

# MONETARY POLICY REPORT

December 2015



# MONETARY POLICY REPORT\*/ December 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](http://www.bcentral.cl).





# CONTENTS\*/

---

PREFACE	5
SUMMARY	7
MONETARY POLICY DECISIONS IN THE LAST THREE MONTHS	11
I. INTERNATIONAL SCENARIO	13
II. FINANCIAL MARKETS	19
III. OUTPUT AND DEMAND	23
IV. PRICES AND COSTS	27
V. INFLATION SCENARIOS	31
GLOSSARY AND ABBREVIATIONS	37
REFERENCES	39
BOXES	
Monetary policy in the United States and long-term interest rates	17
Copper prices	35

---

\*/The statistical cutoff date of the *Monetary Policy Report* was 15 December 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 18 December 2015 for presentation to the Senate Finance Committee on 21 December 2015.

## **The Board**



# SUMMARY

---

Annual CPI inflation has evolved as was forecast in September, but its core component —the CPIPEFE— slightly outgrew the projection in line with the further depreciation of the peso, with still limited output gaps and indexation according to historic patterns. Output has grown as foreseen, while domestic demand showed a somewhat faster pace. The external scenario has worsened due to lower terms of trade, slower growth of trading partners and not-so-favorable financial conditions. In this context, the baseline scenario's growth outlook for 2016 is reduced, and the convergence of inflation to the target is delayed somewhat. With this, the previous scenario has intensified, with higher short-term inflationary pressures that should ease in the medium term. The Board estimates that to ensure the convergence of inflation to the target it is necessary to withdraw part of the monetary stimulus, and has taken the monetary policy rate (MPR) to 3.5%. The baseline scenario considers measured adjustments, at a pace that will depend on incoming information and its implications for inflation. Monetary policy will remain expansionary throughout the forecast horizon, in line with activity growing below potential and inflation converging to 3%.

In November, the high basis of comparison led annual CPI inflation to 3.9%, down from a few months before. However, it is expected to increase again above 4%. The CPIPEFE has remained slightly below 5% annually over the past six months. The importance of the peso depreciation in the higher inflation is reflected especially in the high level of CPIPEFE inflation for goods, which, after averaging -1.9% in 2013, has been somewhat below 5% since July this year. The indirect effect on other prices, for example through the indexation to past inflation, has also been present.

Beyond the sustained peso depreciation, the persistence of high inflation is also related, as was noted in September, to the fact that output gaps, despite some widening, are now smaller than they were in other low growth cycles. This is most evident in the labor market, where the unemployment rate is still low and annual total job creation fluctuates around 2%, while salaried employment accelerates marginally. Although nominal wages have been steadily decelerating since end-of-2014, growth is near 6% annually. All this has helped annual CPIPEFE inflation for services, more closely related with the non-tradable component, to remain high. Meanwhile, fuel prices have fallen, while annual foodstuffs inflation has declined. In turn, the public sector wages' adjustment should help contain pressures on wages.



**ECONOMIC GROWTH AND CURRENT ACCOUNT**

	2014	2015 (f)	2016 (f)
	(annual change, percent)		
GDP	1.9	2.1	2.0-3.0
National income	1.9	1.7	1.5
Domestic demand	-0.6	2.3	2.6
Domestic demand (w/o inventory change)	0.5	2.0	2.5
Gross fixed capital formation	-6.1	0.7	1.7
Total consumption	2.5	2.4	2.7
Goods and services exports	0.7	-1.7	1.0
Goods and services imports	-7.0	-1.4	1.6
Current account (% of GDP)	-1.2	-1.7	-2.6
Gross national saving (% of GDP)	20.3	20.0	19.1
Gross national investment (% of GDP)	21.4	21.7	21.7
GFCF (% of nominal GDP)	22.0	22.0	21.9
GFCF (% of real GDP)	24.0	23.7	23.5
	(US\$ million)		
Current account	-2,995	-4,100	-6,000
Trade balance	7,767	4,350	700
Exports	75,675	63,500	58,750
Imports	-67,908	-59,150	-58,050
Services	-3,757	-4,300	-4,150
Rent	-8,857	-6,050	-3,950
Current transfers	1,851	1,900	1,400

(f) Forecast.

Source: Central Bank of Chile.

The baseline scenario assumes that GDP will grow 2.1% in 2015, within the range projected in September. Third-quarter activity performed similarly to previous quarters', thus the economy continued to grow between 2% and 2.5% annually. There is a sharper than foreseen deterioration of the natural resources sectors, particularly mining, due to production cuts triggered by the drop in the copper price. The other sectors are doing better, but are growing at low rates.

Although faster than forecast in September, domestic demand growth remains weak. The increase in gross fixed capital formation stands out, where specific factors converge, such as strong imports of transport equipment, and more dynamic housing construction. Private consumption continued to grow around 2% annually.

The context for domestic demand includes still pessimistic consumer and business confidence, despite the aforementioned resilience of the labor market and that output growth, while slow, has stabilized. The cost of local funding remains low by historic standards, partly reflecting the expansionary stance of monetary policy. Nonetheless, with the exception of mortgages, real annual credit growth remains slow.

In the baseline scenario, the GDP growth estimate for 2016 lies in the 2%-3% range, less than assumed in September. In this new projection monetary policy continues to be expansionary, and fiscal policy continues to weigh on expenditure growth, albeit not as intensely as this year. Fiscal expenditure should evolve consistently with the fiscal rule and with the consolidation objectives set by the Administration, which has committed to reducing the structural deficit by about one fourth of a GDP point per year. Overall, the revision to GDP growth is largely explained by the worsening of the external scenario relevant for Chile. This phenomenon is shared by emerging economies that are commodity exporters, mainly because of the important reduction of the terms of trade and less favorable external financial conditions.

Commodity prices dropped again in the past few months, leading both copper and oil prices to accumulate a 30% fall during the year. This, as a reflection of the sustained appreciation of the dollar and lower global growth. The case of copper is exacerbated by the sectoral recomposition of the Chinese economy that will continue eroding demand for the metal. At the close of this *Report*, copper was trading slightly below US\$2.1 per pound. Projections for 2016 and 2017 have been reduced significantly, to average US\$2.25 (about US\$2.5 in September). Oil prices fell below US\$40 per barrel at the close of this *Report*. This significantly reduces its outlook for the next two years, to an average of US\$46 per barrel for WTI, and US\$48 for Brent (US\$53 and US\$58 in September, respectively).

External financing conditions for Chile have turned less favorable. The prelude to the U.S. policy rate adjustment caused significant volatility in financial markets. However, the increase finally adopted was greeted calmly by the markets. In Latin America, the mix of the worsened economic outlook with idiosyncratic factors has speeded up the increase in premiums, but in Chile its magnitude has been smaller.

In addition, trading partners' growth in 2016-2017 has been marginally revised downward from September. The developed world, in particular the U.S., is recovering steadily, as opposed to the situation in the emerging world. In China, the fear of a sharper deceleration and turbulences in financial markets has eased, but growth has slowed, with a noticeably weak manufacturing sector. Latin America faces a complex situation, especially Brazil, which is going through its worst recession in decades. Add to this that, unlike the rest of the world, inflation in the region has increased, constraining the space for a more lenient monetary policy.

The divergence of the monetary policies of the major economies in the world will further strengthen the dollar while global activity growth will remain more concentrated in services. These two factors hinder the recovery in commodity prices. Emerging economies' funding costs will increase, but will remain low from a historic perspective. In several Latin American economies an additional adjustment is still needed, which combined with idiosyncratic problems and exposure to commodity prices, aggravate the fragility of the region.

The global economic slowdown plays a significant part in increasing the current account deficit in 2015 and 2016: 1.7% and 2.6% of GDP, respectively (0.7% and 1.5% in September). This owes mainly to the decline in the terms of trade, but also to reduced export volumes. In addition, this year there is a larger than anticipated increase in imports of capital goods, particularly transport equipment.

In the baseline scenario, annual CPI inflation is expected to remain above 4% during most of 2016, to end the year inside the tolerance range and reaching the target towards the end of the projection horizon, the fourth quarter of 2017. At the statistical cutoff of this *Report*, private inflation expectations one year out were slightly lower than in the baseline scenario, that is, around 3.5%. Two years out, they remain aligned with the target.

This *Report's* inflation forecast assumes that, in the projection horizon, output gaps will expand in the short term but will remain bounded, and the RER will appreciate slightly. The Board already began to withdraw part of the monetary stimulus as announced in September, taking the policy rate to 3.5%. The baseline scenario uses as a methodological assumption that the MPR trajectory will be similar to the one that can be inferred from the various expectations indicators available at the statistical closing of this *Report*.

The baseline scenario reflects the 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 thus may alter the course of monetary policy.

Abroad, although it is too early to assess the overall impact of the recently initiated process of policy rate normalization in the U.S., it is clear that it will remain an important source of risks, especially because of existing differences between what market expectations suggest and Fed's statement about how fast and how far it will raise the rate. There is also the divergence between the monetary policies in developed countries and their potential effects on the

## INTERNATIONAL BASELINE SCENARIO ASSUMPTIONS

	Avg. 00-07	Avg. 10-12	2014	2015 (f)	2016 (f)	2017 (f)
	(annual change, percent)					
Terms of trade	8.2	4.2	-1.4	-4.2	-3.8	1.7
Trading partners' GDP (*)	3.6	4.6	3.4	3.0	3.2	3.3
World GDP at PPP (*)	4.2	4.3	3.4	3.1	3.4	3.5
World GDP at market exchange rate (*)	3.2	3.3	2.7	2.5	2.8	2.9
Developed economies' GDP at PPP (*)	2.6	1.7	1.7	1.9	2.1	2.2
Emerging economies' GDP at PPP (*)	7.4	6.2	4.8	4.0	4.4	4.6
External prices (in US\$)	4.6	5.2	-0.9	-9.3	-2.8	1.5
	(levels)					
LME copper price (US\$/lb)	154	368	311	249	220	230
WTI oil price (US\$/barrel)	44	89	93	49	43	49
Brent oil price (US\$/barrel)	42	101	99	53	45	52
Gasoline parity price (US\$/m <sup>3</sup> ) (*)	366	742	731	466	373	384
Libor US\$ (nominal, 90 days)	3.6	0.4	0.2	0.3	1.0	1.6

(\*) For definition, see glossary.

(f) Forecast.

Source: Central Bank of Chile.

## INFLATION

	2014	2015 (f)	2016 (f)	2017 (f)
	(annual change, percent)			
Average CPI inflation	4.4	4.4	4.3	
December CPI inflation (1)	4.6	4.5	3.8	
CPI inflation in around 2 years (2)				3.0
Average CPIPEE inflation	3.6	4.7	4.6	
December CPIPEE inflation	4.3	4.8	3.7	
CPIPEE inflation in around 2 years (2)				2.7

(f) Forecast.

(1) For December 2015, the average of the median of monthly inflation projected in the EES and FBS of that month.

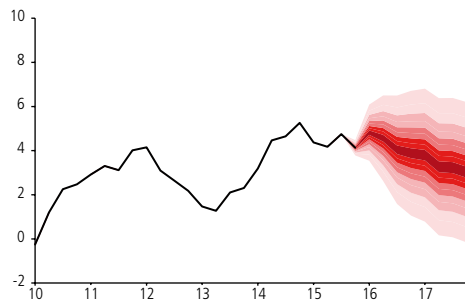
(2) Corresponds to the projected inflation for the fourth quarter of 2017.

Source: Central Bank of Chile.



**CPI INFLATION FORECAST (\*)**

(annual change, percent)

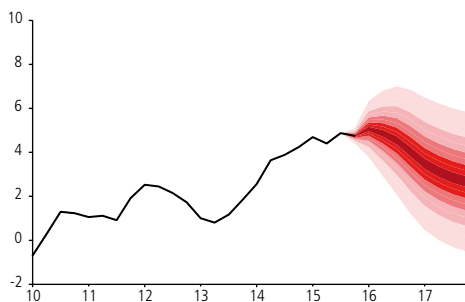


(\*) The figure shows the confidence interval of the baseline projection over the respective horizon (colored area). Confidence intervals of 10%, 30%, 50%, 70% and 90% around the baseline scenario are included. These intervals summarize the risks on inflation as assessed by the Board. The baseline scenario uses as a methodological assumption that the MPR trajectory will be similar to the one that can be inferred from the various expectations indicators available at the statistical closing of this *Report*.

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 methodological assumption that the MPR trajectory will be similar to the one that can be inferred from the various expectations indicators available at the statistical closing of this *Report*.

Source: Central Bank of Chile.

global value of the dollar. In China, the likelihood of an abrupt adjustment has been reduced, but doubts persist about its contribution to the recovery of the world economy and the prices of commodities, especially with the rebalancing of its growth towards consumer and services sectors. Finally, the complex situation in Brazil and the need for further adjustments in some Latin American economies continue to pose major risks. A worsening of the economic outlook in the region would affect external demand and possibly the financing conditions for Chile. Should any of these risk scenarios occur, it is possible for the reaction of the exchange rate to push up inflation in the short term, but the medium-term effects are less obvious, considering that activity would probably be affected too.

Locally, inflation has remained high for a long while, which could affect the speed of its convergence, both via indexation and through its potential effects on the formation of expectations. All of this in a context of still bounded margins and reduced output gaps. Meanwhile, the oil price decrease and the lower external inflation relevant to Chile could take some steam off these inflationary pressures.

Into the medium term, there are risks that could result in economic performance being lower than assumed in the baseline scenario, increasing capacity gaps and reducing inflationary pressures. For one thing, although the labor market has remained resilient, a significant adjustment cannot be ruled out that would reduce the rate of wage growth, raise unemployment and affect spending. For another, confidence may not recover as contemplated, resulting in the economy growing less than projected. Nor can it be ruled out that the recovery of activity could be somewhat faster than expected, if the resilience of the labor market remains, allowing confidence indicators to rebound at a faster pace. This could also occur if the drop in fuel prices has a greater impact on national income.

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

Inflation is still high and will stand above 4% for the better part of 2016. Domestic output and demand growth remains bounded. The external scenario poses major risks for the evolution of inflation and activity. The Board raised the MPR to 3.5% and it considers for its future path measured steps to ensure the convergence of inflation to the target, at a pace that will depend on incoming information and its implications on inflation. 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: SEPTEMBER 2015 MONETARY POLICY REPORT

At the cutoff date of the September *Monetary Policy Report*, inflation was higher than the forecast, with annual CPI inflation at 4.6% in July and the core measure (the CPlEFE) at 4.9%. The sharp depreciation of the peso was the main cause of the spike, and it was expected to continue affecting inflation dynamics due to the risks deriving from the external scenario. As a working assumption, the real exchange rate (RER) was expected to record a slight appreciation toward the end of the forecast horizon, relative to the average of the last ten days prior to the statistical cutoff date for that *Report*. When combined with the widening of the domestic output gap through early 2016, this would allow the convergence of inflation. In the short term, however, the risks were biased to the upside, due to the exchange rate trend. The persistence of high inflation could affect inflation expectations, with implications for monetary policy. In the second quarter, output and domestic demand had weakened, and private expectations had deteriorated again. Taken together with the worse external scenario, the slowdown in mining activity and the lack of any sign of improvement in consumption and private investment, this suggested that growth in the second half would be lower than projected in June. In this context, the Board had held the monetary policy rate (MPR) at 3%.

