

# MONETARY POLICY REPORT

March 2016



# **MONETARY POLICY REPORT\*/**

## **March 2016**

---

\*/ 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\*/

---

<b>PREFACE</b>	<b>5</b>
<b>SUMMARY</b>	<b>7</b>
<b>MONETARY POLICY DECISIONS IN THE LAST THREE MONTHS</b>	<b>11</b>
<b>I. INTERNATIONAL SCENARIO</b>	<b>13</b>
<b>II. FINANCIAL MARKETS</b>	<b>21</b>
<b>III. OUTPUT AND DEMAND</b>	<b>25</b>
<b>IV. PRICES AND COSTS</b>	<b>29</b>
<b>V. INFLATION SCENARIOS</b>	<b>35</b>
<b>GLOSSARY AND ABBREVIATIONS</b>	<b>41</b>
<b>REFERENCES</b>	<b>43</b>
<b>BOXES</b>	
Global risks emerging from China	17
Exchange rate pass-through to prices	33
Forecasts included in the Monetary Policy Report	40

---

\*/ The statistical cutoff date of the Monetary Policy Report was 21 March 2016.



# 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 23 March 2016 for presentation to the Senate Finance Committee on 28 March 2016.

## **The Board**



# SUMMARY

---

In recent months, inflation has evolved in line with projections. Its level remains high, due mainly to the effects of the significant depreciation accumulated by our currency, within a context where indexation to past inflation and narrow excess capacity have limited the decline of non-tradable inflation. As for economic activity, 2015 closed with lower than expected growth for the year end which, coupled with a weaker external scenario, results in a downward correction to this year's growth outlook. Inflation, meanwhile, should evolve slightly below December's expectations, with the core indicator—CPIEFE—under 4%, towards the end of 2016 and non-EFE prices—mainly foodstuffs—that will help headline inflation to converge slightly faster than expected. The Board raised the MPR twice in the last quarter of 2015, bringing it to 3.5%. Subsequently, it stated that further adjustments were still needed, but would be made at a slower pace than in the latter part of 2015. Accordingly, the MPR was kept unchanged in the meetings of January, February and March.

Regarding output, the revision to the National Accounts revealed that towards the end of the year, the economy grew less than foreseen. Domestic demand also fell short of expectations and its dynamism is projected to remain low. In addition, the impulse that the Chilean economy will receive from abroad in 2016 and 2017 will disappoint December's forecasts, because of both slower than expected global growth and seemingly tighter financial conditions and lower terms of trade. The baseline scenario of this Report assumes that GDP will grow between 1.25% and 2.25% in 2016, less than foreseen in December, and between 2% and 3% in 2017 (box V.1). This implies that the economy will continue to grow below potential<sup>1/</sup> for the better part of the projection horizon, so a further increase in output gap is projected.

The labor market surprised with its resilience, its persistent low unemployment rates and strong salaried employment growth for most of 2015. Most recently, however, the latter has tended to slow, and if combined with other indicators pointing in the same direction, suggests a weakening of this market.

---

<sup>1/</sup> The term refers to GDP that is consistent with stable inflation, not trend GDP. The former is estimated around 3% and the latter, at around 3.5% (see Monetary Policy Report, September 2015, boxes V.1 and V.2).





## INTERNATIONAL BASELINE SCENARIO ASSUMPTIONS

	Avg. 00 - 07	Avg. 10-13	2014	2015 (e)	2016 (f)	2017 (f)
	(annual change, percent)					
Terms of trade	8.2	2.4	-1.8	-4.5	-4.2	0.7
Trading partners GDP (*)	3.6	4.4	3.4	2.9	2.9	3.1
World GDP at PPP (*)	4.2	4.1	3.4	3.1	3.1	3.3
World GDP at market exchange rate (*)	3.2	3.1	2.7	2.4	2.4	2.7
Developed economies' GDP at PPP (*)	2.6	1.4	1.7	1.9	1.8	1.9
Emerging economies' GDP at PPP (*)	7.4	5.9	4.8	4.0	4.1	4.6
External prices (in US\$)	4.6	4.0	-0.9	-9.7	-5.8	1.0
	(levels)					
LME copper price (US\$/lb)	154	359	311	249	220	230
WTI oil price (US\$/barrel)	44	92	93	49	40	45
Brent oil price (US\$/barrel)	42	103	99	52	41	46
Gasoline parity price (US\$/m <sup>3</sup> ) (*)	366	752	731	467	398	420
Libor US\$ (nominal, 90 days)	3.6	0.3	0.2	0.3	0.7	1.5

(\*) For definition, see glossary.

(e) Estimación

(f) Forecast.

Source: Central Bank of Chile.

With respect to inflation, no big changes are projected from the December estimates. The data confirms that it will gradually converge to 3%, after remaining above 4% during the earlier part of 2016. The improved evolution of some components that are not included in the CPIEFE will help to speed convergence somewhat up. Thus, at December this year inflation is expected to stand at 3.6%, i.e. 0.2 pp less than estimated in December 2015. Furthermore our projections assume that over the first half of 2017 inflation will reach 3%, to then fluctuate around that number for some time. Private inflation expectations are consistent with this scenario: somewhat above 3% in one year, and at 3% in two years' time.

