capital International regional stock indices.
Source: Bloomberg.

**FIGURE II.8**
Nominal exchange rate (1)
(accumulated change, percent)


(1) The vertical dashed line indicates the cutoff of the March 2015 *Report*. (2) Includes Brazil, Colombia, Mexico and Peru. (3) Includes Brazil, Colombia, Czech Republic, Israel, Mexico, Philippines, Poland, South Korea and Turkey. Emerging economies and currencies with a floating exchange rate, according to Moody's Statistical Handbook, May 2012. (4) Includes Australia, Canada, New Zealand and South Africa. (5) Constructed using the weights in the WEO, April 2015.

Sources: Central Bank of Chile and Bloomberg.

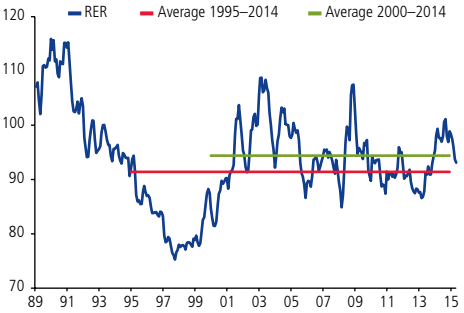
**FIGURE II.9**
RER and its determinants (*)
(annual change, percent)




(*) Includes data through April 2015.

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

**FIGURE II.10**
Real exchange rate, RER (*)
(fixed-base index: 1986=100)




(*) May 2015 includes data through the 26th.

Source: Central Bank of Chile.

## EXCHANGE RATE

The Chilean peso appreciated in the period, with some fluctuation. After peaking at over $640 to the dollar in March, the exchange rate dropped to around $600 in May and closed at $615 on the cutoff date for this *Report*. This trend was mainly driven by the fluctuation of the U.S. dollar and the increase in the copper price. The peso appreciated more than the currencies of the country's peers. Since the cutoff date of the last *Report*, the peso appreciated by just over 5% against the dollar, whereas the multilateral measure excluding the dollar (MER-X) appreciated 3.3% (figure II.8 and table II.2).

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

| | Change in NER | |
|---|---|---|
| Country | Jun.15 *Report*/ Mar.15 *Report* | Spot/ Minimum in 2013 |
| Brazil | -5.1 | 62.2 |
| Turkey | 0.4 | 51.0 |
| Colombia | -5.6 | 44.7 |
| South Africa | -2.2 | 42.9 |
| Indonesia | 0.2 | 37.5 |
| Australia | -2.4 | 37.0 |
| Czech Republic | -3.6 | 35.5 |
| Sweden | -3.2 | 34.8 |
| Hungary | -2.4 | 34.4 |
| **Chile** | **-5.1** | **30.7** |
| Mexico | 0.0 | 27.7 |
| Poland | -4.7 | 27.0 |
| Eurozone | -3.8 | 26.9 |
| Canada | -3.7 | 26.5 |
| Peru | 1.9 | 24.2 |
| Malaysia | -2.7 | 22.5 |
| New Zealand | 1.5 | 19.4 |
| Thailand | 2.4 | 17.7 |
| Israel | -3.4 | 11.8 |
| Switzerland | -5.3 | 7.7 |
| United Kingdom | -4.7 | 7.6 |
| South Korea | -2.5 | 4.9 |

(1) A positive (negative) sign indicates depreciation (appreciation) of the currency against the U.S. dollar.
(2) Calculated based on the average of the last ten days prior to the cutoff date of the indicated dates.

Sources: Central Bank of Chile and Bloomberg.

The real exchange rate (RER) fell around 3% since the cutoff date of the last *Report*. The key factors underlying this trend, in addition to the multilateral appreciation, include a sharper decline in the external price index (EPI) measured in dollars, due to the annual drop in the oil price in international markets, and the mild reversal of domestic annual inflation, which nevertheless remains high (figure II.9). Taking into account the nominal exchange rate, parities and corresponding prices, the RER was estimated to be around 93 in May, where 1986=100; this is around the average of the last 15 to 20 years (figure II.10). In the baseline scenario used in this *Report*, the working assumption is that the RER will continue to fluctuate in the upper part of the range deemed consistent with its long-run fundamentals.

# III. OUTPUT AND DEMAND

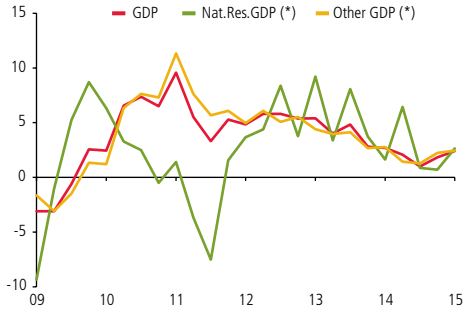
*This chapter reviews the recent evolution of demand and economic activity and their short-term outlook, in order to examine possible inflationary pressures.*

In the first quarter of 2015, output grew at an annual rate of 2.4%, which is higher than in the second half of 2014 and also somewhat above the forecast in the baseline scenario in the March *Monetary Policy Report* (figure III.1). There was substantial variation by sector. Mining output was lower than expected, due to the floods in the north and maintenance work in some large projects. The services sector again recorded the best performance. Construction and trade had low annual growth rates, in line with the sluggish private spending, although spending in the first quarter was slightly higher than expected and thus provided a small boost to these sectors (table III.1). Data for the end of the first quarter and beginning of the second continue to be weak, and the recovery is expected to be somewhat slower than projected in March. In contrast, public spending provided a significant boost to output. The baseline scenario in this *Report* estimates annual GDP growth of 2.25 to 3.25% in 2015 (versus 2.5 to 3.5% in March).

Excluding inventories, domestic demand increased 1.3% in annual terms in the first quarter—less than in the previous quarter, but slighter higher than expected. The growth of spending thus continues to lack dynamism, especially compared with the growth rates recorded through the first half of 2013. Government consumption spurred domestic spending in the first quarter, with a growth rate similar to the end of last year (table III.2).

The growth of private consumption is still limited, coming in below the aggregate growth rate of the economy at 1.6% in the first quarter. This outcome includes somewhat higher nondurable goods consumption. The other components of private consumption were weak, especially durable goods (figure III.2). In the first quarter of the year, durable goods contracted, with an annual growth rate of –5.1%. In terms of output, the private consumption trend was reflected in the heightened fragility of the trade sector, where the annual growth rate dropped to 0.1% in the first quarter of 2015. In particular, retail sales of durable goods (IVCM) fell more than in the previous quarter (–5.1% annual versus –4.0% in the previous). More recent data reveal that consumption has continued to falter in the most recent period. New automobile sales were low in April. Consumer

**FIGURE III.1**
GDP growth
(annual change, percent)




(*) See glossary for definitions.
Source: Central Bank of Chile.

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

| | Weight | 2014 | | | | 2015 |
|---|---|---|---|---|---|---|
| | 2014 | I | II | III | IV | I |
| Agriculture, livestock and forestry | 2.7 | 2.9 | -5.6 | -3.4 | 4.9 | 8.5 |
| Fishing | 0.3 | 21.8 | 34.0 | 10.7 | 3.4 | -13.5 |
| Mining | 11.2 | 1.2 | 4.8 | -0.0 | -0.4 | 3.3 |
| Manufacturing | 11.3 | 0.2 | -0.7 | -0.7 | -0.1 | -0.6 |
| EGW | 2.3 | 1.3 | 9.4 | 3.4 | 5.7 | 1.5 |
| Construction | 7.3 | 3.1 | 1.1 | -1.4 | 3.2 | 2.0 |
| Trade | 8.0 | 2.2 | -0.4 | -0.2 | 0.7 | 0.1 |
| Restaurants and hotels | 1.8 | 1.0 | 0.3 | 0.9 | 0.9 | 2.1 |
| Transportation | 4.2 | 3.4 | 1.5 | 1.3 | 3.1 | 1.3 |
| Communications | 1.8 | 7.6 | 7.5 | 5.7 | 5.8 | 9.4 |
| Financial services | 5.1 | 3.9 | 2.2 | 2.2 | 3.6 | 3.1 |
| Business services | 13.9 | 3.4 | 2.1 | 1.2 | 0.9 | 1.6 |
| Residential property | 5.2 | 1.6 | 1.7 | 1.8 | 1.8 | 1.8 |
| Personal services (2) | 11.7 | 3.4 | 3.7 | 4.6 | 3.9 | 3.8 |
| Public administration | 4.6 | 3.3 | 3.0 | 2.7 | 5.4 | 3.7 |
| **Total GDP** | **100.0** | **2.7** | **2.1** | **1.0** | **1.8** | **2.4** |
| **Other GDP (3)** | **77.5** | **2.8** | **1.4** | **1.3** | **2.2** | **2.4** |
| **Natural resource GDP (3)** | **13.9** | **1.6** | **6.4** | **0.9** | **0.7** | **2.6** |

(1) Preliminary data.
(2) Includes education, health and other services.
(3) See glossary for definitions.
Source: Central Bank of Chile.