In the baseline scenario, commodity prices and the growth of trading partners were revised downward, while external financial conditions were expected to remain favorable from a historical perspective, despite having worsened recently. The rebalancing of global growth in favor of the developed world—especially the United States—and the imminent start of monetary normalization by the U.S. Federal Reserve (the Fed) had caused the dollar to strengthen significantly. This was compounded by the doubts about China and the complex situation in Latin America. All these factors had contributed to the depreciation of emerging currencies—including the Chilean peso—and the origination of the risks outlined in the last *Report*.

In Chile, annual CPI inflation was expected to remain outside the tolerance range at least through the first half of 2016, completing

nearly two years above 4%. It would then return to 3% over the course of 2017. The GDP growth forecast was 2.0% to 2.5% for 2015 and 2.5% to 3.5% for 2016. This assumed a gradual recovery of private expectations and a significant expansionary phase for monetary policy. Fiscal spending would increase less in 2016 than in 2015.

The inflationary risks were high in the short term. A new peso depreciation could trigger significant changes in the inflation trend and persistence. As in the past, it was possible that this would reflect global conditions. Furthermore, inflation had remained high for some time, which in itself was a risk for expectations. The lower growth of nominal wages mitigated a risk detected earlier. At the same time, excess capacity could increase more than projected, which would reduce inflationary pressures. There was still a risk deriving from the evolution of private expectations and the effect on local output. Another factor to take into account was the effect of lower fuel prices on national income. The Board estimated that the balance of risks was downward biased for output. For inflation, the risks were biased to the upside in the short term and broadly unbiased in the forecast horizon.

---

## MEETINGS IN SEPTEMBER, OCTOBER AND NOVEMBER

In September, the data available since the cutoff date of the last *Report* substantiated the concerns about the persistence of the high inflation. As discussed in that *Report*, recent data were consistent with a somewhat less expansionary monetary policy, so the key issue was whether or not the latest news justified moving forward with this process. The Research Division considered that the relevant options for this meeting were to raise the MPR by 25 basis points (bp), to 3.25%, or to hold it at 3.0%.

August inflation had been above projections, but this was almost entirely due to some very volatile components. Core inflation, while high, was in line with expectations. Nevertheless, some measures of inflation expectations two years ahead had increased. Moreover, although the different surveys pointed to an MPR path in line with the projection in the last *Report*,



the path implicit in financial asset prices was indicative of a larger and earlier reduction of the monetary stimulus. The risk of an increase in medium-term inflation expectations above 3% had risen somewhat, most notably because some indicators suggested that, in the current cycle, inflation persistence would be somewhat greater than previously estimated. At the same time, the factors mitigating this risk were still present: local and external output had weakened, and commodity prices had been revised downward.

Given this scenario, the recent evolution of medium-term inflation expectations made it advisable to move up the withdrawal of the monetary stimulus relative to the schedule presented in the *Report*, but, at the same time, an increase in the MPR might be interpreted as a signal that the analysis in the recent *Report* was already obsolete, validating the need for a fundamentally different MPR path than assumed in the *Report*. The Board decided to hold the MPR at 3.0%, but it stated that the process of reducing the strong monetary stimulus would be initiated in the short term.

In October, the data were generally consistent with the baseline scenario described in the *Report*. September inflation had been somewhat lower than expected, but given the positive surprise in August, it was in line with the *Report*. Other sectors' GDP had performed as expected, but mining production disappointed. With a few isolated exceptions, demand remained weak; the labor market was resilient; and interest rates remained low in the different local financial markets. The international economy had not changed significantly, although the probability of some risk scenarios had increased. In this context, a slow convergence was still expected for inflation, which would require reducing the monetary stimulus by 50 or 75 bp in the coming months. The yield curve had aligned with the MPR path presented in the *Report*. Thus, the options considered were to raise the MPR by 25 bp to 3.25%, or to hold it at 3.0%.

The option of raising the rate was based on more persistent inflation, somewhat lower excess capacity than projected a few quarters earlier, and the possibility that the economy would gradually increase its growth rate, nearing its potential growth toward the end of 2016. Moreover, the monetary stimulus was very strong, as evident in the negative real short-term interest rates and long-term rates near historical lows. The option of holding the MPR at its current level could not be discarded outright, however, because the probability of financial contagion from the problems in Brazil to the rest of the region, including Chile, had increased. In addition, the discrepancy had grown between market expectations about the Fed's coming actions and the Fed's own assumptions, as well as between the Fed's policies and the policies of other developed central banks. In this context,

the most probable scenario included greater market volatility, increased spreads, further global strengthening of the dollar and new declines in commodity prices. However, some of these risks could be quite transitory, and if they generated more persistent or disruptive deviations in the economy, history showed that the Central Bank of Chile had the capacity to quickly change the course of monetary policy. Thus, the Board decided to raise the MPR by 25 bp, to 3.25%.

In November, the probability that the Fed would start to raise its policy rate in late 2015 had risen significantly. Domestically, output in the third quarter had been in line with the forecast, thanks to the performance of other sectors, which offset the drop in mining production. The labor market remained resilient, and aggregate demand, with a few isolated exceptions, revealed that the behavior of consumers and investors was cautious, but stable. Both local and external conditions were adequate for growth rates near potential in the second half of 2016. Annual inflation remained high despite having fallen in October, and it was expected to fluctuate above the tolerance range at least through the first half of 2016. The persistence of high inflation largely stemmed from the repeated depreciations of the peso. Nontradables inflation had also remained high, so the surprises in core inflation might be more persistent.

In this context, the options were to hold the MPR at 3.25% or to raise it to 3.50%. The former was consistent with a gradual withdrawal of the monetary stimulus, and since it was in line with market expectations, it would help maintain a higher degree of predictability in monetary policy. On the other hand, the downside risks for output were still valid in the medium term, due to the very slow recovery of local confidence, the global economic scenario and the possible disruptions associated with the Fed's choice of action.

The option of raising the rate was justified given the strongly expansionary bias of monetary policy, as evidenced in comparing the MPR in real terms with the policy rate in other similar economies. Additionally, nontradables inflation had been highly persistent in recent periods, implying that the necessary adjustment in relative prices would take place in a context of higher inflation. Inflation convergence was strongly tied to the stabilization of the exchange rate, the absence of which could put pressure on inflation. Furthermore, the CPIEFE surprise could reflect somewhat higher inflationary pressures. However, the economy had been growing below potential for some time, which significantly mitigated the inflation risks in the usual forecast horizon. The Board decided to hold the MPR at 3.25%.

# 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.*

In the last three months, the external scenario relevant for Chile has deteriorated, due to a decrease in the terms of trade, lower growth of trading partners and less favorable financial conditions for emerging economies, which have faced capital outflows, currency depreciation against the dollar and larger spreads. International financial markets have been volatile in the prelude to the adjustment in U.S. monetary policy, although they calmed after rates increased. World growth will be somewhat lower than forecast a few months ago, especially due to the sluggish emerging world. The outlook for Latin America has worsened: not only is the region highly exposed to commodity prices, but its economies also need additional adjustments, and in some cases local factors have exacerbated the slowdown. Thus, the growth forecast for Chile's trading partners was revised downward two-tenths of a point for 2016, to 3.2%, and one-tenth for 2017, to 3.3% (table I.1).

Output continued to recover in the United States. Annualized quarter-on-quarter growth was 2.1% in the third quarter, led by private consumption and housing investment. Consumption has been boosted by the continuing strength of the labor market and expectations, which remain optimistic. Investment in the energy sector and exports both weakened, the former in response to the drop in oil prices and the latter due to the appreciation of the dollar and lower external demand. In the Eurozone, output continued to show a gradual recovery, fostered by the lower energy costs, public spending and an expansionary monetary policy. In the third quarter of the year, GDP grew 1.2% (annualized quarter-on-quarter), and private consumption remained strong. Unemployment, while still high, continued to decline. Japan recorded a decline in output in the second quarter of the year, but recovered in the third with annualized quarter-on-quarter GDP growth of 1%, mainly driven by investment.

The lower energy prices continue to contribute to keeping inflation low in the developed economies, at levels well below the target of the respective monetary authorities. In November, annual inflation was 0.5% in the United States and just 0.2% in the Eurozone. Core inflation, which excludes food and energy, was 2.0% and 0.9% in the United States and the Eurozone, respectively.

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

	Avg. 00-07	Avg. 10-12	2013	2014 (e)	2015 (f)	2016 (f)	2017 (f)
World at PPP	4.2	4.3	3.3	3.4	3.1	3.4	3.5
World at market FX rate	3.2	3.3	2.3	2.7	2.5	2.8	2.9
Trading partners	3.6	4.6	3.5	3.4	3.0	3.2	3.3
United States	2.6	2.1	1.5	2.4	2.4	2.6	2.8
Eurozone	2.2	0.9	-0.4	0.9	1.5	1.7	1.8
Japan	1.7	2.0	1.6	-0.1	0.6	1.2	0.5
China	10.5	9.3	7.7	7.3	6.9	6.4	6.1
India	7.1	7.3	6.9	7.3	7.5	7.8	7.5
Rest of Asia	5.1	5.6	4.2	4.0	3.4	3.7	4.0
Latin America (excl. Chile)	3.5	4.7	2.8	1.0	-0.6	0.4	1.5
Commodity exporters	3.1	2.8	2.1	2.6	1.6	2.2	2.0

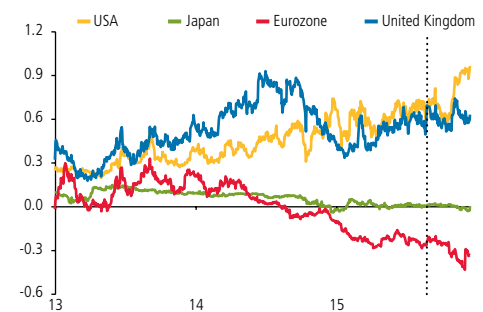
(\*) See glossary for definitions.

(e) Estimate.

(f) Forecast.

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

**FIGURE I.1**  
Interest rates on two-year government bonds (\*)  
(percent)

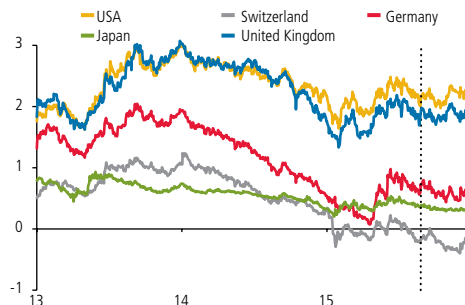


(\*) The vertical dotted line indicates the cutoff date of the September 2015 Monetary Policy Report.

Source: Bloomberg.

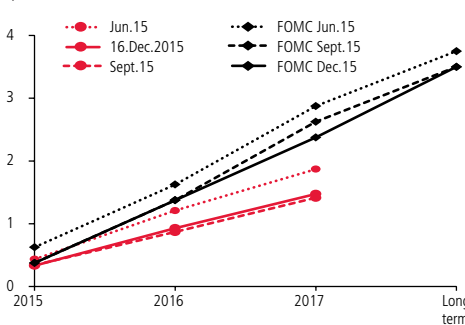


**FIGURE I.2**  
Interest rates on 10-year government bonds (\*)  
(percent)



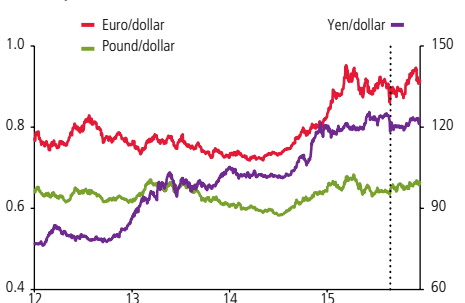
(\*) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.  
Source: Bloomberg.

**FIGURE I.3**  
Fed funds rate expectations (\*)  
(percent)



(\*) Red lines: expectations measured by interest rate futures; black lines: the FOMC forecast in the respective meetings.  
Sources: Bloomberg and U.S. Federal Reserve.

**FIGURE I.4**  
Exchange rate (\*)  
(currency to the dollar)



(\*) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.  
Source: Bloomberg.

The developed economies are thus undergoing a recovery process, for the most part characterized by a stronger performance in sectors related to services and consumption, while manufacturing and investment have been slower. The United States and the United Kingdom are further along their cycles than the Eurozone and Japan, which has been expressed in divergences in monetary policy expectations in each region and in the interest rate paths of government bonds. Thus, since the last *Monetary Policy Report*, U.S. rates increased between 10 and 30 basis points (bp) depending on maturity, whereas in the Eurozone rates fell around 5 bp, although there was a partial recovery after the cutoff date of this *Report*. The difference is particularly marked in the short-term rates, which have even become negative in the Eurozone (figures I.1 and I.2).

With regard to monetary policy decisions, the U.S. Federal Reserve (the Fed) began the long-awaited process of raising its policy rate, increasing the target range of the federal funds rate (FFR) to 0.25%–0.50%. While it is early yet to assess the global effects, the increase has not triggered any immediate significant changes in the financial markets, and the Fed has reiterated its intention to withdraw the monetary stimulus gradually. There are still discrepancies between market consensus and the Fed's statements in terms of the speed of the adjustment and where the rate will finally land (figure I.3). These discrepancies constitute a source of risk, to the extent that a faster increase in interest rates could generate a decompression of term spreads. Empirical evidence suggests that this type of adjustment can spread to other risky assets, including currencies and credit spreads. Furthermore, while the Fed can be expected to move very carefully in terms of both its actions and its communications so as to avoid this type of event, the possibility remains that such an event could be triggered by other circumstances, such as macroeconomic data diverging widely from market expectations (box I.1).

One of the key trends in the period has been the divergence of monetary policies among the developed world. Thus, while the United States and the United Kingdom have initiated—or are close to initiating—the withdrawal of the monetary stimulus, the European Central Bank increased its stimulus measures in December, although less than the market expected, and Japan has maintained an expansionary policy. This policy discrepancy is evident in the steady appreciation of the dollar at the global level (figures I.4 and II.9).

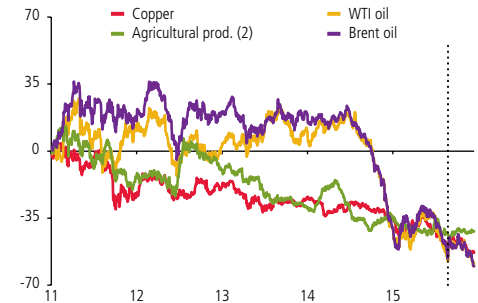
Another feature of the international scenario is the ongoing decline in commodity prices. The drop in copper has been particularly sharp, in response to the appreciation of the dollar and the reduction in world demand for the metal. The sectoral recomposition of the Chinese economy toward the consumer and services sectors is expected to continue eroding the demand for copper. The copper price has hit its lowest level of the last six years, trading at just under US\$2.10 per pound at the cutoff level of this *Report*. This represents an accumulated drop of nearly 30% in the year. In the baseline scenario, the copper price in the two-year period 2016–2017 has been revised downward substantially to an average of US\$2.25 per pound (versus almost US\$2.50 in the September *Monetary Policy Report*) (box V.1). The downturn in the price outlook has led to production cuts and cost-cutting efforts in mines around the world.