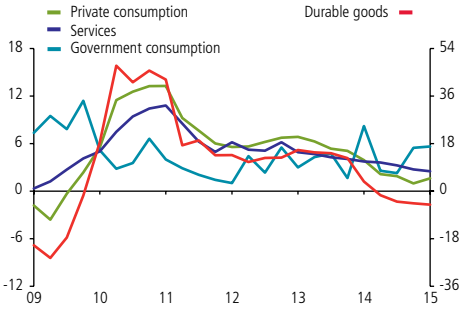
**TABLE III.2**
Domestic demand (1)
(share of GDP; real annual change, percent)

| | Weight | 2014 | | | | 2015 |
|---|---|---|---|---|---|---|
| | 2014 | I | II | III | IV | I |
| **Domestic demand** | **98.5** | **-0.1** | **-0.9** | **-1.5** | **0.0** | **1.3** |
| Domestic demand (excl. change in inventories) | 99.1 | 2.1 | -0.2 | -1.4 | 1.5 | 1.3 |
| Gross fixed capital formation | 22.0 | -4.9 | -7.8 | -12.1 | 0.5 | -1.7 |
| Construction and works | 14.9 | 3.0 | 0.1 | -1.6 | 2.2 | 1.1 |
| Machinery and equipment | 7.2 | -19.3 | -21.4 | -29.6 | -3.1 | -7.4 |
| Total consumption | 77.1 | 4.4 | 2.3 | 2.0 | 1.8 | 2.2 |
| Private consumption | 64.2 | 3.9 | 2.2 | 1.9 | 1.0 | 1.6 |
| Durable goods | 6.2 | 3.6 | -1.5 | -3.9 | -4.6 | -5.1 |
| Nondurable goods | 26.4 | 4.1 | 1.2 | 1.6 | 0.6 | 2.1 |
| Services | 31.6 | 3.7 | 3.6 | 3.3 | 2.7 | 2.5 |
| Government consumption | 12.9 | 8.2 | 2.6 | 2.3 | 5.5 | 5.6 |
| Change in inventories (2) | -0.6 | 0.0 | -0.2 | -0.3 | -0.6 | -0.6 |
| Goods and services exports | 33.8 | 4.1 | -0.4 | -2.6 | 1.7 | 1.4 |
| Goods and services imports | 32.3 | -4.7 | -9.4 | -9.8 | -3.9 | -2.0 |
| **Total GDP** | **100.0** | **2.7** | **2.1** | **1.0** | **1.8** | **2.4** |

(1) Preliminary data.
(2) Ratio of inventory change to GDP, at average prices of previous year, accumulated in the last moving year.

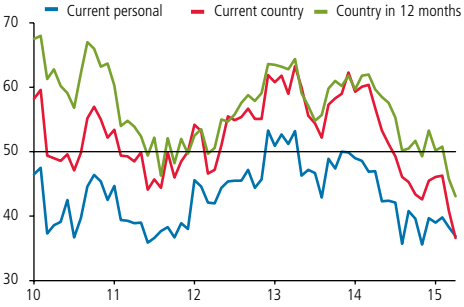
Source: Central Bank of Chile.

**FIGURE III.2**
Consumption
(annual change, percent)




Source: Central Bank of Chile.

**FIGURE III.3**
IPEC: Consumer economic expectations (*)
(original series)




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

Source: Adimark.

goods imports were also low in March and April in seasonally adjusted terms, with a negative annual growth rate similar to the first quarter[1]/.

Consumption fundamentals are, in general, weak. Not only did consumer expectations (IPEC) not improve as expected, but they deteriorated in recent months, falling under 40 in the most recent period. The decline is mainly related to a worse assessment of the economy, whereas personal perceptions deteriorated less (figure III.3). These trends are in line with information gathered via the *Business Perceptions Report* for May, where firms indicated that consumers are currently more cautious about making purchases or taking on debt. Consumer loans continue to be sluggish, despite low interest rates. The Bank Lending Survey (BLS) for the first quarter of 2015 shows that the demand for financing weakened, while supply tightened again, albeit in a small fraction of banks.

On the whole, the evolution of the labor market has been consistent with the output cycle. Job growth is still lower than in late 2014, at around 1% in annual terms. In fact, February recorded the lowest annual job growth rate since the global crisis of 2009 (0.6%) (figure III.4). By component, self-employment fell more, while wage employment, which typically involves better quality jobs, exceeded the growth rates recorded since early 2014. The growth of this type of job continues to be determined, in large part, by agriculture and services, especially public sector services. When these sectors are excluded, wage employment was weak on sectors that are tied to the economic cycle, such as construction and manufacturing (figure III.5).

The lower job growth has been accompanied by a limited expansion of the labor force, such that the unemployment rate has been fairly stable over the past few months, at 6.1%. Other sources, such as the data published by the University of Chile for Greater Santiago, point to a rising unemployment rate. In March, the University of Chile measured unemployment at 6.8%, versus 6.1% according to the INE measure for the Santiago Metropolitan Region. That value is higher than at year-end 2014 (6.5%) or in March 2014 (6.3%).

The annual growth rate of nominal wages stayed over 7% in recent months according to several different measures, while real wages grew at rates around 3%, driven by the gradual reduction in inflation since December. The wage trend has undoubtedly been a source of concern in recent months. Empirical evidence suggests that the high annual growth rate is mainly explained by the effect of indexation to past inflation, which is lower than in past decades

[1]/ After the cutoff date for this *Report*, the INE published new sectoral and labor market data. This new information does not change the analysis presented in this chapter.

but still significant (box III.1). Alternative explanations—for example, based on a tighter labor market—are less consistent with the phase of the economic cycle. They cannot be discarded, however, so it will be important to monitor the market in the coming months to identify potential risks for the evolution of inflation.

Since the beginning of the year, the annual growth rate of the real labor income has not changed significantly. The higher contribution from the growth of real wages has been offset by lower job creation (figure III.6).

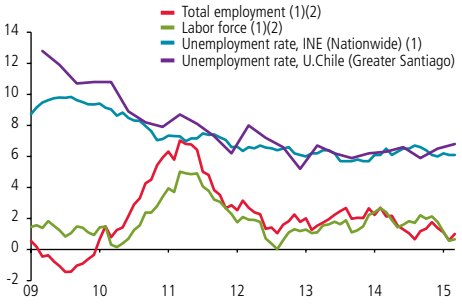
In the first quarter, total investment grew at negative annual rates (figure III.7). The construction and works component continues to drive investment. Although the annualized growth rate of this component was lower than in the previous quarter (1.1 versus 2.2%), it was higher than projected in the last *Report.* The solid performance of construction and works derives, in part, from strong public investment, which, according to data from the National Budget Division, grew around 14.2% in real annual terms in the first quarter (7.4% in 2014). For the coming quarters, public investment is expected to continue being the main driver of this component of total investment. In March, the Capital Goods and Technological Development Corporation (*Corporación de Desarrollo Tecnológico y de Bienes de Capital, CBC*) confirmed its forecast of a drop in the amount of private projects for this year relative to 2014, but it revised upward the investment outlook for 2016–2018.

Consistent with the evolution of this component of investment, construction activity also posted lower annual growth in the first quarter, but the growth rate was higher than projected in March due to a better performance in the residential housing sector. With regard to new homes, the real estate sector is still dynamic and prices continued to rise, as described in the *Financial Stability Report* (FSR) for the first half. Sales of cement and other materials (CChC) recovered somewhat in terms of levels in recent months, but annual growth rates remain weak, as does job creation in the construction sector.

The annualized drop in total investment in the first quarter thus stems from the negative outcome in the machinery and equipment component, which recorded an annual growth rate of –7.4% (–3.1% in the fourth quarter of 2014). The most recent data confirm the weak trend for this component. Capital goods imports in March and April remain low, with negative annual growth rates.

Another factor explaining the sluggish private investment is pessimistic business expectations. Business confidence, as measured by the IMCE excluding mining, leveled out after starting to recover earlier in the year, ending the period below neutral and also below the historical average in all sectors (figure III.8). In trade and industry, this indicator has fallen due to a worsening of the current and future outlook. In construction, pessimism decreased in response to the better

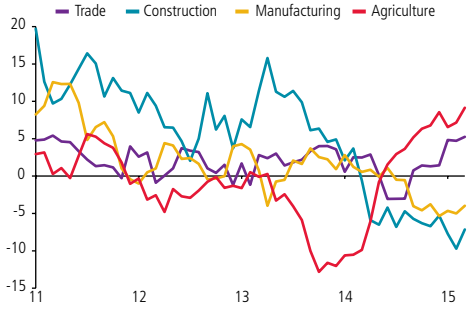
**FIGURE III.4**
Labor market
(percent)




(1) Series spliced by the Central Bank based on the monthly change in March 2010.
(2) Annual change.

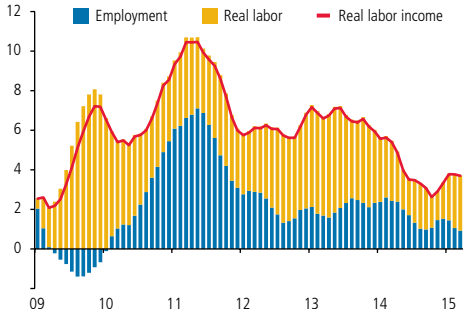
Sources: University of Chile and National Statistics Institute (INE).

**FIGURE III.5**
Wage employment
(annual change, percent)




Source: National Statistics Institute (INE).

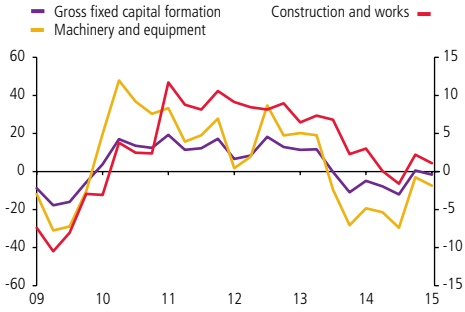
**FIGURE III.6**
Real labor income (*)
(annual change, percent)




(*) Quarterly moving average.

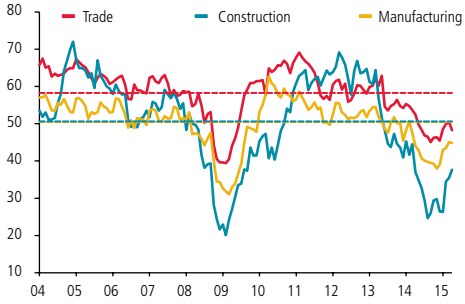
Sources: Central Bank of Chile and National Statistics Institute (INE).

**FIGURE III.7**
Gross fixed capital formation
(annual change, percent)




Source: Central Bank of Chile.

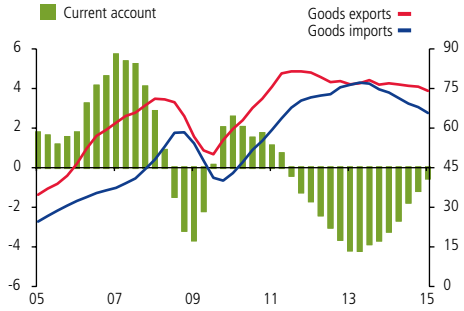
**FIGURE III.8**
IMCE (1)(2)
(index)




(1) A value over (under) 50 indicates optimism (pessimism).
(2) Dashed lines indicate the 2004–2015 average for each sector.

Source: Icare/Universidad Adolfo Ibáñez.

**FIGURE III.9**
Current account and trade balance (*)
(percent of GDP; US$ billion)




(*) Accumulated in a moving year.

Source: Central Bank of Chile.

outlook for real estate companies. In the *Business Perceptions Report* for May, the vast majority of the companies interviewed indicated that their investment plans for the year will be focused solely on normal capital replacement, as in 2014. Furthermore, although a substantial number of the interviewees reported that their companies performed better in the first quarter than in 2014 and also better than expected, they have not raised their expectations for the remainder of 2015. Investment and consumption continue to be supported by very favorable financial conditions from a historical perspective, similar to the situation described in the last *Report*. The cost of credit remains low, in part as a result of a clearly expansionary monetary policy.

With regard to external demand, the volume of goods exports grew somewhat less in the first quarter of the year (3.3% in annual terms versus 3.6% in the previous quarter). This was mainly due to a contraction of mining shipments, together with lower annual growth of manufacturing exports. In contrast, agricultural exports increased relative to past quarters. Data available in April indicate that in terms of the value of shipments, annual growth rates were negative in the industrial, agricultural and mining sectors. The lower volume of mining exports recorded in the year to date stems from maintenance work in some large projects and the floods in the north in late March of this year. Imports continued to follow a downward course, in line with the trends described for consumption and investment.

The lower domestic spending resulted in a reduction of the current account deficit. Whereas the deficit approached 4% of GDP two years ago, in the first quarter of 2015 the accumulated current account balance was –0.5% of GDP in the last moving year (–1.2% in the previous quarter) (figure III.9). The baseline scenario considers a small current account deficit for 2015. Measured at trend prices[2]/, the current account deficit will be slightly higher than in 2014 (close to 2%), but considerably lower than previous years.

[2]/ This calculation incorporates adjustments in prices, but not volumes, assuming a long-term copper price of US$2.85 per pound and Brent oil US$85 per barrel.

# BOX III.1
# EVOLUTION OF THE LABOR MARKET

Output and domestic demand have slowed substantially in the recent period, with lower annual growth rates than in previous years. Nevertheless, the unemployment rate has stayed low, and annual wage growth has accelerated, reaching high levels that have been sustained over time. This apparent contradiction between the labor market data and the output dynamics has generated a degree of concern, to the extent that it could be an indication that the economy's output gap is smaller than estimated in the baseline scenario and, therefore, could have a negative effect on inflation convergence. This box reviews some factors that help explain the evolution of the labor market variables and that underpin the assumptions in the baseline scenario described in this *Report*. Based on this assessment, the evolution of the labor market is generally consistent with the output cycle.

## Unemployment rate

A first element to consider in the analysis of the unemployment rate is that the demographic changes of the past two decades have altered the long-term unemployment rate. As shown by Albagli and Barrero (2015), the age composition of the workforce has changed considerably. The relative share of workers aged 15 to 24 years fell from nearly 20% in the early 1990s to 12% in 2014, while the share of workers over 50 years of age increased from 20.3% to 34.3% in the same period. Because the unemployment rate is usually higher among younger workers than older workers, this change in the workforce composition could explain the reduction in the long-term unemployment rate, which the authors estimate at up to 1.4 percentage points[1]/.

In addition, the growth of the labor force has been low in the most recent period. This trend is largely associated with a significant increase in labor force withdrawal due to retirement, which, as one would expect, is concentrated among older workers. All other age groups have followed their usual trend, albeit with some important changes in composition. Most notably, among workers under the age of 25 years, there has been a significant increase in people who are neither studying nor interested in working, at the expense of people who are not participating in the labor market because they are studying.

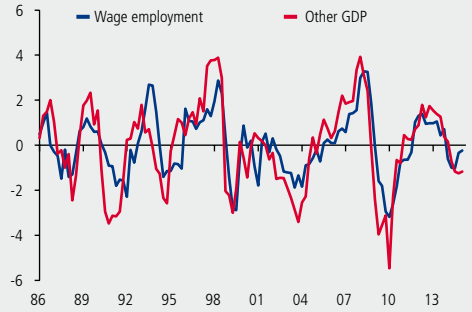
## Employment growth

As shown in Barrero et al. (2015), there is a strong correlation between total wage employment and the evolution of sectores tied to the economic cycle (other GDP) (figure III.10). In the most recent period, however, low growth of other GDP has been accompanied by higher-than-expected growth of wage employment. These divergences, while not a trend, have often been recorded in the past. In the most recent case, the phenomenon largely reflects the uneven growth of private and public wage employment, where the latter has increased at higher rates in recent quarters[2]/ (figure III.11). In addition, private wage employment has been positively affected by the low basis for comparison in agricultural employment, which was particularly low in the 2013–14 season due to frosts that reduced production. Excluding agriculture, private wage employment recorded almost zero growth in the last few quarters (figure III.11). Some of the other sectors included in private wage employment that are more tied to the phase of the economic cycle—such as construction and manufacturing—lost jobs in the last year.

[1]/ For more details, see the *Monetary Policy Report,* March 2015, box III.1.

[2]/ Classification as a public employee is self-reported by people answering the New National Employment Survey implemented by the INE and mainly includes jobs in public administration, health services and education. Alternative sources, such as the University of Chile 's Employment Survey, the Asociación Chilena de Seguridad and data from the National Budget Division, confirm an increase in public sector employment.

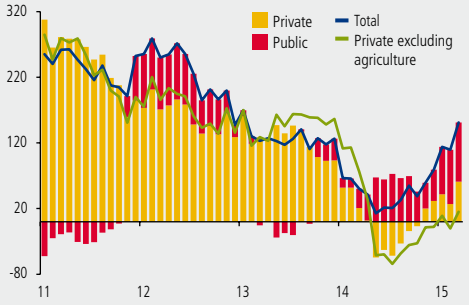
**FIGURE III.10**
Wage employment and other GDP cycle (*)
(deviation from trend; percentage points)




(*) The trend is calculated using a Hodrick-Prescott filter.

Source: Barrero et al. (2015).

**FIGURE III.11**
Public and private wage employment
(annual difference, thousands of people)




Source: Barrero et al. (2015).

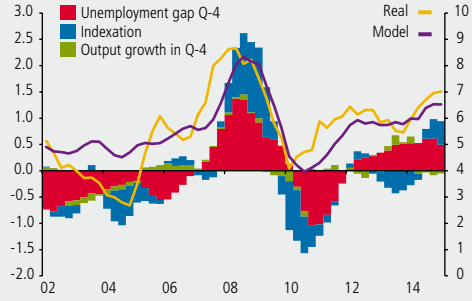
More formally, Barrero et al. (2015) estimate a labor demand function and evaluate the residuals. They conclude that the short-term changes in total wage employment—including agricultural jobs and some public job categories—are consistent with the evolution of output.

## Wage growth

Barrero et al. (2015) analyze the determinants of the evolution of wages, estimating different Phillips curves for wages. They arrive at two conclusions. First, the higher annual growth rate of wages in the last year—where the IREM wage index increased 6.0% in the first quarter of 2014 and 7.1% in the first quarter of 2015—is largely explained by indexation to past inflation. Second, a comparison of the growth rate of wages with the average of the last decade and a half shows that the higher growth of the last few months is explained equally by the unemployment level and indexation (figure III.12), after correcting for the structural changes in the natural unemployment rate in accordance with the findings of Albagli and Barrero (2015) mentioned above.

As described earlier, wage indexation is significant, although it is clearly lower than in the 1990s, mainly after the implementation of the inflation-targeting scheme in the early 2000s[3]/. The baseline scenario in this *Report* projects that annual wage growth will decline in the coming months, in line with the inflation path.

**FIGURE III.12**
Annual growth of the IREM and deviations from the 2001–2014 average
(percentage points; annual change)




Source: Barrero et al. (2015).

## Final comments

Although the unemployment rate remains low from a historical perspective and the growth rate of nominal wages is high, the baseline scenario assumes that the performance of the labor market has, for the most part, been consistent with its fundamentals. At the same time, risk scenarios in which the evolution of the labor market reflects a smaller output gap than considered in the baseline scenario cannot be completely discarded.

[3]/ For more details, see the *Monetary Policy Report*, September 2013, box IV.1.

# 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

The inflation scenario has not changed significantly in the past three months. The CPI and the CPI excluding food and energy (CPIEFE) continued to record high annual inflation, and they are expected to fluctuate around 4% for several more months. Even so, inflation has fallen since late 2014 and early 2015, with the CPI at 4.1% in April and the CPIEFE at 4.3% (4.4 and 4.7% in February). Relative to the baseline forecast in March, the surprises were small and mostly concentrated in a few food goods. Core inflation (CPIEFE) was in line with the March projections, and it continues to be primarily determined by the peso depreciation, as well as the usual impact of indexation to past inflation, which is normal for this component. As projected in the March *Report*, private inflation expectations for the short term have risen relative to last cutoff date. At the same time, medium term expectations (two years ahead) are still at 3% (figure IV.1 and table IV.1).