Oil prices have also fallen, due to both lower world demand and to supply factors. The WTI and the Brent were below US\$40 a barrel at the cutoff date of this *Report*, which constitutes a drop of around 30% since the start of the year. The baseline scenario includes a significant reduction in the crude oil price forecast for the next two years, with an average of US\$46 a barrel for the WTI and US\$48 for the Brent (versus US\$53 and US\$58 in September, respectively). This represents a recovery from the current price level, although throughout the forecast horizon prices will remain below their long-term level, which is currently estimated at US\$70 a barrel (US\$85 in September). Crude oil prices could continue to fall, however, given the current overproduction by OPEC, the lifting of sanctions against Iran and the high global inventories. This would ease the projected deterioration in Chile's terms of trade. Gasoline has fallen less than oil over the course of the year (–15%), largely due to high inventories (figure I.5).

In China, fears of a sharp adjustment have subsided, but output continues to slow. The country recorded a growth rate of under 7% in the third quarter of 2015, and the slowdown is expected to continue. Together with the low inflation (1.5% annual in November), this has led the authorities to implement new monetary stimulus measures. Doubts remain about China's contribution to the global recovery of output and commodity prices, especially given the rebalancing of growth toward the services (tertiary) and consumer sectors (figure I.6). Investment remains weak in the housing sector, which is very intensive in metal. A deeper slowdown in this economy, together with the recomposition of growth, could put further downward pressure on metal prices, particularly copper. Additionally, the possibility of new episodes of volatility in the Chinese financial markets cannot be discarded, especially in a context in which the authorities continue to move forward with the financial liberalization process. Other emerging Asian economies have also slowed over the course of the year. This is mainly due to lower demand from China, which imports intermediate and final consumer goods, as well as metals, from this region.

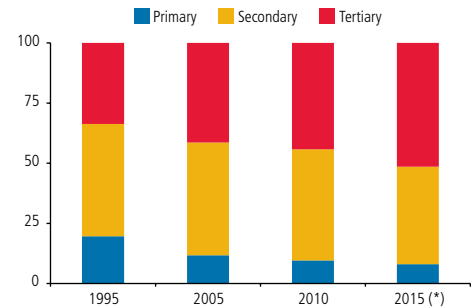
Latin America has had the biggest cuts in its growth forecasts, especially in Brazil (figure I.7). In the baseline scenario assumed in this *Report*, the growth outlook for the region for 2015–2017 has decreased 1.1 percentage points relative to September. In addition to lower external demand, less favorable international financial conditions and the drop in commodity prices, some countries are facing a more complex domestic situation. Fiscal imbalances continue to be a source of concern in several countries, limiting the space for implementing expansionary fiscal policies (figure I.8). Other countries are facing large external imbalances, despite the depreciation of their currencies. At the same time, high inflation has led to the withdrawal of monetary stimulus measures. Inflation has risen above the central bank's targets in the majority of the countries; this stands in contrast with the rest of the emerging economies, where inflation remains low. The main reason for the higher inflation is the pass-through of the currency depreciation to prices. Moreover, labor markets have not adjusted to the lower output, and, in some cases, rigidities have prevented the complete pass-through of the drop in oil prices (figure I.9).

**FIGURE I.5**  
Commodity prices (1)  
(Accumulated change since January 2011, percent)



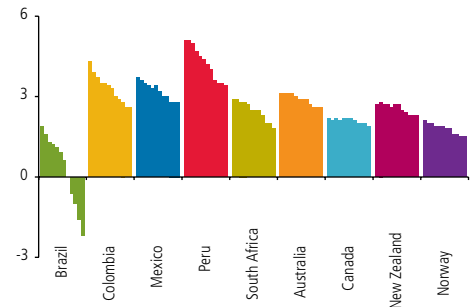
(1) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.  
(2) Goldman Sachs aggregate index.  
Source: Bloomberg.

**FIGURE I.6**  
China: sectoral GDP  
(percent of GDP)



(\*) Data through the third quarter.  
Source: Bloomberg.

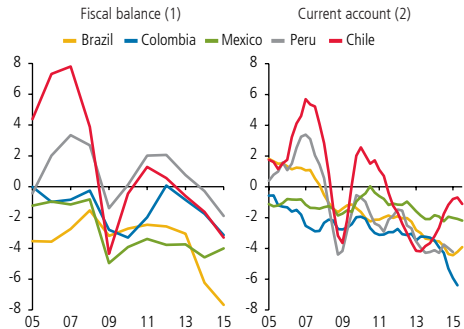
**FIGURE I.7**  
Growth forecast, 2016 (\*)  
(annual change, percent)



(\*) 2016 forecasts from January to December 2015.  
Source: Consensus Forecasts.



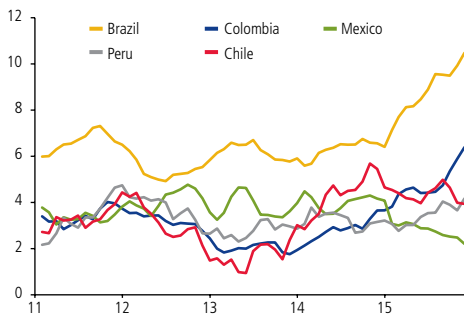
**FIGURE I.8**  
Latin America: Fiscal and current account balance  
(percent of GDP)



(1) 2015 data are WEO forecasts (WEO, October 2015), except for Chile, which uses a Finance Ministry forecast.  
(2) 2015 data are available through September for Brazil, Mexico and Chile, June for Colombia and March for Peru.

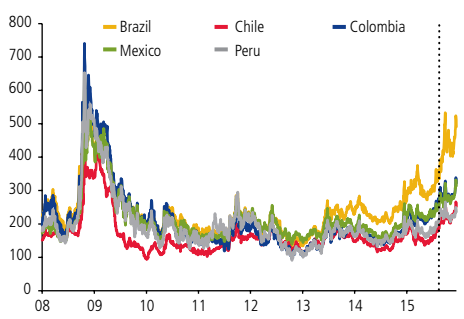
Sources: Central Bank of Chile, Bloomberg, Consensus Forecasts, IMF and Ministry of Finance, Budget Division.

**FIGURE I.9**  
Latin America: Inflation  
(annual change, percent)



Sources: Bloomberg and Chilean National Statistics Institute (INE).

**FIGURE I.10**  
Latin America: Sovereign spreads (\*)  
(basis points)



(\*) Measured by the EMBI. The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.

Source: Bloomberg.

Brazil, the region's largest economy, is suffering a sharp economic deterioration, exacerbated by a delicate political situation and a rating downgrade by two rating agencies, one of them made at the cutoff of this *Report*. Given the economy's growth performance, 2015 will post the biggest contraction of the last few decades, and GDP is expected to continue falling in the coming year. The increase in the SELIC rate to contain inflation has brought the fiscal deficit to approximately 10% of GDP. Public debt is also high, with gross debt representing nearly 70% of GDP. As a result of these developments, the country's risk perception has risen markedly.

In Colombia, high inflation and expectations triggered increases in the monetary policy rate, for a total of 100 bp in three months. In Peru, high inflation has also led to MPR hikes, while in Mexico the policy rate was raised following the Fed's increase. This economy has recorded a slight recovery of output, primarily driven by the industrial, manufacturing and construction sectors. In Argentina, the new government recently eliminated the exchange rate control system (CEPO). The economy is facing important challenges, mainly in fiscal and monetary areas as well as the exchange rate, given the large public and external financing needs in a context of low international reserves and limited access to financing. As in previous Reports, the complex situation in the region continues to be an important source of risk, due to both lower external demand from regional trading partners and the impact of the overall situation on financing conditions.

As a result, the cost of financing has deteriorated for emerging economies, especially in Latin America. Sovereign spreads have increased, and most are now at their highest levels since mid-2009 (figure 1.10). Countries have recorded large capital outflows (bonds and stocks), stock market declines and ongoing currency depreciations against the dollar. As reported in the *Financial Stability Report*, these trends have affected the performance of Chilean firms with investments in the region.

Other developed commodity exporters, such as Australia, New Zealand, Canada and Norway, have also recorded a slowdown in growth, with a weakening of investment, particularly in Australia and New Zealand. The external sector contributed positively, supported by the currency depreciation and, in some cases, by an incipient recovery of non-commodity sectors. Unemployment and inflation remain low, which gives these countries more room to apply stronger monetary stimulus.

**BOX I.1****MONETARY POLICY IN THE UNITED STATES AND LONG-TERM INTEREST RATES**

For small open economies like Chile, global financial conditions are an important determinant of the economic cycle. These depend, in part, on the monetary policy of developed countries, in particular the United States, given its importance and its weight in the international financial markets. Consequently, the recent increase in the monetary policy rate in the United States (the federal funds rate, FFR) and the associated process of monetary policy normalization can be expected to affect the financial conditions faced by other economies, including Chile. This box provides new evidence on these effects and discusses some elements that influence their intensity. In particular, the analysis explores the potential impact of monetary policy changes in the United States on long-term interest rates in developed and emerging economies.

The empirical evidence highlighted in this box points to four findings: (i) increases in the FFR generate increases in long-term rates in other economies, although the responses are heterogeneous over time and among countries; (ii) this reaction has been amplified in the recent period, where a 100 basis point (bp) increase in the FFR would generate increases of 75 bp and 85 bp in long rates in developed and emerging economies, respectively; (iii) developed and emerging economies appear to have different transmission channels after 2008, where in the former countries pass-through is associated with a monetary policy that follows the U.S. Federal Reserve (the Fed) and in the latter it has to do with increases in the term spread; and (iv) for Chile, recent evidence shows that long rates have had a limited response to changes in financial conditions in the United States, but given the heterogeneity among countries and over time, there is no way to ensure that this will always be the case.

Over and above the average response, there are a number of elements that can affect the intensity of the reaction. Some emerging countries have become more vulnerable to changes in financial conditions, due to a high current account deficit, high levels of short-term foreign currency debt, a fragile fiscal position and/or exchange rate rigidities.

There are also factors that can mitigate the impact. The Fed has signaled that the process will be gradual and will occur in a context of an economy in recovery, as opposed to an economy that needs cooling. The other developed central banks will continue

to provide high liquidity through their quantitative easing policies, and they could even implement more expansionary policies. This divergence will probably increase the appreciation of the dollar, with a negative effect on commodity prices. Finally, a large number of emerging economies have adequate policy frameworks for facing this type of shock, in comparison with other episodes of FFR hikes. In particular, they have exchange rate flexibility and high levels of international reserves.

**Monetary policy and long-term interest rates**

Like most central banks, the Fed uses the nominal short-term rate as a policy instrument. To understand the relation with the long-term rate, it is useful to think of the latter as the sum of two components. The first is what the market expects for the FFR in the relevant horizon. If the FFR is expected to be high, on average, in the future, then the long-term rate today will also be high. The second component is called the term spread, which represents the compensation that investors demand in return for taking on the rate risk associated with holding a long-term bond. In other words,

$$(1) \text{ Long-term interest rate} = \text{Expected average MPR} + \text{Term spread}$$

As equation (1) shows, the monetary authority directly influences long rates when it sets the FFR and, in particular, when it communicates the most likely path of this variable. Changes in monetary policy can alter the term spread, although this relation varies over time and the determining mechanisms are not well known. Spreads also move for reasons unrelated to current and expected changes in the FFR, which raises a particular challenge for the authorities<sup>1/</sup>.

This equation also helps clarify the impact of U.S. monetary policy changes on long-term rates in other economies. The change in local long rates will depend on the monetary policy reaction in each country. If, in the face of an FFR hike, the local authorities

<sup>1/</sup> For example, in 2006 the then-chairman of the Fed, Ben Bernanke, argued that the almost null response of long-term interest rates to the Fed's rate hikes was due to a compression in the term spreads (Bernanke, 2006). More recently, term spreads have also played an important role in U.S. monetary policy. When the Fed cut the FFR to its minimum level, it implemented measures oriented to reducing term spreads—through massive purchases of long-term bonds—so as to lower long rates even further (Gagnon, 2011).

decide to raise their own policy rate, it will generate an increase in the expected path of the short-term rate and, therefore, an increase in long-term rates. The Fed's actions can also alter the term spreads in other economies. For example, if the resulting portfolio changes cause investors to sell local bonds, it could generate an increase in long rates.

Finally, equation (1) is also useful for analyzing why there is a risk that financial conditions could change suddenly, despite the fact that the Fed has signaled a gradual increase in the FFR. Term spreads can increase rapidly in response to moderate changes in the expected policy rate path. Investors, who fear a larger rate hike and the subsequent loss in value of their investments, sell or are forced to sell part of their bond holdings, which puts upward pressure on the term spread. This risk is high because, after several years of low rates and ample liquidity, investors have sought higher yields by increasing the duration of their portfolios. Finally, the fact that the market and the Fed differ in what they consider to be the most probable path for the FFR increases the probability of a faster rate correction, especially if there are factors suggesting that the Fed's vision will prevail.

### Empirical evidence

Albagli *et al.* (2015) disaggregate the impact of U.S. monetary policy on term spreads and monetary policy expectations in other economies<sup>2/</sup>. The exercise shows the pass-through of monetary policy shocks in the United States to one- and ten-year rates in developed and emerging countries, differentiating between the total effect and the effect of each of the components in equation (1) (table I.2). The main results are threefold: (i) in both groups of countries, one- and ten-year interest rates became more sensitive to U.S. monetary policy after 2008; (ii) a 100 bp increase in the one-year rate in the United States, associated with a monetary policy shock, generates increases of 75 bp and 85 bp in long rates in developed and emerging economies, respectively; and (iii) the two groups of countries appear to have different transmission mechanisms, where the increase in long rates is associated with an expected increase in the policy rate in developed economies versus changes in the term spread in emerging economies. However, the results are very heterogeneous at the individual level.

Naudon and Yany (2015) review the impact of term spread shocks in the United States on the Chilean economy (figure I.11).

<sup>2/</sup> The unusually expansionary monetary policy in the United States, and in other developed economies, has given rise to a growing literature on its impact on financial asset prices in other economies. The results generally point to significant effects, in line with the findings reported in this box (Neely, 2015; Bauer and Neely, 2014; Bowman *et al.*, 2014; Gilchrist *et al.*, 2015).

In the exercise, a 100 bp shock to the term spread for ten-year U.S. Treasury bonds increases the Chilean interest rate (in local currency) by almost 30 bp in twelve months, while the peso depreciates about 4% in nominal terms. In line with Albagli *et al.* (2015), the response of Chilean long rates is associated with changes in the term spread, since the impact on expected short-term rates has the opposite sign, reflecting an offsetting effect from monetary policy in the face of this kind of shock. This is similar to what happened in mid-2013, when the Fed gave the first signal that it would begin normalizing the FFR and long rates in the United States increased around 150 bp. The moderate response of long-term interest rates in Chile in that episode is not necessarily an indication that there will always be a low correlation between local and external term spreads. Caution should therefore be taken in extrapolating from these results.