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

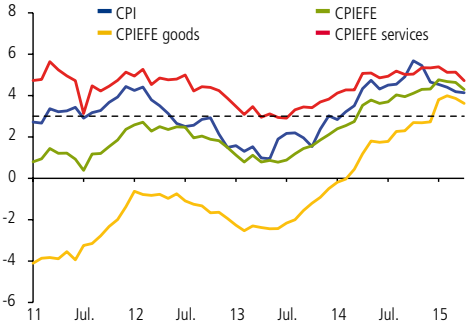
| | CPI | Food | Energy | CPIEFE | CPIEFE goods | CPIEFE services |
|---|---|---|---|---|---|---|
| 2012 average | 3.0 | 7.7 | -0.4 | 2.2 | -1.1 | 4.6 |
| 2013 Jan. | 1.6 | 5.3 | -2.7 | 1.1 | -2.3 | 3.5 |
| Feb. | 1.3 | 3.7 | 0.1 | 0.8 | -2.5 | 3.1 |
| Mar. | 1.5 | 3.1 | 1.2 | 1.1 | -2.3 | 3.5 |
| Apr. | 1.0 | 3.8 | -3.5 | 0.8 | -2.4 | 2.9 |
| May | 0.9 | 4.9 | -6.5 | 0.9 | -2.4 | 3.1 |
| Jun. | 1.9 | 6.3 | 0.7 | 0.8 | -2.4 | 2.9 |
| Jul. | 2.2 | 5.7 | 4.1 | 0.9 | -2.2 | 2.9 |
| Aug. | 2.2 | 5.1 | 3.3 | 1.2 | -2.0 | 3.3 |
| Sept. | 2.0 | 3.2 | 3.0 | 1.4 | -1.6 | 3.4 |
| Oct. | 1.5 | 2.8 | -1.6 | 1.6 | -1.2 | 3.4 |
| Nov. | 2.4 | 4.5 | 1.5 | 1.8 | -0.9 | 3.7 |
| Dec. | 3.0 | 4.9 | 5.5 | 2.1 | -0.5 | 3.8 |
| 2014 Jan. | 2.8 | 4.4 | 3.2 | 2.4 | -0.2 | 4.1 |
| Feb. | 3.2 | 5.6 | 3.8 | 2.5 | 0.0 | 4.3 |
| Mar. | 3.5 | 5.7 | 5.1 | 2.7 | 0.4 | 4.3 |
| Apr. | 4.3 | 6.4 | 6.6 | 3.5 | 1.2 | 5.1 |
| May | 4.7 | 6.6 | 8.8 | 3.8 | 1.8 | 5.1 |
| Jun. | 4.3 | 5.7 | 7.1 | 3.6 | 1.7 | 4.9 |
| Jul. | 4.5 | 6.2 | 7.4 | 3.7 | 1.8 | 4.9 |
| Aug. | 4.5 | 6.7 | 4.1 | 4.0 | 2.3 | 5.2 |
| Sept. | 4.9 | 8.3 | 5.3 | 3.9 | 2.3 | 5.0 |
| Oct. | 5.7 | 10.2 | 8.8 | 4.1 | 2.7 | 5.0 |
| Nov. | 5.5 | 8.7 | 7.7 | 4.3 | 2.7 | 5.3 |
| Dec. | 4.6 | 8.9 | -2.0 | 4.3 | 2.7 | 5.3 |
| 2015 Jan. | 4.5 | 9.5 | -8.1 | 4.8 | 3.8 | 5.4 |
| Feb. | 4.4 | 8.8 | -7.3 | 4.7 | 4.0 | 5.1 |
| Mar. | 4.2 | 8.0 | -7.6 | 4.6 | 3.9 | 5.1 |
| Apr. | 4.1 | 8.0 | -5.5 | 4.3 | 3.6 | 4.7 |

(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.1**
Inflation indicators (1) (2)
(annual change, percent)

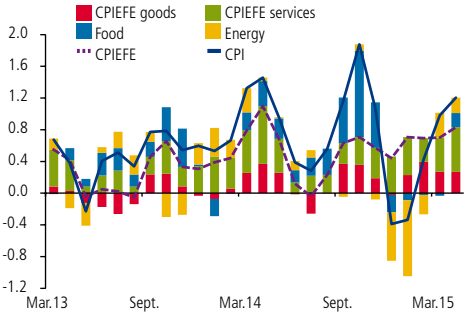



(1) See glossary for definitions.

(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).

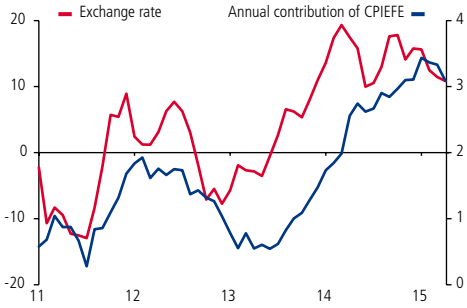
**FIGURE IV.2**
Contribution to monthly CPI inflation (*)
(accumulated in a two-month moving window, percentage points)




(*) 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.

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

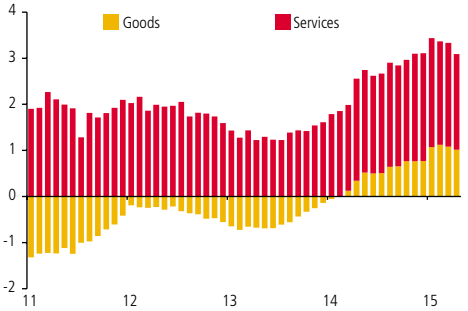
**FIGURE IV.3**
Nominal exchange rate and the contribution of the CPIEFE to annual inflation (*)
(annual change, percent; percentage points)




(*) 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.

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

**FIGURE IV.4**
Contribution of CPIEFE goods and services to annual 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.

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

Between March and April, the CPI increased 1.2 percentage points (pp) (versus 0.4 pp between January and February). In contrast to the last *Report*, all the components made a positive contribution in that period, in some cases due to a seasonal increase in prices, most notably in CPIEFE services and goods. Specifically, the CPIEFE contributed just over 0.8 pp, with the strongest contribution again coming from services. The accumulated CPI contribution of this subgroup rose from 0.3 pp in January-February to 0.6 pp in March-April. The contribution of CPIEFE goods fell slightly in the same period, to 0.3 pp in March-April. Finally, food and energy gained back the decline cited in the last *Report*, especially in the case of energy (figure IV.2).

The depreciation of the peso since May 2013 continues to be the main element underlying the higher inflation, largely due to its effect on core inflation (figure IV.3). From June 2013 to date, the contribution of the CPIEFE to annual CPI inflation rose from 0.5 pp to just over 3.0 pp. CPIEFE services had the strongest effect on the CPI, given their weight in the basket and their normally higher inflation (figure IV.4). Within this subgroup, the contribution of items whose prices are indexed to past inflation explain a little less than half of the contribution to annual CPI inflation (figure IV.5). Since the March cutoff date, rental services and various health and education services together added nearly 0.9 pp to annual inflation in April.

The subset of CPIEFE services whose prices directly depend on exchange rate fluctuations have made a smaller contribution to inflation since the March *Report*. Nevertheless, over and above the impact of the recent peso appreciation, there are other key determinants of these prices. In air transport, the drop in fares in recent months—which is one the steepest declines in this subgroup since the last cutoff date—is mainly explained by lower seasonal demand. Some additional factors have also had opposite effects to the lower exchange rate, such as the increase in the international oil price and idiosyncratic variables. For example, inter-urban transport increased in April due to two long weekends in the month.

The contribution of CPIEFE goods to annual CPI inflation, which has risen steadily since mid-2013, decreased slightly after the cutoff date in March. This trend is still reflecting the impact of the peso depreciation on the cost of imported products, as well as adjustments deriving from the Tax Reform.

With regard to the more volatile components of inflation, in the last two months food prices have been driven by products other than fresh fruits and vegetables, in contrast to past *Reports*. In particular, meat, dairy products and bread recorded unexpected changes, mostly in the opposite sign between March and April. Although the causes are not entirely clear, the drought in the central-southern regions of the country could be affecting the evolution of these prices, given its impact on the immediate supply of milk and meat. Another factor is the behavior of external prices for these products: food prices in the international market have fallen significantly in the past few quarters and are currently almost 20% lower than in March 2014 (FAO Index). The pass-

through to domestic prices is determined by a number of factors, including the peso depreciation and the supply conditions in the international market. To the extent that these international prices continue to fall or begin to fall more steeply, they could have a stronger effect on local inflation. Finally, fresh fruits and vegetables reversed their negative contribution, mainly due to seasonal factors, with no unusual fluctuations (figure IV.6).

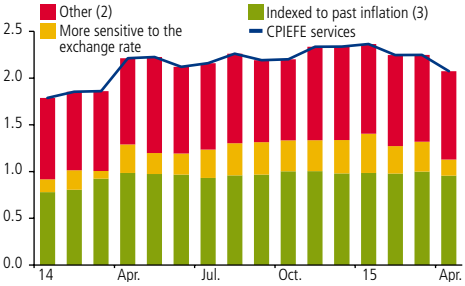
Energy prices increased markedly in March and April, contributing 0.19 pp to the CPI (versus –0.24 pp in January-February). This contribution came almost entirely from the fuels subgroup, in line with the increase in international oil prices. Since mid-March, Brent oil has increased nearly 20%. The biggest contribution came from gasoline (0.18 pp), given its large weight in the basket (figure IV.7). Futures prices point to higher oil prices than projected in the March *Report*. Even so, the baseline scenario has not made any significant adjustments to the outlook for fuel inflation, because the recent peso appreciation and the April adjustment to the parameters governing the fuel price stabilization mechanism (MEPCO) have partially offset the increase[1]/. Electricity rates, in turn, had an almost zero contribution to CPI inflation in March.

Wages are another factor to take into account when assessing the inflation outlook for the coming months. The wage trend has undoubtedly been a source of concern in recent months. According to different measures, the annual growth rate of nominal wages was over 7% since the last *Report*, while real wages grew almost 3% in annual terms, in line with the gradual decline in inflation since December (figure IV.8). Empirical evidence suggests that the increase in these annual growth rates is mainly explained by the impact of past inflation through indexation, which is lower than in past decades but still significant (box III.1)[2]/. Although these trends appear to be consistent with the state of the economy, there are risks in terms of the impact on the speed of inflation convergence and the possibility that they reflect a smaller output gap than assumed in the baseline scenario.

Another risk factor in the inflation scenario is the evolution of margins. According to data collected from many of the companies interviewed for the Business Perceptions Survey in May, margins are tight, due in part to the incomplete pass-through of the peso depreciation and in part to market conditions that prevent their widening. Essentially, the interviewees claim that high competition and weak demand are hindering the full transmission of cost increases to final prices. In this sense, the peso appreciation, in addition to having an immediate effect on some prices, reduces the pressure on margins and mitigates the risks for inflation to a degree. Regardless, the scenario is characterized by substantial uncertainty, and the risks remain high, given the high exchange rate volatility in recent months.

[1]/ The number of retroactive weeks used to calculate the historical component of the Brent oil price increased from 8 to 26, so the intermediate benchmark considered lower oil prices. For more details, see the *Weekly MEPCO Report* from 2 April 2015, published by the National Energy Commission.
[2]/ See the *Monetary Policy Report,* September 2013, box IV.1, "Wages and Indexation."

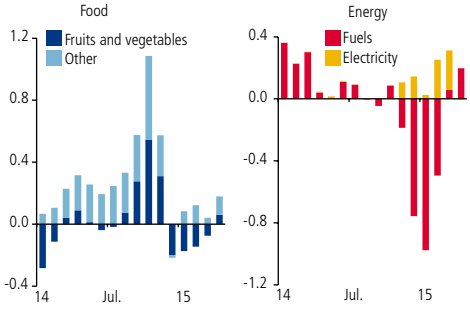
**FIGURE IV.5**
Contribution of CPIEFE services to annual inflation, by component (1)
(percentage points)




(1) 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.
(2) Includes food, personal care, financial, recreational, clothing, housing and other services.
(3) Includes rental, education and health services, car insurance, vehicle inspection and regulated tariffs.

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

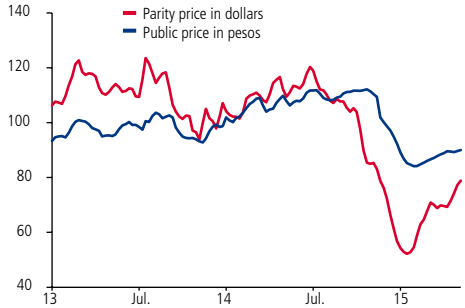
**FIGURE IV.6**
Contribution of food and energy to monthly inflation (*)
(accumulated in a two-month moving window, percentage points)




(*) 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.

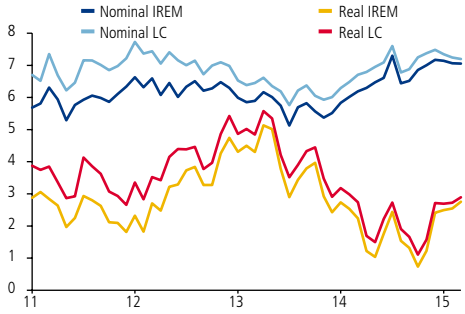
Sources: Central Bank of Chile and National Statistics Institute (INE).

**FIGURE IV.7**
Weekly price of gasoline (*)
(fixed-base index: 2013–2015=100)




(*) Starting in August 2014, the National Energy Commission publishes the parity price in pesos. After that date, the price is converted to dollars using the average observed exchange rate (OER) for the two weeks prior to the datum.
Sources: Central Bank of Chile and National Energy Commission (CNE).

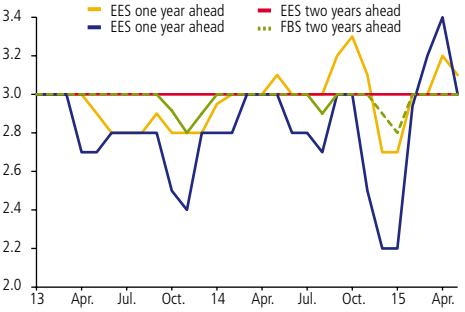
**FIGURE IV.8**
Wages (*)
(annual change, percent)




(*) See glossary for definitions.

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

**FIGURE IV.9**
Inflation expectations (*)
(annual change, percent)




(*) The FBS corresponds to the survey for the first half of the month, except for May 2015, which uses the survey for the second half.

Source: Central Bank of Chile.

## INFLATION OUTLOOK

In the past three months, inflation has practically matched the forecast in the last *Report*. Private expectations increased for the shortest terms, consistent with an adjustment toward the inflation scenario published in March. Thus, for December of this year, expected inflation in the Economic Expectations Survey (EES) rose from 3.2% in March to 3.5% in May.

For longer horizons of one and two years, inflation expectations have been stable at around 3%. For one year ahead, the Financial Brokers Survey (FBS) and the EES followed a similar path, rising after the last *Report*—in line with the higher inflation forecast contained in the baseline scenario—and then coming back down as the peso appreciated. Thus, the FBS for the second half of May ended at 3% and the EES for that month at 3.1%. For the same horizon, inflation insurance was also around 3% on the current cutoff date. Two years ahead, expectations remain at 3% according to both surveys (figure IV.9).

In the baseline scenario, the Board estimates that annual CPI inflation will fluctuate around 4% for a few more months. It will then fluctuate significantly in the fourth quarter, given the high and uneven basis of comparison from October to December 2014. It is therefore possible that inflation could temporarily drop below 3% in annual terms and then rise above that level. The baseline scenario puts annual inflation at 3.4% at year-end 2015. Core inflation should not be affected by these fluctuations, and it is expected to end the year at 3.2% in annual terms.

# V. INFLATION SCENARIOS

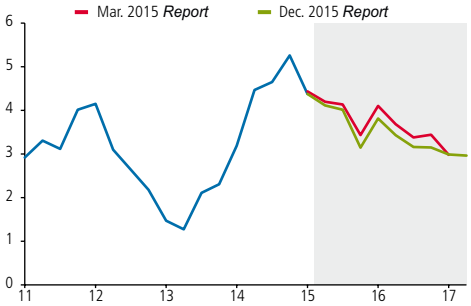
*This chapter presents the Board's assessment on the Chilean economic outlook over the next two years. Projections are presented of the most likely inflation and growth trajectories. These are conditional on the assumptions in the baseline scenario, thus the Board's assessment of the risk balance for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

## BASELINE PROJECTION SCENARIO

The macroeconomic scenario has evolved in line with expectations in March, so there are no major changes in the projections contained in this *Report*. Nevertheless, inflation is expected to converge somewhat faster to 3%, considering the appreciation of the peso and not-so-dynamic economic activity in the remainder of the year. As for the GDP growth projection for 2015, the range is adjusted to reflect the effects of the floods in the north, specific developments in mining and incoming indicators suggesting that lately growth has slowed somewhat. The baseline scenario also assumes that the impulse from abroad will be fairly unchanged from March, with some adjustments in our trading partners' growth to include actual first-quarter figures and higher interest rates in international financial markets.

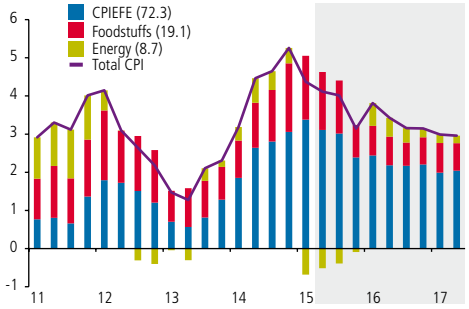
The baseline scenario assumes that the inflation trajectory will run slightly below the March projection. As has been mentioned before, the main factor explaining the increase in core inflation in the last few quarters has been the depreciation of the peso, a phenomenon that has been partly reversed. Considering the lag with which the exchange rate affects local inflation, the effects of this latter appreciation will be reflected more strongly in CPIEFE figures of the second half of the year. In the CPI, the recent currency appreciation will partially offset the rise in international fuel prices. Thus, the CPI will hover around 4% annually yet for a few months. During the last quarter, annual CPI inflation will have important fluctuations, given the high and unalike basis of comparisons of October through December 2014. Thus, it is possible that annual inflation might temporarily reach figures below 3% and jump above that value afterwards. In December 2015 it will be at 3.4%, two tenths of one point less than projected in March, to later stabilize around 3% during 2016. The CPIEFE is expected to post an annual variation of close to 3% in 2016 and stay near that figure until the end of the projection horizon, this time the second quarter of 2017 (figuresV.1 and V.2, and table V.1).

**FIGURE V.1**
CPI inflation forecast (*)
(annual change, percent)




(*) Gray area, as from the second quarter of 2015, shows forecast.
Sources: Central Bank of Chile and National Statistics Institute (INE).

**FIGURE V. 2**
Contribution to annual CPI inflation (1) (2)
(percentage points)



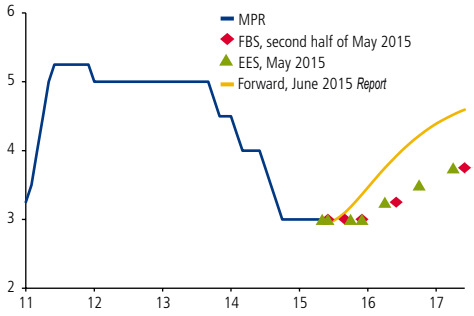

(1) Gray area, as from the second quarter of 2015, shows forecast.
(2) In parentheses, share in CPI basket.
Sources: Central Bank of Chile and National Statistics Institute (INE).