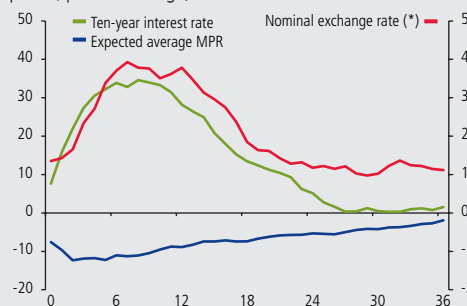
**TABLE I.2**  
Pass-through of U.S. monetary policy shocks to one- and ten-year rates (\*)

	Panel A: Developed economies			
	Pre-November 2008		Post-November 2008	
	One-year rate	Ten-year rate	One-year rate	Ten-year rate
Rate	0.14*	0.09	0.43**	0.73*
Expected MP	-0.07	-0.10	-0.15	-0.35
Term spread	0.13*	0.15	0.39**	0.48**
	-0.06	-0.11	-0.13	-0.17
	0.01	-0.07***	0.05	0.26
	-0.02	-0.02	-0.08	-0.21
	Panel B: Emerging economies			
	Pre-November 2008		Post-November 2008	
	One-year rate	Ten-year rate	One-year rate	Ten-year rate
Rate	0.19	0.28	0.43	0.85**
Expected MP	-0.13	-0.19	-0.24	-0.32
Term spread	0.06	0.06	0.08	0.12
	-0.05	-0.05	-0.21	-0.20
	0.12	0.22	0.34***	0.74**
	-0.08	-0.19	-0.07	-0.27

(\*) The symbols \*, \*\* and \*\*\* indicate that the result is statistically significant at 1%, 5% and 10%.

Source: Albagli *et al.* (2015).

**FIGURE I.11**  
Impact of a term spread shock in the United States  
(basis points; percent change)



(\*) An increase (decrease) indicates depreciation (appreciation).

Source: Naudon and Yany (2015).

## II. FINANCIAL MARKETS

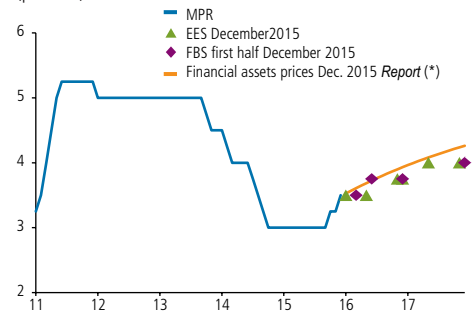
*This chapter reviews the evolution of local financial markets in connection with the transmission of monetary policy.*

### MONETARY POLICY

Annual CPI inflation has evolved according to the September forecast, although the growth of the core component—CPIEFE—was somewhat higher, reflecting the greater peso depreciation, limited excess capacity and historical patterns of indexation. Output growth has also followed projections, while domestic demand was higher. The external scenario has deteriorated, due to the decrease in the terms of trade, the lower growth of trading partners and less favorable financial conditions. Consequently, the baseline scenario incorporates a reduction in the 2016 growth outlook and pushes back the convergence of inflation with the target. The scenario described in September has intensified, with greater inflationary pressures in the short term that ease off in the medium term. The Board deems that to ensure the convergence of inflation with the target, it will be necessary to withdraw some of the monetary stimulus, and has raised the monetary policy rate (MPR) to 3.5% accordingly. The future path of the MPR foresees measured adjustments to ensure the convergence of inflation with the target, at a pace that will depend on incoming information and its implications for inflation.

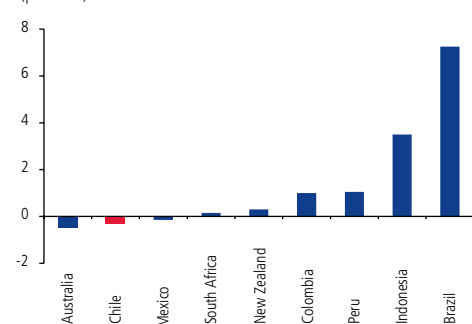
No great differences in MPR expectations can be extracted from financial asset prices and surveys. The different sources indicate that the MPR will be 3.75% to 3.93% one year out and 4.0% to 4.26% two years out (figure II.1 and table II.1). As a working assumption, the baseline scenario considers an MPR path similar to the path deduced from the different measures of expectations at the cutoff date for this *Report*. In this period, the MPR will continue to be expansionary. Measured in real terms, the monetary policy rate will remain around zero for some time, one of the most expansionary policy rates in the group of emerging economies and commodity exporters (figure II.2).

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



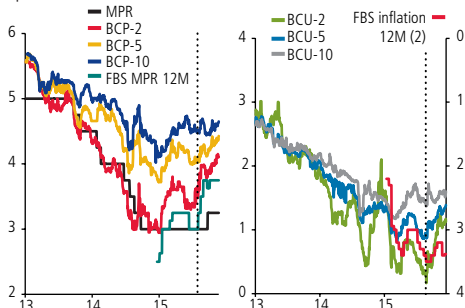
(\*) Calculated using the interest rates of swap contracts of up to 10 years.  
Source: Central Bank of Chile.

**FIGURE II.2**  
Real MPR (\*)  
(percent)



(\*) Calculated as the current MPR less expected inflation for December 2016.  
Sources: Central Bank of Chile and the central banks of the respective countries.

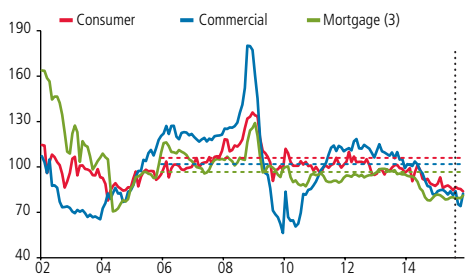
**FIGURE II.3**  
MPR and interest rates on Central Bank of Chile bonds (1)  
(percent)



(1) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.  
(2) Inverted axis.

Source: Central Bank of Chile.

**FIGURE II.4**  
Lending rates (1) (2)  
(fixed-base index: 2002–2015=100)



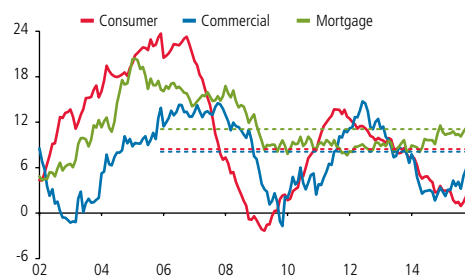
(1) Weighted average rates of all operations in the month. The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.

(2) The horizontal dotted lines indicate the average of the last ten years for each series.

(3) Mortgage interest rates in UF.

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

**FIGURE II.5**  
Real annual growth rate of loans (\*)  
(percent)



(\*) The dotted lines indicate the average of the last ten years for each series.

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

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

	One year ahead		Two years ahead	
	September Report	December Report	September Report	December Report
EES (1)	3.25	3.75	3.75	4.00
FBS (2)	3.25	3.75	3.50	4.00
Financial asset prices (3)	3.70	3.93	4.20	4.26

(1) August and December 2015.

(2) Second half of August and first half of December 2015.

(3) The December *Monetary Policy Report* considers the average of the last ten business days before the cutoff date.

Source: Central Bank of Chile.

Interest rates on Central Bank and Treasury instruments have increased in the short term, most notably in real terms. In nominal terms, the movement was in line with market expectations for the MPR one year out, which have risen in recent months. The dynamics of real interest rates have also been determined by market expectations for inflation (figure II.3). Since the September *Monetary Policy Report*, two-year rates increased more sharply: almost 80 bp for BCU rates and 55 bp for BCP rates. Real and nominal ten-year rates have not changed much since June, despite fluctuations. The rate increase by the U.S. Federal Reserve (the Fed) was well received by the markets, although the normalization process remains an important source of risk, in particular because of differences between the market and the Fed with regard to the speed and extent of the rate adjustment. Additionally, Brazil is facing a difficult economic and financial situation, which could have an impact on the cost of financing for the rest of the region, including Chile.

## FINANCIAL CONDITIONS

In general, the domestic financial scenario has not changed substantially in recent quarters: although the cost of credit remains low, in part due to the expansionary monetary policy, the growth of loans—with the exception of mortgages—remains slow relative to historical patterns. This reflects increased caution on the part of consumers and firms—as captured in the *Business Perceptions Report* (BPR), the IPEC and the IMCE—and a banking sector that continues to restrict its risk policies, as signaled in the BPR and the Bank Lending Survey (BLS). Furthermore, external financial conditions have become less favorable over the course of the year, and the risk of new episodes of volatility remains.

The cost of credit in the local market remains low, albeit with fluctuations, and is currently below the average of the past several years (figure II.4). Since July (the latest available data as of the cutoff date of the September *Monetary Policy Report*), commercial loan rates have stayed around the minimum of the last five years, while consumer and mortgage rates are at or near their lowest levels of the last ten years. This reflects not only the expansionary MPR, but also the banking sector's tendency to reorient loans toward clients with a better risk profile (see BPR). Consumer loans have also been affected by the regulations on the conventional maximum interest rate, especially with regard to overdrafts and credit cards.

Nevertheless, according to data for November, the real annual growth of commercial and consumer loans, while higher than in the last *Report*, remains low, in line with the limited growth of domestic spending (figure II.5). The increase was somewhat greater for commercial loans, but this was due to the effect of the nominal exchange rate on the evolution of this loan category (*Financial Stability Report*, Second Half 2015). These trends coincide with a slowdown in local and external corporate bond issues in recent months. Mortgage loans continue to follow a high growth trend, in line with the increase in home prices in recent years and dynamic activity in home construction and the real estate sector.

The slow annual growth rate of consumer and commercial loans also coincides, to a large degree, with business and consumer expectations, which remain low (IPEC and IMCE). This has contributed to more cautious behavior on the part of economic agents in terms of making purchases, taking on debt and investing. Similarly, the BPR highlights the uncertainty surrounding sales (for firms) and employment stability (for consumers). Moreover, the BLS for the third quarter reported tighter demand than in the previous quarter in the majority of loan categories.

Over the course of the year, international financial conditions have become less favorable, in an environment of increased volatility. Credit spreads have widened, especially since mid-year. In the developed world, long-term interest rates have not changed significantly as of the cutoff of this *Report*, despite fluctuations. The emerging bloc was further characterized by currency depreciation, ongoing capital outflows and stock market declines. For Chile, since early June, sovereign and corporate bond spreads increased around 50 and 80 bp, respectively, as measured by the five-year CDS and the CEMBI. This puts the spreads above the average of the last ten years, but below the level of other emerging economies (figure II.6). The IPSA, measured in local currency, has fallen around 10% since June (figure II.7).

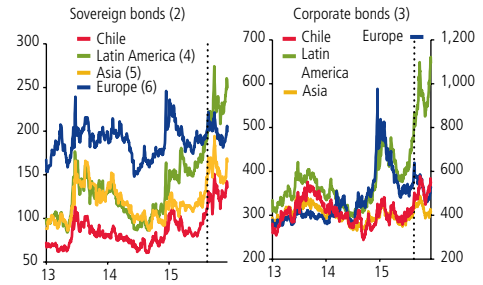
Given this context of higher external financing costs and net capital outflows, external corporate and— to a lesser extent— bank bond placements have contracted sharply in the past three months, to around the 2012 level (figure II.8).

With regard to the monetary aggregates, the available data for November indicate that the nominal annual growth rate of M1, which comprises the most liquid assets, decreased to around 12% (16% in August), mainly due to the lower annual growth of demand accounts. M2 maintained a growth rate of about 12%, thanks to the greater year-on-year increase of time deposits, while the annual growth rate of M3 rose to 14%.

**EXCHANGE RATE**

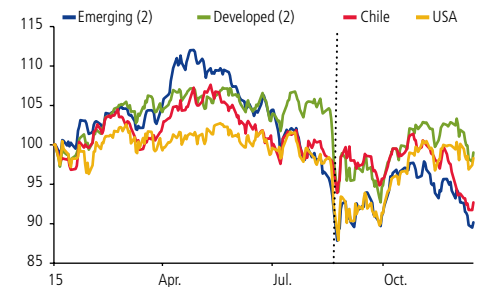
The peso/dollar exchange rate increased just over 4% since mid-August, closing at \$705 to the dollar on the cutoff date of this *Report* (figure II.9 and table II.2). This was essentially due to the steady strengthening of the dollar at the global level, together with a drop in the copper price in recent weeks

**FIGURE II.6**  
Credit spreads in emerging economies (1)  
(basis points)



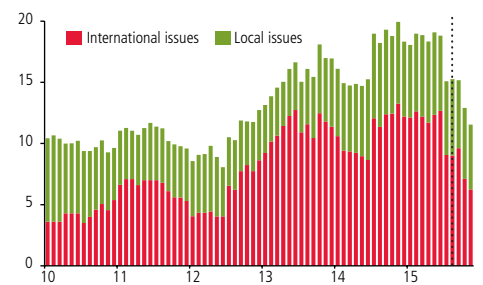
(1) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*. (2) Measured by five-year CDS spreads. Simple average of the countries in each region. (3) Measured by the CEMBI. (4) Includes Brazil, Colombia, Mexico, Panama and Peru. (5) Includes China, Indonesia,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

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



(1) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.  
(2) MSCI regional stock indices, in local currency.  
Source: Bloomberg.

**FIGURE II.8**  
Corporate and bank bond issues (\*)  
(US\$ billion accrued in 12 months)

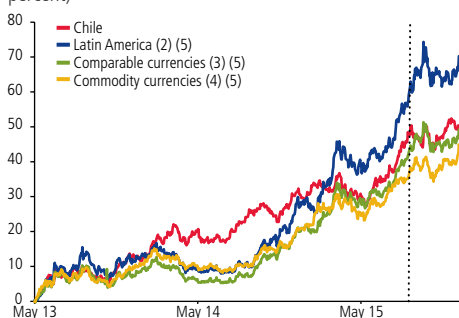


(\*) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*.  
Source: Central Bank of Chile, based on data from BCS and Bloomberg.



**FIGURE II.9**

**Nominal exchange rate (1)**  
(accumulated change since the minimum in May 2013, percent)

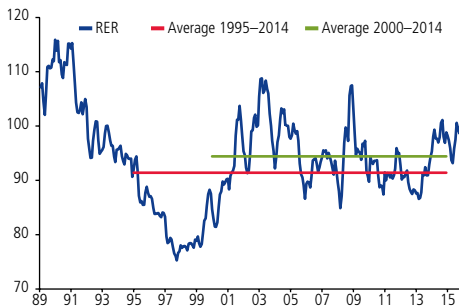


(1) The vertical dotted line indicates the cutoff date of the September 2015 *Monetary Policy Report*. (2) Includes Brazil, Colombia, Mexico and Peru. (3) Includes Brazil, Colombia, Czech Rep., Israel, Mexico, Philippines, Poland, South Korea and Turkey. (4) Includes Australia, Canada, New Zealand and South Africa. (5) Constructed using the weights in the WEO, October 2015.

Sources: Central Bank of Chile and Bloomberg.

**FIGURE II.10**

**Real exchange rate (\*)**  
(fixed-base index 1986=100)

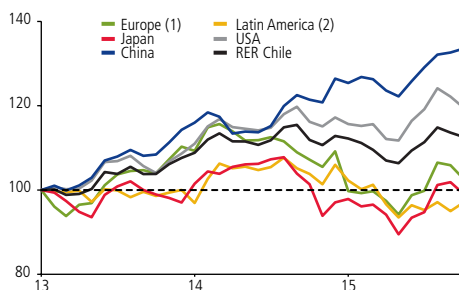


(\*) Data for December 2015 are through the 15th.

Source: Central Bank of Chile.

**FIGURE II.11**

**Chile's bilateral RER: Selected economies**  
(fixed-base index January 2013=100)



(1) Includes Germany, Belgium, France, Italy, Netherlands and Spain. (2) Includes Argentina, Brazil, Colombia, Mexico and Peru.

Source: Central Bank of Chile.

to the lowest levels of the past several years. In the period, the exchange rate was highly volatile, as evident in three-month options. Since August, the peso has fluctuated between about \$670 and \$715 to the dollar, with sharp swings even in day-trading operations. This is the highest volatility recorded since May 2013, when the peso depreciation started, although there are signs of easing at the margin.

**TABLE II.2**

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

	Change in NER		
	Dec. 15/Sept. 15 Reports	Spot/ 2. Jan. 15	Spot/ minimum 2013
Russia	4.0	21.0	134.3
Brazil	9.1	45.7	99.1
Colombia	7.8	39.5	88.5
South Africa	15.2	29.3	76.5
Latin America (2) (5)	6.4	31.3	70.7
Turkey	2.0	27.2	69.5
Norway	5.0	16.6	59.3
<b>Chile</b>	<b>2.3</b>	<b>17.2</b>	<b>52.2</b>
Comparable currencies (3) (5)	4.2	22.3	49.3
Australia	0.9	13.8	47.4
Commodity currencies (4) (5)	4.6	17.3	47.4
Indonesia	0.8	13.4	46.0
Mexico	2.5	16.0	42.9
Canada	3.4	18.3	39.7
Peru	3.8	13.2	32.9
Czech Republic	2.7	8.0	32.8
New Zealand	-1.8	15.3	27.6
India	2.3	5.6	26.0
Thailand	1.4	9.2	25.5
South Korea	-1.0	8.2	12.7

(1) A positive (negative) sign indicates a depreciation (appreciation) of the currency against the U.S. dollar.

(2) Includes Brazil, Colombia, Mexico and Peru.

(3) Includes Brazil, Colombia, Czech Rep., Israel, Mexico, Philippines, Poland, South Korea and Turkey.

(4) Includes Australia, Canada, New Zealand and South Africa.

(5) Constructed using the weights in the WEO, October 2015.

Sources: Central Bank of Chile and Bloomberg.

While the Chilean peso continues to hold at the lowest levels of the past several years, the multilateral exchange rate measures, in particular excluding the U.S. dollar, have depreciated less since August. In the period, the exchange rates of comparable countries—especially in Latin America—have depreciated even more sharply against the dollar, despite the fact that several countries in the region have intervened in the foreign exchange market. In Colombia, the currency has depreciated substantially even though the reference rate was increased above market expectations.

The real exchange rate (RER) has not changed significantly since August. Based on the data available as of the cutoff date of this *Report*, the RER is estimated at just over 100 in December, where 1986=100. This is higher than the averages of the last 10 and 15 years, but consistent with the recent dynamics of its fundamentals (figure II.10). Nonetheless, the Chilean peso has appreciated in real terms relative to Latin America (figure II.11). The baseline scenario in this *Report* assumes that the RER will appreciate slightly in the forecast horizon.

## 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.

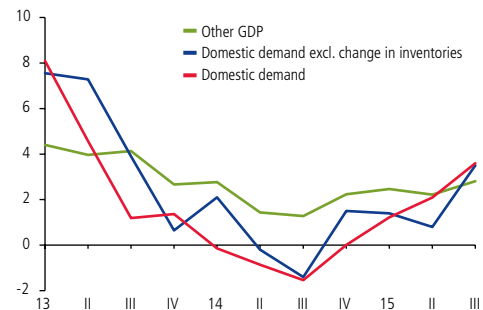
### OUTPUT

Output grew 2.2% in annual terms in the third quarter, in line with the preceding quarters and the forecast in the last *Report*. There were some changes in the composition, however, with a somewhat better performance of sectors tied to domestic demand (other GDP) and a worse one of natural resources, especially mining. The annual growth rate of domestic demand increased in the period (figure III.1), mainly due to a more favorable trend in gross fixed capital formation (GFCF). This largely reflected isolated factors in machinery and equipment and a strong performance of construction. Private consumption again recorded an annual growth rate of around 2%. Business and consumer expectations remain pessimistic, despite the resilient labor market, the stabilization of output growth and stable domestic financial conditions.

Natural resource sectors fell 1.5% in annual terms in the third quarter (+0.4% in the second quarter and +2.9% in the first), mainly due to the poor mining performance. This sector is being hurt by the declining copper price, which has resulted in cuts in mining production and in the number of jobs in the sector. Data collected for the *Business Perceptions Report* (BPR) point to significant adjustments in services contracts and terms, as well as a climate of uncertainty and pessimism in the northern regions of the country. This more negative performance in mining was partially offset by electricity, gas and water (EGW), which grew 6% in annual terms, largely driven by the electricity sector.

The annual growth rate of other sectors' GDP was somewhat higher in the third quarter than in preceding quarters, although it was still low. The strongest performance in annual terms was in services, manufacturing and construction (table III.1). The latter was favored by strong demand for housing before the

**FIGURE III.1**  
Growth of other GDP and domestic demand  
(annual change, percent)



Source: Central Bank of Chile.

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

	Share 2014	2014				2015		
		I	II	III	IV	I	II	III
Agriculture, livestock and forestry	2.7	2.9	-5.6	-3.4	4.9	7.7	4.0	0.8
Fishing	0.3	21.8	34.0	10.7	3.4	-9.8	-12.5	-4.3
Mining	11.2	1.2	4.8	0.0	-0.4	3.3	0.8	-3.0
Manufacturing	11.3	0.2	-0.7	-0.7	-0.1	-0.1	0.2	2.6
EGW	2.3	1.3	9.4	3.4	5.7	2.6	1.1	6.0
Construction	7.3	3.1	1.1	-1.4	3.2	0.1	2.7	3.8
Trade	8.0	2.2	-0.4	-0.2	0.7	0.3	1.0	1.2
Restaurants and hotels	1.8	1.0	0.3	0.9	0.9	2.5	-1.0	-4.6
Transportation	4.2	3.4	1.5	1.3	3.1	2.4	0.8	2.4
Communications	1.8	7.6	7.5	5.7	5.8	7.0	7.7	7.2
Financial services	5.1	3.9	2.2	2.2	3.6	3.1	5.0	6.2
Business services	13.9	3.4	2.1	1.2	0.9	1.8	2.3	3.1
Residential property	5.2	1.6	1.7	1.8	1.8	1.8	1.6	1.7
Personal services (1)	11.7	3.4	3.7	4.6	3.9	4.8	2.8	2.9
Public administration	4.6	3.3	3.0	2.7	5.4	3.8	4.3	4.6
<b>Total GDP</b>	<b>100.0</b>	<b>2.7</b>	<b>2.1</b>	<b>1.0</b>	<b>1.8</b>	<b>2.5</b>	<b>1.9</b>	<b>2.2</b>
<b>Other GDP (2)</b>	<b>77.5</b>	<b>2.8</b>	<b>1.4</b>	<b>1.3</b>	<b>2.2</b>	<b>2.5</b>	<b>2.2</b>	<b>2.8</b>
<b>Natural resources GDP (2)</b>	<b>13.9</b>	<b>1.6</b>	<b>6.4</b>	<b>0.9</b>	<b>0.7</b>	<b>2.9</b>	<b>0.4</b>	<b>-1.5</b>

(1) Includes education, health and other services.

(2) See glossary for definitions.

Source: Central Bank of Chile.



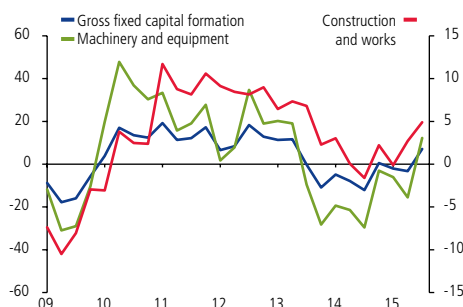
**TABLE III.2**  
Domestic demand  
(share of GDP; real annual change, percent)

	Share	2014				2015		
		2014	I	II	III	IV	I	II
Domestic demand	98.5	-0.1	-0.9	-1.5	0.0	1.2	2.1	3.6
Domestic demand (excl. change in inventories)	99.1	2.1	-0.2	-1.4	1.5	1.4	0.8	3.5
Gross fixed capital formation	22.0	-4.9	-7.8	-12.1	0.5	-2.1	-3.3	7.1
Construction and works	14.9	3.0	0.1	-1.6	2.2	-0.1	2.7	4.9
Machinery and equipment	7.2	-19.3	-21.4	-29.6	-3.1	-6.1	-15.5	12.2
Total consumption	77.1	4.4	2.3	2.0	1.8	2.4	2.0	2.5
Private consumption	64.2	3.9	2.2	1.9	1.0	1.9	1.5	1.8
Durable goods	6.2	3.6	-1.5	-3.9	-4.6	-5.1	-0.9	1.2
Nondurable goods	26.4	4.1	1.2	1.6	0.6	2.1	1.3	1.7
Services	31.6	3.7	3.6	3.3	2.7	3.1	2.2	2.0
Government consumption	12.9	8.2	2.6	2.3	5.5	5.7	4.0	5.9
Change in inventories (*)	-0.6	0.0	-0.2	-0.3	-0.6	-0.7	-0.3	-0.3
Goods and services exports	33.8	4.1	-0.4	-2.6	1.7	1.3	-5.5	-0.9
Goods and services imports	32.3	-4.7	-9.4	-9.8	-3.9	-2.4	-5.4	3.1
<b>Total GDP</b>	<b>100.0</b>	<b>2.7</b>	<b>2.1</b>	<b>1.0</b>	<b>1.8</b>	<b>2.5</b>	<b>1.9</b>	<b>2.2</b>

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

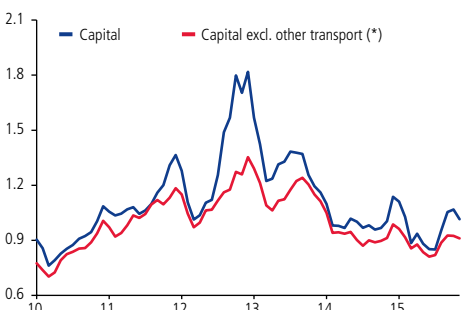
Source: Central Bank of Chile.

**FIGURE III.2**  
Gross fixed capital formation  
(annual change, percent)



Source: Central Bank of Chile.

**FIGURE III.3**  
Nominal capital goods imports  
(US\$ billion, quarterly moving average)



(\*) Capital excluding other transport excludes uncommon transport vehicles (airplanes, trains, helicopters and ships).

Source: Central Bank of Chile.

new tax law charging VAT on new home purchases enters into effect. This push is expected to continue into the coming year, since a large share of the new home sales in 2015 were off-plan or pre-sales. Trade, in turn, continued to record a low annual growth rate of around 1%, while the negative performance of the hotel and restaurant sector deepened.

In the baseline scenario of this *Report*, output growth is estimated at 2.1% in 2015, which is within the range projected in September. The fourth quarter will post an annualized growth rate of around 2%. Partial indicators for the period—October Imacec—point to a sectoral performance marked by a weakening of manufacturing after the improvement recorded in September. The December Economic Expectations Survey (EES) paints a similar picture, with annual growth of 1.8% in the fourth quarter and final GDP growth of 2.1% in 2015.

For the first quarter of 2016, the baseline scenario projects a decline in the annual growth rate of output. This largely reflects a poor performance in mining, combined with a high basis of comparison. For the full year, the baseline scenario projects that the output growth rate will gradually rise, standing at 2% to 3% (a lower range than projected in the September *Monetary Policy Report*), with a balance of risks that is biased to the downside. The main change in the forecast is the deterioration of the external scenario. Market expectations have also declined. The December EES reduced the 2016 estimate to 2.2% (2.8% in August), while the 2017 forecast was 3.0% for the third consecutive month.

## DOMESTIC DEMAND

In the third quarter, domestic demand grew more than in previous quarters, which was visible both on aggregate and excluding inventories. This outcome was primarily due to an annualized increase of 7.1% in GFCF, driven by the machinery and equipment and construction and works components (table and figure III.2). The year-on-year growth of machinery and equipment was mainly determined by isolated factors, such as higher imports of transport materials in the quarter (figure III.3).

The annual growth rate of construction and works also increased relative to the second quarter, largely due to greater activity in the residential sector. According to data from the Chilean Chamber of Construction (CCC), home sales remained strong in the third quarter. As mentioned, the record growth of new home sales in recent months was concentrated in projects that had not yet entered construction or are in the site work phase. This implies that some of the dynamism of the construction sector will carry over into 2016.

The third-quarter survey conducted by the Capital Goods and Technological Development Corporation (*Corporación de Desarrollo Tecnológico y de Bienes de Capital*, CBC) captures some marginal changes relative to the previous

survey. At the two-year horizon, the largest projects are in the real estate sector, followed by the energy sector. The survey indicates that engineering works tied to the mining sector should recover in 2017.

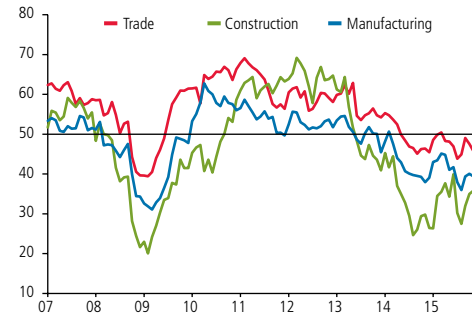
Business expectations (IMCE), excluding mining, remain in pessimistic territory, albeit with fluctuations in recent months. By sector, construction rebounded in response to higher demand, while trade and industry weakened again at the margin (figure III.4). According to the November BPR, the majority of the interviewees do not foresee a significant improvement in business performance in the immediate term. This has given rise to cost-control efforts such as restructuring personnel, making only investments that are strictly necessary and cutting sales prices to maintain market share. The interviewees further indicated that the peso depreciation continues to put substantial pressure on costs, although it has not been fully passed through to prices—nor will it be, given the weak demand.

With regard to consumption, the higher growth rate in the third quarter (2.5% versus 2.0% in the second) is explained by public spending, whereas sectors associated with private consumption grew at a similar rate to the average for the first half of 2015. Durable goods consumption had a positive annual growth rate in the third quarter, but there were no changes in the trend in levels. This was also the case for nondurable consumption.

The labor market remains resilient. The unemployment rate is still low from a historical perspective. According to data published by the National Statistics Institute (INE), unemployment declined from 6.6% in the moving quarter ending in May to 6.3% in the moving quarter ending in October. Total job growth has fluctuated around 2% in annual terms (figure III.5), while the annual growth of wage employment increased marginally. However, the composition of total employment has changed somewhat, with an effect on job quality. In particular, the share of part-time workers has increased (figure III.6), as has the share of workers without a formal written contract. The businesses interviewed for the BPR described a looser labor market, low personnel rotation and lower wage pressure. The wage bill, measured in real terms, grew somewhat above the rate recorded in late 2014, despite a drop in the most recent period. This contrasts with the behavior of private consumption, where the growth rate did not change much over the course of 2015 (figure III.7).