**TABLE V.1**
Inflation

| | 2013 | 2014 | 2015 (f) | 2016 (f) | 2017 (f) |
|---|---|---|---|---|---|
| | (annual change, percent) | | | | |
| Average CPI inflation | 1.8 | 4.4 | 3.9 | 3.4 | |
| December CPI inflation | 3.0 | 4.6 | 3.4 | 3.1 | |
| CPI inflation in around 2 years (*) | | | | | 3.0 |
| Average CPIEFE inflation | 1.2 | 3.6 | 4.1 | 3.1 | |
| December CPIEFE inflation | 2.1 | 4.3 | 3.2 | 2.9 | |
| CPIEFE inflation in around 2 years (*) | | | | | 2.8 |

(f) Forecast.
(*) Corresponds to the projected inflation for the second quarter of 2017.
Source: Central Bank of Chile.

**FIGURE V.3**
MPR and expectations
(percent)




Source: Central Bank of Chile.

**TABLE V.2**
International baseline scenario assumptions

| | Avg. 00 - 07 | Avg. 10 - 12 | 2014 | 2015 (f) | 2016 (f) |
|---|---|---|---|---|---|
| | (annual change, percent) | | | | |
| Terms of trade | 8.2 | 4.2 | -1.4 | 1.3 | -0.2 |
| Trading partners GDP (*) | 3.6 | 4.6 | 3.4 | 3.3 | 3.7 |
| World GDP at PPP (*) | 4.2 | 4.0 | 3.4 | 3.4 | 3.7 |
| World GDP at market exchange rate (*) | 3.2 | 3.2 | 2.7 | 2.7 | 3.2 |
| Developed economies' GDP at PPP (*) | 2.6 | 1.8 | 1.7 | 2.0 | 2.4 |
| Emerging economies' GDP at PPP (*) | 7.4 | 5.9 | 4.8 | 4.5 | 4.9 |
| External prices (in US$) | 4.6 | 5.2 | -0.9 | -8.5 | 1.0 |
| | | | (levels) | | |
| LME copper price (US¢/lb) | 154 | 368 | 311 | 280 | 290 |
| WTI oil price (US$/barrel) | 44 | 89 | 93 | 57 | 63 |
| Brent oil price (US$/barrel) | 42 | 101 | 99 | 63 | 70 |
| Gasoline parity price (US$/m$^3$) (*) | 366 | 742 | 731 | 536 | 552 |
| Libor US$ (nominal, 90 days) | 3.6 | 0.4 | 0.2 | 0.5 | 1.3 |

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

Source: Central Bank of Chile.

This trajectory considers that the pass-through of the depreciation of the peso accumulated in the past year to prices will be similar to its historical patterns; that real wages will be adjusted in line with productivity; and that output gaps will remain over the projection horizon. For the RER, the methodological assumption used is that, the same as now, it will fluctuate in the upper part of the range believed to be consistent with its long-term fundamentals. As for the MPR, the working assumption is that the gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over a one-year horizon (figure V.3).

The impulse that the Chilean economy will receive from abroad is quite unchanged from March. Our trading partners will continue to provide a growing impulse in 2015 and 2016, although its growth rate is on tenth of a point lower than projected in the last *Report*. The main downward adjustments are due to weaker actual first-quarter figures in the U.S. and Latin America. The terms of trade will also be similar to March estimates, which in any case is an improvement over 2014 (table V.2).

The baseline scenario foresees that this year GDP will grow between 2.25% and 3.25%, a range that is somewhat lower than estimated in the last *Report* (table V.3). This projection considers that the floods in the north of the country and one-time effects in important works reduce the mining growth estimate, with a downward incidence on the estimate for annual GDP growth of one tenth of a point compared with the March forecast. Meanwhile, as the partial data of recent months show weaker private expenditure, it is foreseen that the recovery that was expected for the second half will occur at a slower pace than was projected in March. The *Business Perceptions Report* of last May confirmed bounded expectations regarding the performance of businesses and investments in 2015. Moreover, the CBC survey continued to point to a fall in valued projects for this year compared with 2014. Consumer and business expectations remain at the pessimistic zone.

This projection assumes that monetary policy will remain in a significantly expansionary phase and fiscal policy will continue to contribute to expenditure growth in accordance with the fiscal rule and the objectives set by the Administration. It also assumes that the exchange rate depreciation accumulated since 2013 will further boost those tradable sectors that are most sensitive to this variable. It further assumes that fuel prices, which are lower than the average of recent years, will continue to pull down corporate costs and improve household income, despite the fact that these effects will be milder than what was expected some months ago.

On the expenditure side, despite no major changes with respect to aggregate projections in March, there are some differences across components. On one hand, total—especially public—consumption is expected to strengthen somewhat, based on first-quarter figures and the increase in the budget execution. Private consumption combines some increase in the nondurable component with the fact that the current forecast considers a contraction in durables, because imports of such goods and expectations have failed to recover.

Gross fixed capital formation (GFCF) will begin to undo its 2014 contraction, although it is adjusted downward from March. This, especially because a drop is now expected in the machinery and equipment component, while construction is slightly adjusted upwards. The change in the former projection is consistent with the weak imports of capital goods and the negative surprise brought by first-quarter figures while the better figure for construction is consistent with stronger short-term housing construction data. However, the information suggests that public investment is growing fast (around 14,2% annually in real terms, according to the National Budget Division). Therefore, considering the adjustments to GFCF growth and GDP growth, the ratio between them will be 23.6% and 21.6% in nominal and real terms, respectively, very similar to the March forecasts.

Regarding the external sector, the baseline scenario assumes that in 2015 exports will grow more than they did in 2014, given the boost that the exchange rate depreciation of recent years has provided to the tradable sectors. However, compared to March there is a significant downward adjustment in exports of goods and services, consistent with somewhat lower than anticipated dynamism of natural resources, especially mining. This combines with the accounting effects associated with the change in ownership of some transport companies. Imports, after having contracted by 7% in 2014, will post an expansion of 1.1% this year, reflecting the higher growth of domestic demand.

The baseline scenario assumes that gross national savings will increase from 20.3% of GDP in 2014 to 21.0% in 2015, primarily driven by greater private savings. Increased savings are also behind the further narrowing of the current account deficit this year. Accordingly, after posting a near 4% of GDP deficit two years ago, this year the deficit will be slight. Measured at trend prices[1]/ the current account will post a somewhat higher deficit than in 2014 (close to 2%), but well below its figures of earlier years.

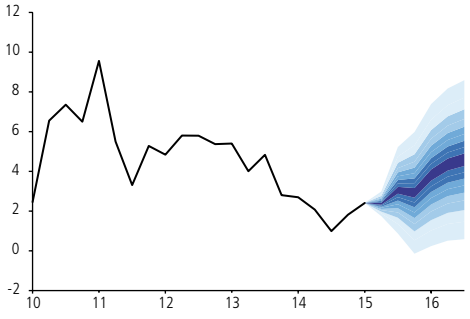
**TABLE V.3**
Economic growth and current account

| | 2013 | 2014 | 2015 (f) |
|---|---|---|---|
| | (annual change. percent) | | |
| GDP | 4.2 | 1.9 | 2.25-3.25 |
| National income | 3.6 | 1.9 | 3.9 |
| Domestic demand | 3.7 | -0.6 | 2.6 |
| Domestic demand (w/o inventory change) | 4.6 | 0.5 | 2.2 |
| Gross fixed capital formation | 2.1 | -6.1 | 0.7 |
| Total consumption | 5.5 | 2.5 | 2.7 |
| Goods and services exports | 3.4 | 0.7 | 1.3 |
| Goods and services imports | 1.7 | -7.0 | 1.1 |
| Current account (% of GDP) | -3.7 | -1.2 | -0.4 |
| Gross national saving (% of GDP) | 20.6 | 20.3 | 21.0 |
| Gross national investment (% of GDP) | 24.3 | 21.4 | 21.4 |
| GFCF (% of nominal GDP) | 23.8 | 22.0 | 21.6 |
| GFCF (% of real GDP) | 26.1 | 24.0 | 23.6 |
| | (US$ million) | | |
| Current account | -10,125 | -2,995 | -1,150 |
| Trade balance | 1,820 | 7,767 | 7,700 |
| Exports | 76,477 | 75,675 | 70,600 |
| Imports | -74,657 | -67,908 | -62,900 |
| Services | -3,402 | -3,757 | -4,250 |
| Rent | -10,730 | -8,857 | -6,200 |
| Current transfers | 2,187 | 1,851 | 1,600 |

(f) Forecast.

Source: Central Bank of Chile.

**FIGURE V.4**
GDP growth (*)
(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 gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over a one-year horizon.

Source: Central Bank of Chile.

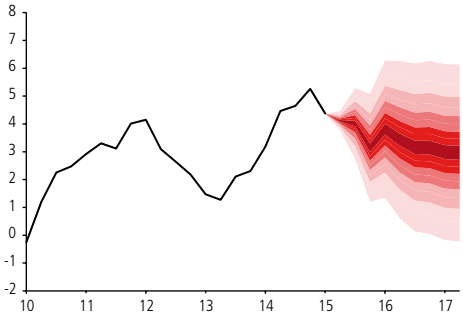
## RISK SCENARIOS

The baseline scenario reflects those events that are believed to be the most likely to occur with the information at hand at the closing of this *Report*. There are risks, however, which, if materialized, may reshape the macroeconomic outlook and, therefore, may alter the course of monetary policy (figures V.4, V.5 and V.6).

Abroad, the main sources of risk remain, only more moderate. The possibility of specific events generating episodes of high volatility in global financial markets persists, affecting funding costs, the exchange rate and the short-term inflation outlook. On one hand, any surprises regarding the timing or the pace at which the Fed will increase its benchmark rate can cause fluctuations in asset prices. Furthermore, there remains the risk of a default in Greece having an impact on global financial markets and GDP growth in the Eurozone. While these are still

[1]/ This calculation considers revisions to prices, not volumes. Long-term prices of US$2.85 per pound of copper and US$85 per barrel of oil are assumed.