Consumer expectations (IPEC) remain pessimistic and are similar to 2009, despite the differences in economic performance in the two periods. Today, the labor market is resilient and GDP growth has stabilized, whereas in 2009 the national economy was in the midst of a recession as the world faced the worst financial crisis in decades. By IPEC component, the perception of the country's current and future position is even lower than the 2008–2009 average, while consumers' perceptions of their personal situation are less pessimistic than in the earlier period (figure III.8). The baseline scenario assumes that confidence will start to recover somewhat in the coming quarters. It is possible, however, that consumer confidence will not evolve as expected, resulting in lower economic growth than projected. On the other hand, the output recovery could also occur sooner if the labor market remains resilient, leading to a faster upswing in the confidence indicators.

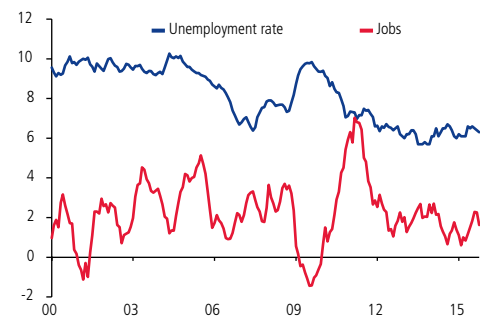
**FIGURE III.4**  
IMCE: Business perceptions (\*)  
(index)



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

Source: Icare/Universidad Adolfo Ibáñez.

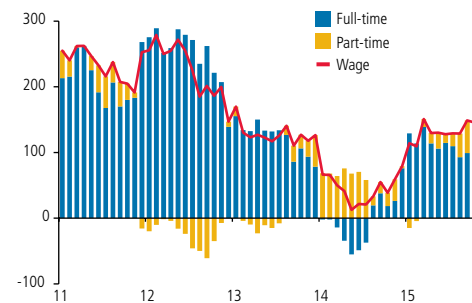
**FIGURE III.5**  
Unemployment rate and job growth (\*)  
(percent; annual change, percent)



(\*) Spliced series using the monthly change in February 2010.

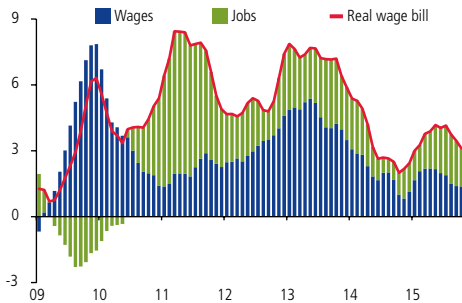
Sources: Central Bank of Chile and National Statistics Institute (INE).

**FIGURE III.6**  
Share in annual growth of wage employment, by hours worked  
(thousands people)



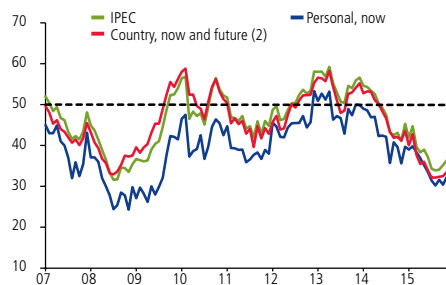
Sources: Central Bank of Chile and National Statistics Institute (INE).

**FIGURE III.7**  
Share in annual growth of the real wage bill  
(percentage points)



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

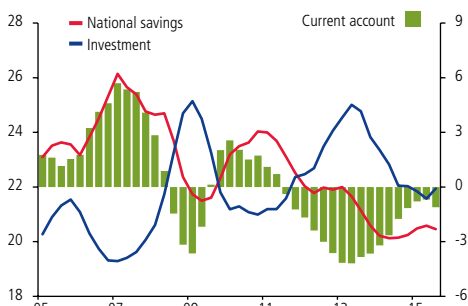
**FIGURE III.8**  
IPEC: Consumer expectations (1)  
(index)



(1) A value over (under) 50 indicates optimism (pessimism).  
(2) Simple average of components that measure the country's economic situation now, in twelve months and in five years.

Source: Adimark.

**FIGURE III.9**  
Current account, national savings and investment  
(percent of GDP, accumulated in a moving year)



Source: Central Bank of Chile.

With regard to financial conditions, the cost of credit remains low, but loan growth has been meager by historical standards, with the exception of mortgages. This is in line with the limited growth of domestic spending and dynamic activity in the real estate sector. Both consumers and firms are taking a cautious attitude toward contracting new loans, and banks continue to practice tight lending policies.

## CURRENT ACCOUNT

In the external sector, the third quarter recorded a larger current account deficit, mainly deriving from a deterioration in the trade balance. In the case of exports, the key factors were the drop in the price of outbound shipments, especially copper, and lower external demand. For imports, although prices are lower than a year ago, the volume increased in the period, largely due to the aforementioned increase in transport material imports. Thus, in the third quarter, the accumulated current account deficit rose to 1.1% of GDP in the last moving year (0.7% in the previous quarter) (figure III.9). The baseline scenario assumes a current account deficit of 1.7% of GDP in 2015 (0.7% in the September *Monetary Policy Report*) and 2.6% in 2016 (1.5% in September). Measured at trend prices<sup>1/</sup>, the current account deficit will also be larger than projected in September, on the order of 2.5% of GDP in both 2015 and 2016. This calculation is based on an adjustment in the long-term price of copper to US\$2.70 per pound (box V.1) and oil to US\$70 per barrel.

<sup>1/</sup> This measure adjusts the value of mining exports and fuel imports to take into account copper and oil price deviations from their long-term values. The same adjustment is made for income and transfers associated with copper exports. All remaining exports and imports are valued at current prices, and no correction is made for possible changes in import and export quantities as a result of movements in copper and oil prices (box V.2; *Monetary Policy Report*, September 2012).

## 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

Annual CPI inflation has evolved in line with the September forecast, although the core component (CPIEFE) recorded a somewhat larger increase. This reflects low excess capacity and high past inflation, factors that do not favor a fast adjustment of services inflation. On the other hand, the exchange rate is above the mid-August level, putting more pressure on goods inflation. Therefore, in the baseline scenario in this *Report*, the convergence of inflation to the target is expected to be a little slower than forecast in the September *Report*.

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

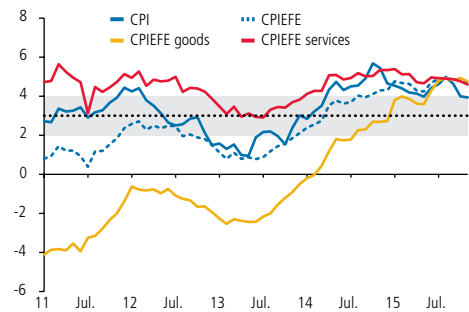
	CPI	Food	Energy	CPIEFE	CPIEFE goods	CPIEFE services
2013 avg.	1.8	4.4	0.4	1.2	-1.9	3.3
2014 Jan.	2.8	4.4	3.2	2.4	-0.2	4.1
Feb.	3.2	5.6	3.8	2.5	0.0	4.3
Mar.	3.5	5.7	5.1	2.7	0.4	4.3
Apr.	4.3	6.4	6.6	3.5	1.2	5.1
May	4.7	6.6	8.8	3.8	1.8	5.1
Jun.	4.3	5.7	7.1	3.6	1.7	4.9
Jul.	4.5	6.2	7.4	3.7	1.8	4.9
Aug.	4.5	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
May	4.0	7.7	-6.2	4.2	3.6	4.7
Jun.	4.4	7.5	-4.5	4.7	4.3	5.0
Jul.	4.6	7.5	-3.8	4.9	4.8	4.9
Aug.	5.0	8.2	-1.5	4.9	4.9	4.9
Sept.	4.6	7.1	-2.7	4.9	4.8	4.9
Oct.	4.0	4.4	-3.8	4.8	4.9	4.8
Nov.	3.9	4.7	-3.8	4.7	4.8	4.6

(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)

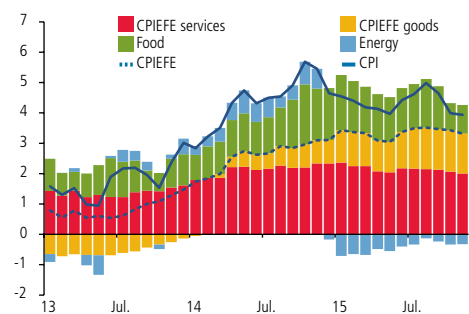


(1) See glossary for definitions.

(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 annual CPI inflation (\*)  
(percentage points)

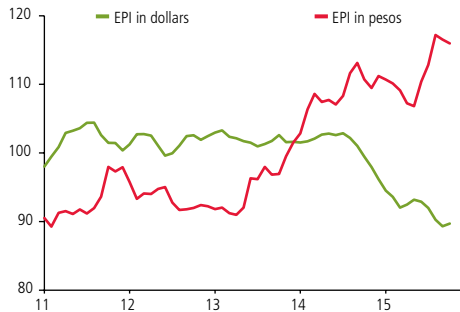


(\*) Starting in January 2014, calculations are based on the new indices with base year 2013=100, so they may not be strictly comparable with earlier figures.

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



**FIGURE IV.3**  
External price index (EPI)  
(average 2011–2015=100)

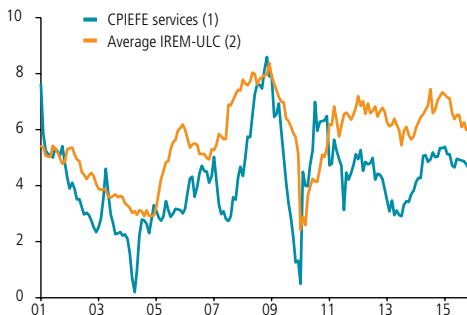


Source: Central Bank of Chile.

In November, annual CPI inflation dropped to 3.9% (4.6% in July; 5.0% in August). This was mainly due to isolated factors such as the high basis of comparison generated by price increases in some food goods a year ago. Annual CPIPE inflation stayed just under 5%, with similar rates in both the goods and the services components (figure and table IV.1). Relative to the September forecast, a higher accumulated rate for CPIPE services inflation stands out. The goods component of CPIPE inflation was lower than projected, but the high exchange rate and the additional depreciation of the past three months suggest that goods inflation will continue to be high in annual terms in the coming months.

Thus, the inflation scenario points to a slower convergence with the target than indicated in the last *Monetary Policy Report*. For December 2016, the baseline scenario projects annual CPI inflation of 3.8% (3.7% in September) and 3.0% toward the end of the forecast horizon, which in this case is the fourth quarter of 2017. Private expectations are a little lower than the baseline scenario one year ahead, at 3.5%, and are aligned with the 3.0% target two years ahead. For the CPIPE, the baseline scenario assumes an annual inflation rate of 3.7% in 2016 (3.5% in September).

**FIGURE IV.4**  
Nominal wages and CPIPE services  
(annual change, percent)



(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) Starting in January 2010, calculations are based on the new indices with base year 2009=100, so they may not be strictly comparable with earlier figures.

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

The increase in the annual inflation rate over the past two years has largely been determined by the peso depreciation of approximately 50% relative to the low point in 2013. This is especially evident in annual CPIPE inflation, which was just under 5% in November. In any case, goods inflation increased the most in recent quarters, due to the direct effect of the higher exchange rate on prices in this subset of the CPI. To a lesser extent, the peso depreciation has also had an impact on CPIPE services inflation, which remains high.

CPIPE goods inflation—almost 30% of the CPI basket—reached annual rates of nearly 5% in the second half of this year. This component went from making a negative contribution to annual CPI inflation in 2013 to explaining almost a third in the current period (figure IV.2). An example of how the peso depreciation has affected inflation in this component can be seen in the evolution of external prices relevant to the Chilean economy (the external price index, or EPI). Measured in dollars, the EPI has fallen steadily for several quarters—and the short-term outlook suggests that it will remain low—whereas in pesos the index has moved sharply in the opposite direction (figure IV.3).

Annual CPIPE services inflation—44% of the CPI basket—has been considerably more persistent (around 4.5% on average in the last ten years). Given its weight and typically higher level, it normally contributes more to aggregate CPI inflation. Furthermore, this component is usually more related to the evolution of excess capacity, which, in the current climate, is estimated to be lower than in other low-growth episodes. In addition, the labor market has been resilient, with annual job growth rates of around 2% and nominal wage growth of about 6% annual—despite a gradual decline since late 2014—according the different measures (figure IV.4). From mid-2013 to date, annual

CPIEFE services inflation increased from around 3% to nearly 5% in the last year and a half. This, in part, reflects the impact of the exchange rate on some components, as well as indexation to past inflation and low excess capacity, which do not support a decline.

Annual food inflation, which is the most volatile component of the CPI, declined over the past three months, as expected: 4.7% in November (7.5% in July). This lower annual rate is the main factor behind the reduction in headline inflation in the past twelve months. For the most part, this derives from the basis of comparison—in fresh fruits and vegetables, due to supply problems that were not repeated this year; in other foods, due to the effects of changes in the tax law in 2014 (figure IV.5).

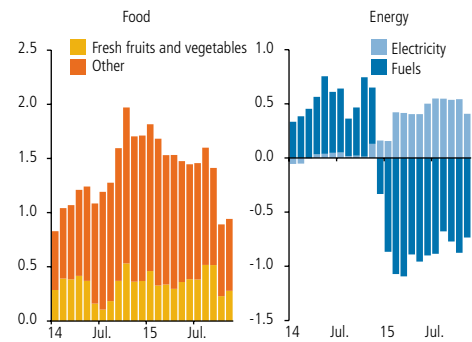
With regard to the energy component, annual price inflation continues to be negative, at nearly 4% in November. This is primarily due to the drop in the international oil price (around 30% in the year) and its effect on domestic fuel prices, which the exchange rate has only partially offset (figure IV.5). Since the cutoff date of the last *Report*, the external price of crude oil fell 12%, on average, a trend that intensified in recent weeks. Adjustments to the parameters of the fuel price stabilization mechanism (MEPCO) in recent months increased the pass-through of this price reduction to the local market. Electricity rates, in turn, continue to show high annual inflation—above 15%—as a result of several rate increases over the course of the year, mainly tied to the exchange rate depreciation.

A common factor to keep in mind when assessing the inflation outlook is the tightening of business margins in recent years. According to some measures, trade margins have narrowed in the most recent period (figure IV.6). The majority of the firms interviewed for the November *Business Perceptions Report* (BPR) insisted on the difficulty of passing through higher costs to final prices due to weak demand—some firms even cut their prices—and indicated that they were focusing on controlling costs to maintain earnings. Some added that there was little room left to improve efficiency, which could put additional pressure on the inflation outlook.

**INFLATION OUTLOOK**

As noted, the increase in annual CPI inflation largely derives from the accumulated depreciation of the peso since mid-2013. The steady depreciation has led to an upward revision to the inflation outlook and a postponement of convergence with the target. In this *Report*, the inflation forecast has been revised to accommodate the exchange rate trend, which remains high and has intensified in recent months. Therefore, CPIEFE goods inflation is expected to remain high for some time and will only come down when the exchange rate stabilizes. A simple exercise, which is not included in the baseline scenario, shows that if the exchange rate stays around \$710 (the value projected in the FBS for the first half of December), then

**FIGURE IV.5**  
Contribution of food and energy to annual CPI inflation (\*)  
(percentage points)



(\*) Starting in January 2014, calculations are based on the new indices with base year 2013=100, so they may not be strictly comparable with earlier figures.

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

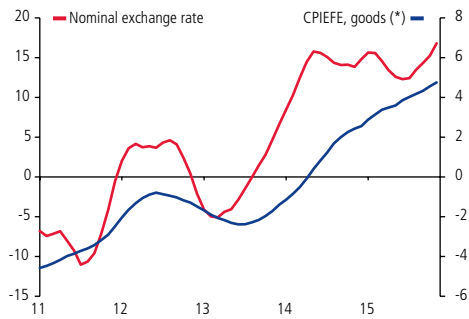
**FIGURE IV.6**  
Margins (\*)  
(fixed-base index: average 2003–2015 = 100)



(\*) Approximation measured as the ratio of CPIEFE goods inflation to the value of imported consumer goods (IVUM) in pesos.

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

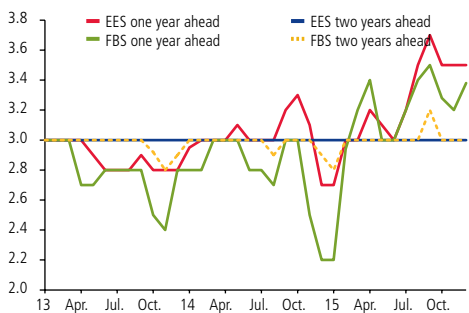
**FIGURE IV.7**  
Exchange rate and CPIPEFE goods  
(percent change accumulated in 12 months, weekly moving average)



(\*) 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.8**  
Inflation expectations (\*)  
(annual change, percent)



(\*) The FBS uses the survey for the first half of each month.

Source: Central Bank of Chile.

the accumulated increase in the exchange rate over twelve months would remain above 10% at least through mid-year, with the resulting effects on annual CPIPEFE goods inflation (figure IV.7). Furthermore, if any of the external risks described in this *Report* were to materialize, the exchange rate reaction could put additional upward pressure on inflation in the short term, although the medium-term effects are less obvious since output would probably also be affected.

CPIPEFE services inflation has also remained high—even higher than the forecast. As indicated above, excess capacity is estimated to be lower than in other periods of low growth, in line with the dynamic labor market. This, together with the effect of indexation to past inflation, has hindered the reduction of inflation in this component. Additionally, there will be an increase in the stamp duties in early 2016. On the other hand, the adjustment in public sector wages will be lower than in previous years, which will contribute to containing inflationary pressure from payroll costs.

The inflation outlook for the most volatile components of the CPI have also been directly or indirectly affected by the peso depreciation. In the case of food excluding fresh fruits and vegetables, the down trend is expected to have a gradual slope, because although international prices have fallen, the pass-through to the local market has been limited. In the energy component, fuel prices are expected to remain low going forward, consistent with the cut in the international oil price forecast relative to the September *Report*. With regard to electricity rates, the current baseline scenario assumes there will be new hikes in the coming months, deriving from the lag in the incorporation of the higher exchange rate.

One year ahead, private inflation expectations are somewhat lower than in the baseline scenario used in this *Report*. Inflation insurance projects a rate of 3.5% one year out, versus 3.8% in the baseline scenario. The Economic Expectations Survey (EES) for December and the Financial Brokers Survey (FBS) for the first half of this month also point to values near 3.5%. Two years ahead, the different measures of inflation expectations are at 3.0% (figure IV.8).

In the baseline scenario, the Board estimates that annual CPI inflation will remain above 4% throughout much of 2016, ending the year within the tolerance range and then reaching the target toward the end of the forecast horizon, in the fourth quarter of 2017.



## V. INFLATION SCENARIOS

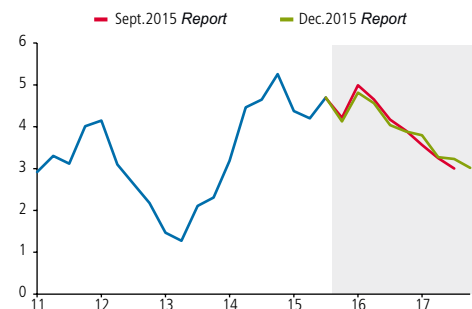
*This chapter presents the Board's assessment on the Chilean economic outlook over the next two years, including the analysis and the decision of the Monetary Policy meeting of 17 December 2015. Projections are presented of the most likely inflation and growth trajectories. These are conditional on the assumptions in the baseline scenario, thus the Board's assessment of the risk balance for output and inflation is also provided.*

### BASELINE PROJECTION SCENARIO

As from September, with some nuances, the Chilean economy's inflation and growth have behaved as anticipated. However, the baseline scenario foresees that the convergence of inflation to the target will be somewhat slower than assumed the last *Report*, mainly because the variation in its core component (CPIEFE) has been somewhat larger and because the peso has depreciated further. This latter development has put more pressure on the costs of imported goods and has narrowed margins, in a context where output gaps remain bounded. About activity, natural resource related sectors—especially mining—have been less dynamic than expected, which has been offset by more dynamic services and construction. From a spending perspective, this flip side has resulted in slightly higher than expected—although still bounded—growth in domestic demand. Anyway, the main change in the macroeconomic scenario comes from abroad, with a deteriorated external impulse resulting from the significant drop in the terms of trade, lower global demand and less favorable financial conditions compared with recent years.

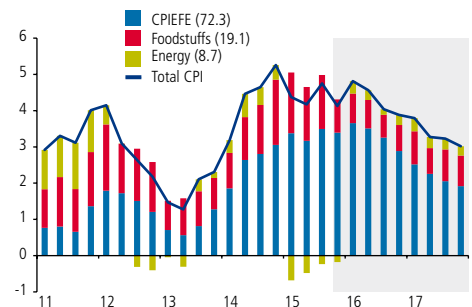
The baseline scenario of this *Report* assumes that CPI inflation will stay above 4% for much of 2016, to enter the tolerance range towards year's end and approach 3% by the end of the projection horizon, i.e. the fourth quarter of 2017 (figures V.1 and V.2, and table V.1). The persistence of inflation at high levels for somewhat longer than foreseen responds largely to the CPIEFE having been above the September estimate. This, mainly due to its services component, which reflects the effects of indexation to past inflation more strongly. In fact, it is estimated that in the first months of 2016 the usual price corrections of some services such as health care and education will be reflected intensely on the inflation figures of those months, as has been the case in the past two years. This combines a labor market that has remained resilient. This, plus the already mentioned narrow capacity gaps, means that the decline of this component of inflation will be slower. In addition, in early 2016, the increase in the stamp tax will have a significant impact on CPIEFE inflation and will again push the CPI to changes of near 5% annually.

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



(\*) Gray area, as from the fourth quarter of 2015, shows forecast.  
Source: Central Bank of Chile .

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



(1) Gray area, as from the fourth quarter of 2015, shows forecast.  
(2) In parentheses, share in CPI basket.  
Source: Central Bank of Chile



**TABLE V.1**  
Inflation

	2014	2015 (f)	2016 (f)	2017 (f)
	(annual change, percent)			
Average CPI inflation	4.4	4.4	4.3	
December CPI inflation (1)	4.6	4.5	3.8	
CPI inflation in around 2 years (2)				3.0
Average CPIPEF inflation	3.6	4.7	4.6	
December CPIPEF inflation	4.3	4.8	3.7	
CPIPEF inflation in around 2 years (2)				2.7

(f) Forecast.

(1) For December 2015, the average of the median of monthly inflation projected in the EES and FBS of that month.

(2) Corresponds to the projected inflation for the fourth quarter of 2017.

Source: Central Bank of Chile.

**TABLE V.2**  
Economic growth and current account

	2014	2015 (f)	2016 (f)
	(annual change, percent)		
GDP	1.9	2.1	2.0-3.0
National income	1.9	1.7	1.5
Domestic demand	-0.6	2.3	2.6
Domestic demand (w/o inventory change)	0.5	2.0	2.5
Gross fixed capital formation	-6.1	0.7	1.7
Total consumption	2.5	2.4	2.7
Goods and services exports	0.7	-1.7	1.0
Goods and services imports	-7.0	-1.4	1.6
Current account (% of GDP)	-1.2	-1.7	-2.6
Gross national saving (% of GDP)	20.3	20.0	19.1
Gross national investment (% of GDP)	21.4	21.7	21.7
GFCF (% of nominal GDP)	22.0	22.0	21.9
GFCF (% of real GDP)	24.0	23.7	23.5
	(US\$ million)		
Current account	-2,995	-4,100	-6,000
Trade balance	7,767	4,350	700
Exports	75,675	63,500	58,750
Imports	-67,908	-59,150	-58,050
Services	-3,757	-4,300	-4,150
Rent	-8,857	-6,050	-3,950
Current transfers	1,851	1,900	1,400

(f) Forecast.

Source: Central Bank of Chile.

**TABLE V.3**  
International baseline scenario assumptions

	Avg. 00-07	Avg. 10-12	2014 (f)	2015 (f)	2016 (f)	2017 (f)
	(annual change, percent)					
Terms of trade	8.2	4.2	-1.4	-4.2	-3.8	1.7
Trading partners GDP (*)	3.6	4.6	3.4	3.0	3.2	3.3
World GDP at PPP (*)	4.2	4.3	3.4	3.1	3.4	3.5
World GDP at market exchange rate (*)	3.2	3.3	2.7	2.5	2.8	2.9
Developed economies' GDP at PPP (*)	2.6	1.7	1.7	1.9	2.1	2.2
Emerging economies' GDP at PPP (*)	7.4	6.2	4.8	4.0	4.4	4.6
External prices (in US\$)	4.6	5.2	-0.9	-9.3	-2.8	1.5
	(levels)					
LME copper price (US\$/lb)	154	368	311	249	220	230
WTI oil price (US\$/barrel)	44	89	93	49	43	49
Brent oil price (US\$/barrel)	42	101	99	53	45	52
Gasoline parity price (US\$/m <sup>3</sup> ) (*)	366	742	731	466	373	384
Libor US\$ (nominal, 90 days)	3.6	0.4	0.2	0.3	1.0	1.6

(\*) For definition, see glossary.

(f) Forecast.

Source: Central Bank of Chile.

Secondly, as has been said time and again, the increase in inflation of recent quarters owes largely to the exchange rate's evolution. During 2015, the peso has depreciated by nearly 16%. Of this increase, nearly 4% was added since mid-August, and the baseline scenario assumes that these movements of the exchange rate have not been fully transmitted to local prices, becoming another input in the inflation forecast.

The continued appreciation of the dollar in international markets, coupled with bounded inflation in the world—with the exception of Latin America—has resulted in the external inflation relevant for Chile (EPI) falling again this year (by 9.3%), in a more pronounced way than expected in September, a drop that will continue in 2016. Thus, the evolution of the EPI will help mitigate the effects of the peso depreciation.

In the baseline scenario, in 2016 GDP will grow between 2% and 3%, below the range expected in September (table V.2). The Board continues to believe that potential GDP growth—the growth pace that does not accelerate inflation—is around 3%. Thus, it estimates that the output gap will have a limited increase during 2016 and will begin declining by 2017. Regarding domestic demand, low confidence indicators and reduced public investment plans for 2016 lead to a downward revision to the gross fixed capital formation (GFCF) projection. Private consumption is also revised down, in line with the worsened expectations of households and somewhat slower than expected nondurable consumption. In addition, although the labor market has remained resilient, it is likely to worsen. Overall, consumption will grow in 2016 faster than it did in 2015. The decline in copper price and less favorable financing conditions will also reduce investment incentives. In its construction component, the momentum coming from the upcoming entry into force of the VAT to new home sales will fade gradually. Measured as a percentage of GDP, both in nominal and real terms, GFCF will be virtually unchanged from 2015, at 21.9% and 23.5%, respectively.

This projection considers that monetary policy will remain expansionary. Indeed, measured in real terms, the MPR will remain around zero for some time. The baseline scenario uses as a methodological assumption that the MPR path will be similar to what can be inferred from the various measures of expectations at the closing of this *Report* (figure V.3). About fiscal policy, the budget law for 2016 contains an effort to adjust the expenditure trajectory, in line with a scenario where fiscal space has shrunk, because of changes in the structural parameters. However, in 2016 it will continue to contribute to aggregate expenditure, albeit less so than in 2015. It is assumed that government spending will evolve in accordance with the rule and with the commitment to reduce the structural deficit by nearly a quarter of a GDP point per year.

Compared with September's projections, the main change comes from the lower external impulse that the Chilean economy will receive. As for the terms of trade, prices of Chilean exports have accumulated declines since the last *Report*. Copper, after averaging US\$2.3 per pound in August, continued to fall, accumulating an additional drop of nearly 9% since. The overall appreciation of the dollar and lower demand for copper mean that the baseline scenario of this *Report* foresees that the price will be at US\$2.2 in 2016 and US\$2.3 in 2017.

Other exports have also declined, particularly agricultural and manufacturing goods. Accordingly, despite that the oil price fell as well and lower average prices also are expected, the terms of trade will post a drop of 4.2% this year, and one of 3.8% in 2016 (figure V.4).

In terms of growth, the differences between the developed and the emerging worlds have been increasing: in the former a sustained recovery consolidates, led by the United States; in the latter, and particularly in Latin America, the outlook has been ever deteriorating. This, due to the effects that the lower commodity prices, the deterioration of financing conditions and the fiscal and external imbalances—plus idiosyncratic problems in some—have had on their economies. Thus, for the 2015-2017 period, the baseline scenario revises its growth forecast for Latin America down 1.1 pp and 0.4 pp for our trading partners (table V.3).

All the above is compounded by less favorable external funding conditions. Since the close of the *September Report*, there have been significant capital outflows from emerging economies, stock market drops and currency depreciations. Moreover, risk premiums have gone up in most emerging economies, and in Chile they have accumulated an increase of around 50 bp.

With respect to September, the main reasons behind the higher current account deficit are the drops in the terms of trade and external demand. The deficit will go from 1.7% to 2.6% of GDP between 2015 and 2016. In addition to these factors, there is the decrease in the earnings of Chilean companies with investments abroad in 2015, especially due to their assets in Latin America. Measured at trend prices<sup>1/</sup>, the current account deficit will also be somewhat larger than assumed in September, at around 2.5% of GDP in 2015 and 2016. This estimate inputs an adjustment to the long-term copper price to US\$2.7 per pound and to the long-term oil price to US\$70 per barrel.

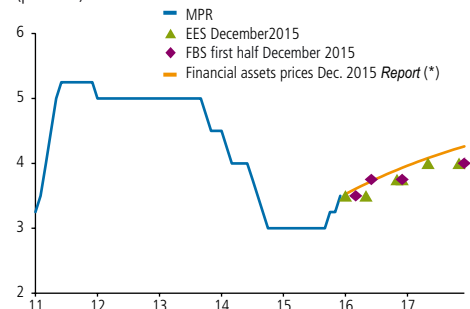
**RISK SCENARIOS**

The baseline scenario reflects the 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 thus may alter the course of monetary policy (figures V.5, V.6 and V.7).