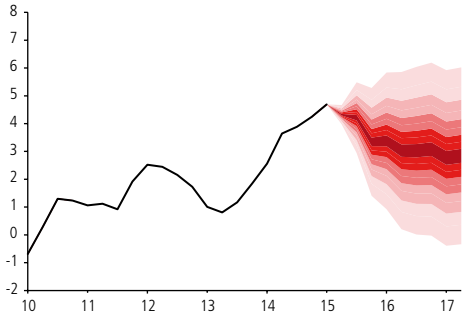
**FIGURE V.5**
CPI inflation forecast (*)
(annual change, percent)




(*) 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 inflation as assessed by the Board. The baseline scenario uses as a working assumption that the gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over a one-year horizon.

Source: Central Bank of Chile.

**FIGURE V.6**
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 core inflation as assessed by the Board. The baseline scenario uses as a working assumption that the gradual withdrawal of the monetary impulse will be similar to what is suggested by surveys over a one-year horizon.

Source: Central Bank of Chile.

significant risks, the ability of the larger central banks to handle these situations has improved, reducing to some extent the intensity of the negative impact of such events. Another positive note is the more consolidated growth in the Eurozone, which has helped to configure a more balanced global economic scenario.

In the emerging economies, there are still significant risks. While the risk of commodity prices dropping further seems to have eased, Latin American economies have been weaker for longer than expected. This, in a context where the high fiscal and current account deficits persist in many economies, making the necessary adjustments expensive and difficult to implement. The risk of slower growth in China and its implications for copper prices remains, although the Chinese authorities have given proof of its ability and desire to avoid abrupt corrections in the economy.

Domestically, the economic recovery in the second half of the year should be accompanied by a significant improvement in confidence indicators, but so far it has not happened. To the extent that this situation continues, it is possible that domestic output and expenditure will fail to show the greater dynamism that is expected in the baseline scenario. Conversely, a scenario where expectations improve significantly would allow for a faster recovery of the economy, particularly in 2016.

Regarding inflation, pressures are somewhat milder than expected in March, due to lower activity and the appreciation of the peso. However, in a context of persistently high inflation, with bounded margins, strong wage growth, higher fuel prices and external risk scenarios that can drive a significant further depreciation of the peso, inflationary risks remain important.

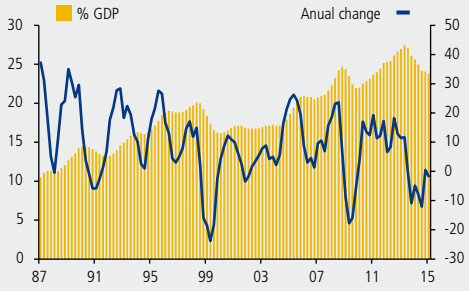
After evaluating these risks, the Board estimates that the risk balance is unbiased for both output and inflation.

Inflation remains high, despite some decline in recent months. Domestic activity picked up in the first quarter, but the outlook for the second half of the year has moderated. As has been mentioned before, monetary and fiscal policies have cooperated to laying the foundation for a more consolidated recovery. The not so buoyant economy and the slightly faster convergence of inflation suggest that, under the assumptions of the baseline scenario, the discussion about the gradual withdrawal of the monetary stimulus could be delayed with respect to March expectations. However, any future changes in the MPR will depend on the evolution of domestic and external macroeconomic conditions and their implications for the inflation outlook. The Board reaffirms its commitment to conduct monetary policy with flexibility so that projected inflation stands at 3% over the policy horizon.

# BOX V.1
# EXPECTATIONS AND INVESTMENT

The prolonged period of weak investment has been one of the most notable trends in the last cycle. After growing at record rates to reach 26.6% of GDP in 2012, investment growth has been negative for six quarters, one of the worst records of the last three decades (figure V.7).

**FIGURE V.7**
Fixed capital investment
(percent)




Source: Central Bank of Chile.

The fall in investment has coincided with a significant deterioration in business confidence. Excluding the months surrounding the 2009 crisis, business confidence has fluctuated around the lowest levels of the last ten years (figure III.8). The high correlation between these two variables has given rise to the idea that in the absence of a substantial improvement in confidence, it will be difficult to sustain a recovery of investment in what remains of the year.

This box analyzes the relationship between confidence and investment based on two methodologies from Albagli and Luttini (2015). First, using microdata from the Monthly Business Confidence Index (IMCE) and information from firms' financial statements, the study explores the impact of changes in the level of confidence on investment decisions at the individual level. Second, vector autoregressions (VARs) and aggregate macroeconomic data are used to identify the main determinants of changes in business confidence and their impact on investment.

Based on this evidence, the following conclusions can be made:

• A reduction in business confidence has a negative and economically significant effect on investment decisions at the individual firm level.

• An increase in uncertainty, understood as an increase in the size of the error made by firms in forecasting production, also has a negative effect at the firm level, although to a lesser degree than business confidence.

• With regard to the evidence based on aggregate data, changes in confidence are, in general, triggered either by changes in the macroeconomic environment (both internal and external) or by independent changes in confidence, understood as movements that do not originate in changes in macroeconomic conditions. Unlike other episodes, the reduction in confidence in the second half of 2014 is explained by an independent shock.

• With regard to aggregate investment dynamics, the results suggest that between 2011 and early 2014, factors tied to the mining investment cycle were predominant for explaining grossed fixed capital formation, while the independent confidence shock played a marginal role. Starting in the second half of 2014, however, the independent component of confidence became more relevant, explaining a large share of the investment dynamics.

## Investment and business confidence

The relationship between business confidence and investment, while intuitive, is difficult to identify in the data. To begin with, confidence is not only difficult to define, but also hard to measure. Broadly speaking, business confidence is said to be high when the business and investment environment is expected to be good. Measurement, in turn, is typically based on indices that synthesize a set of responses to questions aimed at measuring the business climate, as in the case of the IMCE.

The relationship between business confidence and investment is also difficult to unravel, since there is a high degree of endogeneity in both. Do low investment and growth cause confidence to wane? Or does lower confidence cause the slowdown in investment and growth? The challenge is to use the data to identify what is behind the change in confidence, in order to verify whether there is an independent component and quantify its effects on investment.

## Micro evidence

Albagli and Luttini (2015) exploit microdata from the IMCE survey, which asks firms what they think about the future outlook and about current economic conditions that affect their business. To measure the impact on actual investment decisions, the authors identify firms that both responded to the IMCE and reported their financial statements to the SVS. This results in a total of 51 firms with a long enough history to be included in the panel[1]/.

The dependent variable that we want to explain is actual investment, while the explanatory variables are individual confidence and a measure of uncertainty based on the production forecast error in each firm[2]/. Table V.4 presents the results of the main regression:

$$Investment_{it,t+3}=\beta_0 Current\ cond_{it}+\beta_1 Conf_{it,t+3}+\beta_2 Uncert_{it}+\alpha_i+\mu_t+\varepsilon_{it}$$

where Current cond is the firm's perception of current conditions; Conf is the business confidence indicator; and Uncert is the uncertainty indicator. The results indicate that a worsening of business confidence has a negative effect, which is statistically and economically significant. Specifically, when a firm's confidence level drops from good to bad, its investment in the next three months is 8% lower than its average quarterly investment. This result is robust to controlling for the perception of current economic conditions, as well as the inclusion of individual firm and time fixed effects. Moreover, an increase in uncertainty reduces investment in the next quarter by 6.5% relative to the average.

**TABLE V.4**
Effects of business confidence and uncertainty on investment (1)

| | Dependent variable Actual investment | Actual investment |
|---|---|---|
| Conditions at the firm | 0 | -0.0018 |
| | (0.002) | (0.0018) |
| Confidence | 0.002 (2) | 0.0019 (2) |
| | (0.0012) | (0.001) |
| Uncertainty | -0.0086 (4) | -0.005 (3) |
| | (0.003) | (0.0024) |
| Fixed effects | Firm | Firm and time |
| No. observations | 540 | 540 |
| R squared | 0.34 | 0.45 |

(1) t test in parentheses.
(2) Significant at 10%.
(3) Significant at 5%.
(4) Significant at 1%.

Source: Albagli and Luttini (2015).

## Macro evidence

The macro approach in Albagli and Luttini (2015) is based on VAR estimation. In addition to investment, the model includes the external economic cycle, the domestic cycle, the business confidence indicator and a measure of uncertainty. The confidence indicator is defined as the difference between the share of optimistic and pessimistic responses on the future evolution of some relevant aspect of the firm. The uncertainty measure is the dispersion of responses on confidence among the firms surveyed in each period[3]/.

Before analyzing the results, two limitations need to be pointed out. First, the evidence is based on identifying assumptions that are in no way exclusive, which is a common limitation of the VAR approach. Second, mining investment is a key factor in the Chilean investment trend. Ideally, the exercise should consider mining separately, in order to isolate the effects of the mining investment boom. Unfortunately, there are no quarterly series available.

For these reasons, this box presents two versions of the exercise. The first uses different external variables to capture the world cycle/[4]. The domestic variables are ordered such that the output variables are more exogenous than the confidence variables. This ordering is more conservative, since it grants a limited role for confidence as a determinant of output.

[1]/ These 51 firms represent 34% of the total sample of firms that reported their financial statements to the SVS in 2004-2014. They are all in the manufacturing sector.

[2]/ The confidence indicator takes a value of one if the firm expects production to increase or remain constant and zero if production is expected to decrease. The uncertainty measure is constructed taking the sum of errors made by each firm in forecasting changes in production in the previous three months.

[3]/ The sample is quarterly and covers the period 2004–2014 (since the implementation of the IMCE). The baseline specification uses one lag. The results are robust to estimations with more lags, different ordering of the variables and the definition of alternative external variables.

[4]/ Includes the first two main components of the following variables: the copper price, the S&P500, the VIX, world GDP and the federal funds rate.

Although this first specification controls for the evolution of the external cycle, it has only a limited ability to capture the lags affecting mining projects[4]/. It is therefore possible that some of the impact attributed to the evolution of the domestic economic cycle and independent investment shocks could actually be a reflection of the global mining investment cycle[5]/. Thus, the second specification includes mining investment in Australia as an additional external variable, while maintaining the rest of the VAR. This variable has the advantage of being highly correlated with mining investment in Chile and, at the same time, is clearly independent of what happens in the country[6]/.