Abroad, although it is too early to assess the overall impact of the recently initiated process of policy rate normalization in the U.S., it is clear that it will remain an important source of risks, especially because of existing differences between what market expectations suggest and Fed’s statement about how fast and how far it will raise the rate. There is also the divergence between the monetary policies in developed countries and their potential effects on the

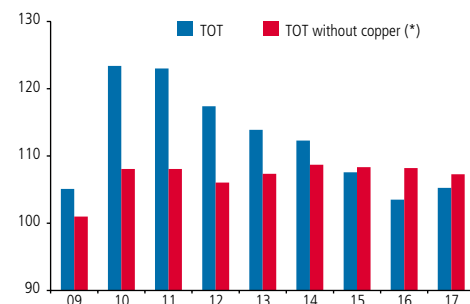
<sup>1/</sup> This measure adjusts the values of mining exports and fuel imports taking the deviations of the prices of copper and oil away from their long-term trends into account. It does the same with the rents and transfers associated with copper exports. Other exports and imports are valued using current prices. It does not correct any possible changes in quantities exported or imported due to movements in the prices of copper or oil (box V.2; *Monetary Policy Report*, September 2012).

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



(\*) Calculated using the interest rates of swap contracts of up to 10 years. Source: Central Bank of Chile.

**FIGURE V.4**  
Terms of trade  
(index; 2008=100)



(\*) Estimated using the Unit Export Volume Index (IVUX) without copper. Source: Central Bank of Chile.

**FIGURE V.5**  
GDP growth (\*)  
(annual change, percent)

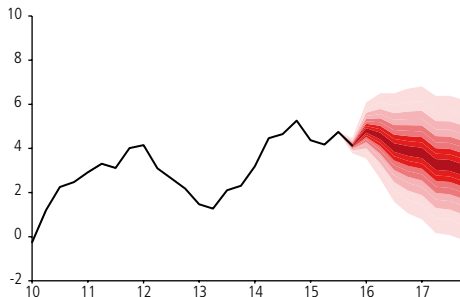


(\*) The figure shows the confidence interval of the baseline projection over the respective horizon (colored area). Confidence intervals of 10%, 30%, 50%, 70% and 90% around the baseline scenario are included. These intervals summarize the risks on inflation as assessed by the Board. The baseline scenario uses as a methodological assumption that the MPR trajectory will be similar to the one that can be inferred from the various expectations indicators available at the statistical closing of this *Report*.

Source: Central Bank of Chile.



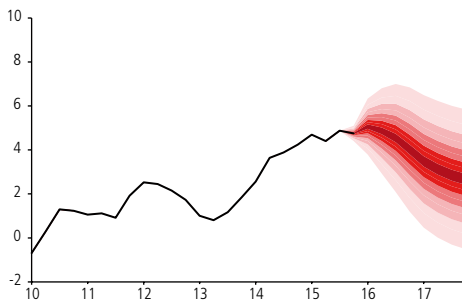
**FIGURE V.6**  
CPI inflation forecast (\*)  
(annual change, percent)



(\*) 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 methodological assumption that the MPR trajectory will be similar to the one that can be inferred from the various expectations indicators available at the statistical closing of this Report.

Source: Central Bank of Chile.

**FIGURE V.7**  
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 inflation as assessed by the Board. The baseline scenario uses as a methodological assumption that the MPR trajectory will be similar to the one that can be inferred from the various expectations indicators available at the statistical closing of this Report.

Source: Central Bank of Chile.

global value of the dollar. In China, the likelihood of an abrupt adjustment has been reduced, but doubts persist about its contribution to the recovery of the world economy and the prices of commodities, especially with the rebalancing of its growth towards consumer and services sectors. Finally, the complex situation in Brazil and the need for further adjustments in some Latin American economies continue to pose major risks. A worsening of the economic outlook in the region would affect external demand and possibly the financing conditions for Chile. Should any of these risk scenarios occur, it is possible for the reaction of the exchange rate to push up inflation in the short term, but the medium-term effects are less obvious, considering that activity would probably be affected too.

Locally, inflation has remained high for a long while, which could affect the speed of its convergence, both via indexation and through its potential effects on the formation of expectations. All of this in a context of still bounded margins and reduced output gaps. Meanwhile, the oil price decrease and the lower external inflation relevant to Chile could take some steam off these inflationary pressures.

Into the medium term, there are risks that could result in economic performance being lower than assumed in the baseline scenario, increasing capacity gaps and reducing inflationary pressures. For one thing, although the labor market has remained resilient, a significant adjustment cannot be ruled out that would reduce the rate of wage growth, raise unemployment and affect spending. For another, confidence may not recover as contemplated, resulting in the economy growing less than projected. Nor can it be ruled out that the recovery of activity could be somewhat faster than expected, if the resilience of the labor market remains, allowing confidence indicators to rebound at a faster pace. This could also occur if the drop in fuel prices has a greater impact on national income.

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

Inflation is still high and will stand above 4% for the better part of 2016. Domestic output and demand growth remains bounded. The external scenario poses major risks for the evolution of inflation and activity. The Board raised the MPR to 3.5% and it considers for its future path measured steps to ensure the convergence of inflation to the target, at a pace that will depend on incoming information and its implications on inflation. 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 COPPER PRICES

The copper price has fallen significantly over the past few years. It peaked in late 2011 and early 2012 at approximately US\$4.00 per pound, at which point it started to drop. The downward trend has accelerated in recent months, such that copper is now trading at around US\$2.00 per pound. This raises questions on where the copper price will be in the coming years and its long-term level. This box reviews the causes of the adjustment and the outlook for prices.

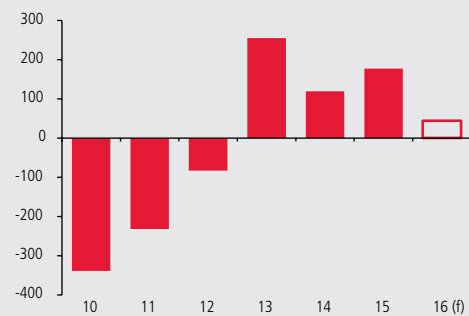
Both supply and demand factors are behind the price drop. Demand from China has slowed, at the same time that a series of mines have entered into production, as a result of the recent mining investment boom. In addition, the dollar has appreciated globally, which has affected commodity prices in general and led to a cost-reduction process throughout industry. The baseline scenario in this *Report* assumes an average copper price of US\$2.25 per pound over the next two years. While this is higher than the current level, it represents a reduction from the forecast in September, which estimated the price at closer to US\$2.50. Over a longer horizon, the price is expected to be higher than its current level. As a working assumption, the baseline scenario uses a long-term copper price of US\$2.70 per pound, which is a little lower than the September forecast.

### Short-term copper price

As mentioned, the copper price has recently plummeted to half the peak level recorded in 2011 and 2012. Several factors played a role in this trend. On one hand, the world supply of copper has expanded significantly, growing 5.3% in 2014. Several mining projects that were in the development phase over the last few years have now entered into production or will soon be coming on line, especially in Peru and Chile. At the same time, the declining price has led mining companies to cut production significantly, on the order of 5% of global supply going into 2016, of which 1.5 percentage points correspond to smaller mines in Chile.

On the other hand, the world demand for copper is no longer growing at its previous high rates, especially in China. This is due not only to a slowdown in the growth rate of the Chinese economy, but also to a change in its growth composition to the detriment of the industrial sector. The combination of these supply and demand factors have produced a surplus, with the resulting effects on prices (figure V.8).

**FIGURE V.8**  
World copper supply/demand balance  
(thousands of metric tons)



(f) Forecast.

Source: Chilean Copper Commission.

The changes in the global economic scenario have also been reflected in the appreciation of the U.S. dollar from 2013 to date, which in turn has affected the vast majority of commodity prices (figure V.9). The drop in the price of oil and other energy sources has also contributed to reducing industrial costs (figure V.10).

Production costs are another factor to take into account. In the face of this kind of price adjustment, costs tend to fall, in part because firms work to make production more efficient and to lower their supply and labor costs, whereas the labor market was very tight during the boom. This implies that the mining companies must implement some major adjustments in response



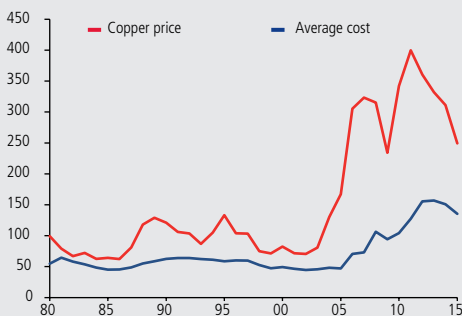
to changes in their competitive position. This process could have macro effects in Chile if local mining operations become relatively less competitive and emerge from the adjustment with higher costs than their competitors.

**FIGURE V.9**  
U.S. real exchange rate and the copper price  
(fixed-base index July 2011=100)



Source: Bloomberg.

**FIGURE V.10**  
Historical price and costs  
(U.S. cents per pound)



Sources: Bloomberg and Wood Mackenzie.

Given this scenario, in the baseline scenario in this *Report*, the forecast for the average copper price in 2016–2017 has been reduced to US\$2.25 per pound. This is higher than the current price on the cutoff date of the *Report*, but lower than the September forecast, which projected an average of about US\$2.50 for the same two-year period.

### Long-term copper price

The long-term copper price is determined by several factors that are generally difficult to estimate. On the supply side, the stock is limited, both because copper is a nonrenewable natural resource and because the cost of developing a mining project is very high.

On the demand side, the Chinese economy is expected to grow at a slower pace than in recent decades, and the shift in its growth composition is expected to deepen. This is a natural trend in an economy in transition to a higher level of development and with an aging population on average. However, a significant share of the world's population is in an earlier phase of economic development. These countries have not yet fully met their needs for infrastructure, technology and other goods that require copper for their production. In principle, these economies should record higher growth rates in the coming years, which will drive the demand for metals, including copper, and put upward pressure on prices.

Exchange rates are another factor to take into account. As developed and emerging economies return to more similar growth paths, the dollar should become less appreciated, which should help raise commodity prices.

In the opposite direction, technological innovation could have important effects on the copper price, to the extent that it reduces demand and/or lowers costs. In either case, it is difficult to estimate a trend, but it seems clear that if prices or costs deviate substantially from their historical averages, the incentives to innovate are increased.

The baseline scenario in this *Report* incorporates a downward revision in the long-term assumption for the copper price, from US\$2.85 projected in the September *Report* to US\$2.70. This is the expected price of copper in ten years. Taken together, the lower short-term price and the adjustment in the long-term price imply a lower average for the next ten years. Based on these assumptions, the ten-year average is currently forecast at US\$2.60 per pound. For the purposes of national income, a key factor is the difference between the copper price and the marginal cost of production. In the long term, these two variables can be expected to follow a similar trend.

# GLOSSARY

**CDS:** Credit default swap. A derivative instrument that provides insurance against the credit risk of the issuer of a given underlying sovereign or corporate bond. The institution that grants the CDS commits to covering the loss associated with a previously established credit event occurring before the bond's maturity date.

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

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

**Emerging Market Bond Index (EMBI):** The main measure of country risk, calculated by J.P. Morgan as the difference between the interest rate on dollar-denominated bonds issued by the government and public companies in emerging economies, and the interest rate on U.S. Treasury bonds, which are considered risk free.

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

**Excess capacity:** A broader set of indicators for measuring inflationary pressures, which includes not only the output gap, but also labor market conditions, electricity consumption and installed capacity utilization in firms.

**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.

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

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

**MER:** Multilateral exchange rate. 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.



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

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

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

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

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

**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, October 2015). The sample of countries used in the calculation represent around 90% of world growth. For the remaining 10%, average growth is estimated at 1.8% for the period 2015–2017.

**World growth:** Regional growth weighted by its share in world GDP at PPP, published in the IMF World Economic Outlook (WEO, October 2015). World growth projections for the period 2015–2017 are calculated from a sample of countries that represent about 86% of world GDP. For the remaining 14%, average growth is estimated at 3.4% for 2015–2017.

## ABBREVIATIONS

**BCP:** Central Bank bonds denominated in pesos.

**BCU:** Central Bank indexed bonds denominated in UFs.

**BLS:** Bank Lending Survey.

**CPIEFE:** Consumer price index excluding food and energy.

**EES:** Economic Expectations Survey.

**FBS:** Financial Brokers Survey.

**IMCE:** Monthly Business Confidence Index.

**IPEC:** Consumer Confidence Index.

**MPR:** Monetary policy rate.

**UF:** *Unidad de Fomento*, an inflation-indexed unit of account.

## REFERENCES

- Albagli, E., L. Ceballos, S. Claro and D. Romero. 2015. "Channels of U.S. Monetary Policy Spillovers into International Bond Markets." Working Paper 771. Central Bank of Chile.
- Barclays Capital. 2015. Global Economics Weekly. Various issues.
- Bauer, M., and C. Neely. 2014. "International Channels of the Fed's Unconventional Monetary Policy." *Journal of International Money and Finance* 44(C): 24–46.
- Bernanke, B. 2006. Reflections on the Yield Curve and Monetary Policy. Presentation at the Economic Club of New York, 20 March.
- Bowman, D., J. Londono and H. Spariza. 2014. "U.S. Unconventional Monetary Policy and Transmission to Emerging Market Economies." International Finance Discussion Paper 1109. Board of Governors of the Federal Reserve System.
- Central Bank of Chile. 2015a. Informe de Percepciones de Negocios. November.
- Central Bank of Chile. 2015b. Financial Stability Report, Second Half. December.
- Central Bank of Chile. Monetary Policy Report. Various issues.
- Consensus Forecasts. 2015. A Digest of International Forecast. Various issues.
- CRU. 2015. Copper Market Outlook. Various issues.
- Deutsche Bank. 2015. Macro Forecast Weekly. Various issues.
- Emerging Portfolio Fund Research. 2015. Global Fund Allocations. <http://www.epfr.com/>.
- Food and Agriculture Organization. 2015. FAOSTAT. <http://faostat.fao.org/>.
- Gagnon, J., M. Raskin, J. Remache and B. Sack. 2011. "The Financial Market Effects of the Federal Reserve's Large-Scale Asset Purchases." *International Journal of Central Banking* 7(1): 3–43.
- Gilchrist, S., V. Yue and E. Zakrajsek. 2015. "U.S. Monetary Policy and Foreign Bond Yields." Nineteenth Annual Conference of the Central Bank of Chile.
- International Energy Agency. 2015. Oil Market Report. Various issues.
- International Monetary Fund. 2015. World Economic Outlook (WEO). October.
- Institute of International Finance. 2015. EM Portfolio Flows Tracker. Various issues.
- JP Morgan Chase. 2015. Global Data Watch. Various issues.
- Naudon, A., and A. Yany. 2015. "The Future of Central Banking in Small Open Economies: Dealing with the Global Financial Cycle." Mimeo Central Bank of Chile.
- Neely, C. J. 2015. "Unconventional Monetary Policy had Large International Effects." *Journal of Banking and Finance* 52(C): 101–11.



Alejandro Zurbuchen S.

---

**LEGAL REPRESENTATIVE**

**CENTRAL BANK OF CHILE**

Institutional Affairs Management  
Publications Department  
December 2015

ISSN: 0716-2219  
Santiago, Chile  
Agustinas 1180, Santiago, Chile  
P.O. Box 967, Santiago, Chile  
Tel.: 56-22670 2000  
[www.bcentral.cl](http://www.bcentral.cl)



BANCO CENTRAL  
DE CHILE