In the first specification, the historical decomposition of the IMCE shows that a little over half of the variance in the cyclical deviation can be explained by external variables, almost 40% by independent confidence shocks and the rest by independent domestic output shocks. Interestingly, the independent confidence shock played a bigger role in the 2014 episode, a result that is robust to different specifications. This contrasts with the subprime crisis, when the changes in confidence were almost entirely explained by external factors (table V.5).

The investment decomposition shows that, historically, the external variables explain a large share of the cyclical deviations, especially during the subprime crisis (table V.5). The contribution of domestic output also explains a significant share of investment, although its quantitative importance depends on the specification used.

With regard to the role of the IMCE in investment, its contribution grows systematically toward the end of the last episode (the second half of 2014), whereas it is substantially lower during both the subprime crisis and the mining boom of 2011–13 (table V.5). The contribution of the uncertainty measure is very close to zero in all the specifications (not reported in the table).

**TABLE V.5**
Results of the macro exercise (1)

| | External variables | Australian mining investment | Domestic output | IMCE (independent shock) |
|---|---|---|---|---|
| (a) Historical decomposition of the IMCE (percent) | | | | |
| Specification 1 | | | | |
| 2009-10 (2) | 75.4 | -- | -1.4 | 11.5 |
| 2011-13 (3) | 22.0 | -- | 46.2 | 10.7 |
| 2014 (4) | 1.5 | -- | 14.6 | 83.3 |
| Specification 2 | | | | |
| 2009-10 (2) | 81.9 | -3.6 | -7.7 | -6.1 |
| 2011-13 (3) | 1.8 | 55.9 | 7.4 | -2.6 |
| 2014 (4) | 1.6 | 25.5 | 9.0 | 63.7 |
| (b) Historical decomposition of investment (percent) | | | | |
| Specification 1 | | | | |
| 2009-10 (2) | 82.7 | -- | 9.1 | -16.1 |
| 2011-13 (3) | 20.5 | -- | 41.9 | 32.0 |
| 2014 (4) | 2.7 | -- | 43.1 | 53.8 |
| Specification 2 | | | | |
| 2009-10 (2) | 63.6 | 21.9 | 9.5 | -6.8 |
| 2011-13 (3) | -4.2 | 66.7 | 8.5 | 7.4 |
| 2014 (4) | 4.1 | 46.5 | 24.1 | 22.8 |

(1) The values correspond to the contribution of the independent shock in each variable to the deviation of the IMCE (panel a) or investment (panel b). Contributions are calculated for each quarter and then averaged for each episode considered.
(2) Between the first quarter of 2009 and the first quarter of 2010.
(3) Between the third quarter of 2011 and the third quarter of 2013.
(4) Between the third and fourth quarters of 2014.

Source: Albagli and Luttini (2015).

## Final comments

This analysis indicates that business confidence is an important determinant of investment and that the deterioration of confidence in recent quarters has a strong independent component, which also largely explains the sluggish investment dynamics.

[5]/ The main conclusions do not change when a proxy for quarterly non-mining investment is used. This is constructed by using the financial statements of mining companies to disaggregate investment by the two types of firms.

[6]/ García and Olea (2015) show that the mining cycle in Chile and Australia followed very similar dynamics in the last decade.

# GLOSSARY

**Commodity exporters:** Australia, Canada and New Zealand.

**Corporate Emerging Market Bond Index (CEMBI):** Measure of corporate risk, calculated by J.P. Morgan Chase as the difference between the interest rate on dollar-denominated bonds issued by banks and firms in emerging economies, and the interest rate on U.S. Treasury bonds, which are considered risk free.

**CPI excluding food and energy (CPIEFE):** CPI excluding food goods (food goods and beverages in the CPIX1, fresh fruits and vegetables, meats and fish) and energy prices, leaving 72% of the total CPI basket.

**Credit Default Swap (CDS):** A derivative instrument that provides insurance against the credit risk of sovereign or corporate debt. The premiums implicit in the cost of this hedge (the CDS spread) are commonly used as a measure of sovereign or corporate risk.

**EPI:** External price index, calculated using the wholesale price index (WPI)—or the CPI if the WPI is not available—expressed in dollars, of Chile's main trading partners (the countries used for the calculation of the multilateral exchange rate, MER).

**GDP, natural resources:** Includes the following sectors: electricity, gas and water (EGW); mining; and fishing.

**GDP, other:** Includes the following sectors: agriculture, livestock and forestry; manufacturing; construction; retail trade; transport and communications; financial and business services; residential property; personal services; and public administration.

**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 93% of total exports, on average, for the 1990–2014 period.

**IREM:** Wage index. The average wage paid per hour, weighted by the number of regular hours worked.

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

**M1:** A measure of the money supply that includes currency in circulation, the value of checking accounts held by the nonfinancial private sector (net of clearing), non-checking demand deposits and demand savings accounts.

**M2:** M1 plus time deposits, time savings deposits, mutual fund shares with investments in debt instruments with a maturity of up to one year, and deposits with savings and loan cooperatives, less the time deposits of the aforementioned mutual funds and savings and loan cooperatives.

**M3:** M2 plus foreign currency deposits, Central Bank of Chile bonds, Treasury bonds, mortgage bonds, commercial papers, corporate bonds, other mutual fund shares, pension fund shares in voluntary savings (AFPs), less mutual fund and pension fund investments in the assets that make up M3.

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

**MER:** Multilateral exchange rate. A measure of the nominal value of the peso against a broad basket of currencies, weighted as for the RER. For 2015, the following countries are included: Argentina, Belgium, Bolivia, Brazil, Canada, China, Colombia, France, Germany, India, Italy, Japan, Mexico, Netherlands, Paraguay, Peru, South Korea, Spain, Switzerland, Thailand, United Kingdom and United States.

**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.

**VIX:** Stock volatility index calculated by the Chicago Board of Trade, and the most commonly used measure of general market volatility at the international level. Measures the implicit volatility in S&P 500 options contracts.

**World growth at market exchange rate:** Each country is weighted according to its GDP in dollars, published in the IMF World Economic Outlook (WEO, April 2015). The sample of countries used in the calculation represent around 90% of world GDP. For the remaining 10%, average growth is estimated at 1.8% for the period 2015–2016.

**World growth:** Regional growth weighted by its share in world GDP at PPP, published in the IMF World Economic Outlook (WEO, April 2015). World growth projections for 2015–2016 are calculated from a sample of countries that represent about 86% of world GDP. For the remaining 14%, average growth is estimated at 3.5% for the period 2015–2016.

## ABBREVIATIONS

BCP: Central Bank bonds denominated in pesos.

BCU: Central Bank bonds denominated in UFs.

BLS: Bank Lending Survey.

EES: Economic Expectations Survey.

FBS: Financial Brokers Survey.

IMCE: Monthly business confidence index.

CPIEFE: Consumer price index excluding food and energy.

IPEC: Consumer confidence index.

MPR: Monetary policy rate.

# REFERENCES

Adrian, T., R. K. Crump and E. Moench. 2013. "Pricing the Term Structure with Linear Regressions." Staff Report N°340. Federal Reserve Bank of New York. April.

Albagli, E., and A. Barrero. 2015. "Tasa de desempleo y cambios demográficos en Chile." Mimeo. Central Bank of Chile. March.

Albagli, E., and E. Luttini. 2015. "Expectativas, incertidumbre, e inversión en Chile: evidencia macro y micro de la encuesta IMCE." Mimeo. Central Bank of Chile. June.

Barclays Capital. 2015. Global Economics Weekly. Various issues.

Barrero, A., L. Bertinatto, S. Carrasco, M. Fuentes and A. Sansone. 2015. "Evolución del mercado laboral en el ciclo reciente." Mimeo. Central Bank of Chile. June.

Central Bank of Chile. 2015. Financial Stability Report. First half.

Central Bank of Chile. 2015. Informe de Percepciones de Negocios. May.

Central Bank of Chile. Monetary Policy Report. Various issues.

Consensus Forecasts. 2015. A Digest of International Forecast. Various issues.

CRU. 2015. Copper Quarterly Industry and Market Outlook. April.

Deutsche Bank. 2015. Macro Forecast. Various issues.

Food and Agriculture Organization (FAO). 2015. FAOSTAT. http://faostat.fao.org/.

García, P., and S. Olea. 2015. "Inversión minera y ajuste macroeconómico en Australia y Chile." Documentos de Política Económica N°56. Central Bank of Chile. May.

Institute of International Finance. 2015. EM Portfolio Flows Tracker. Various issues.

International Energy Agency. 2015. Oil Market Report. Various issues.

International Monetary Fund (IMF). 2015. World Economic Outlook. April.

JP Morgan Chase. 2015. Global Data Watch. Various issues.

National Energy Commission (CNE). 2015. Informe MEPCO. April.

U.S. Energy Information Administration. 2015a. Annual Energy Outlook. April.

U.S. Energy Information Administration. 2015b. Short-Term Energy Outlook. Various issues.

U.S. Energy Information Administration. 2015c. International Energy Statistics. http://www.eia.gov.

Alejandro Zurbuchen S.
**LEGAL REPRESENTATIVE**

CENTRAL BANK OF CHILE
Institutional Affairs Division
Publications Department
JUNE 2015

ISSN: 0716-2219
Santiago, Chile
Agustinas 1180, Santiago, Chile
P.O. Box 967, Santiago, Chile
Tel.: 56-22670 2000
www.bcentral.cl
bcch@bcentral.cl

This publication is protected by Law 17,336 on Intellectual Property. Reproduction is prohibited without express permission from the Central Bank of Chile, although parts of this work may be reproduced provided that the source, title and author are fully cited.

BANCO CENTRAL
DE CHILE

**MONETARY POLICY REPORT** June 2015