As has been stated in previous Reports, the high level of inflation observed for nearly two years already responds—largely—to the direct and indirect effects of the exchange rate depreciation, in a context where past-inflation indexation and narrow output gap have kept non-tradable inflation high. In the baseline scenario, core inflation converges to a level similar to its historic average during the second half of 2017. This process will be determined to a significant extent by the fact that, beyond the usual volatility, the baseline scenario considers no depreciations as sharp as those of recent years. For one thing, despite important swings, the peso/dollar parity has dropped from December and, at the statistical closing of this Report was near its levels of August 2015. The real exchange rate (RER) has also fallen in recent months, and is now around 94, in its measure 1986=100, which places it in its average of the last 15 years. While this figure is consistent with the estimated long-term RER, the cyclical conditions of the economy point to a level somewhat above its current values. For this reason, the baseline scenario uses as a working assumption that the RER will have a slight depreciation in the projection horizon.

The widening of output gap will also help in the process of convergence of inflation. They are still relatively bounded, however, and inflation's elasticity to the output gap is low. In a context of slow growth and gradually adjusting labor market, no fast reductions in core inflation are expected to result from this factor.

Chile's economic cycle slowdown of recent years is associated with several elements. The end of the super cycle of commodity prices has resulted in a fall in investment and mining production. The world economy has not rebounded as expected, global financial conditions for emerging economies have tightened. Local confidence levels have remained pessimistic for quite some time. In this scenario, the economy has needed a major change in relative prices.

Since indexation to past inflation is still substantial, for the economy to adjust gradually, exchange rate flexibility and domestic financial conditions consistent with the new scenario are required. The Central Bank has contributed to this adjustment with its expansionary monetary policy and accommodating an important depreciation of the peso.

Monetary policy has steadily internalized the inflationary effects of the persistent exchange rate shock and the evolution of output gaps—particularly in the labor market—, so that inflation converges to 3% over the policy horizon. In this context, the Board estimates that for inflation to converge, a partial withdrawal of the monetary stimulus is still required, albeit at a more measured pace than was foreseen in December. In particular, the baseline scenario uses as a working assumption that the MPR will follow a trajectory like the one that can be deduced from the various expectations indicators at the statistical closing of this Report. Under this assumption, monetary policy will continue to boost the economy throughout the entire projection horizon.

As regards fiscal policy, the baseline scenario assumes that the trend of public spending is consistent with the fiscal rule in place and with announcements made by the Administration that it will follow a path of fiscal consolidation. This has translated into an adjustment of expenditures planned for 2016, consistent with a lower than trend price for copper than the one used to formulate this year's budget plan.

As always, monetary policy making will be contingent on the potential effects of incoming information on the projected inflation dynamics. Thus, developments pushing in either direction will prompt the necessary policy adjustments.

One of the main risks coming from abroad is related to the behavior of international financial markets. New volatility episodes may be repeated, like the ones seen during the early months of the year, because several of the factors that triggered them are still present. In particular, doubts about the situation in China and the policy rate trajectory adopted by the Fed. This latter point, because of both its difference with the estimated path that can be deduced from market prices and divergences with monetary policies applied in other developed economies. It is also possible that the increased appetite for risky assets seen in recent weeks will persist. Any of the examined outcomes would have effects on, among other variables, external financial conditions, the parities of emerging currencies, and, consequently, on the local outlooks for output and inflation.

Another risk scenario has to do with prospects for global economic growth. On the negative side, there are doubts around China's capacity for growth, compounded with skepticism about the strength of the US recovery. Moreover, the election debates in the US and several European countries reveal that a shift towards more protectionist policies is now more likely. On the positive side, it could happen that policies to boost their economies, particularly in the developed world and in China, could succeed in achieving stronger global economic growth.

Finally, the situation in Latin America is also an important source of risks that, if materialized, could bring negative effects on the financial conditions and external demand facing Chile. The increased exposure of the region to China and the need of several economies to make an additional adjustment are cause for concern. All in a context where several countries have seen inflation rise, where inflation expectations exceed the target and the room for further monetary and/or fiscal stimulus has shrunk. Plus the increasing political risks in Brazil and Venezuela.

## ECONOMIC GROWTH AND CURRENT ACCOUNT

	2014	2015	2016 (f)	2017 (f)
	(annual change, percent)			
GDP	1.9	2.1	1.25-2.25	2.0-3.0
National income	2.1	1.1	1.1	2.9
Domestic demand	-0.3	1.8	1.5	2.6
Domestic demand (w/o inventory change)	1.1	1.3	1.5	2.3
Gross fixed capital formation	-4.2	-1.5	0.5	1.0
Total consumption	2.8	2.2	1.8	2.7
Goods and services exports	1.1	-1.9	0.6	2.4
Goods and services imports	-5.7	-2.8	-0.6	2.1
Current account (% of GDP)	-1.3	-2.1	-2.5	-2.0
Gross national saving (% of GDP)	20.9	20.4	19.9	20.2
Gross national investment (% of GDP)	22.2	22.5	22.4	22.2
GFCF (% of nominal GDP)	23.0	22.7	22.6	22.1
GFCF (% of real GDP)	24.6	23.7	23.4	23.0
	(US\$ million)			
Current account	-3,316	-4,761	-5,850	-4,800
Trade balance	6,344	3,494	800	1,900
Exports	74,924	62,232	55,150	58,000
Imports	-68,580	-58,738	-54,350	-56,100
Services	-3,818	-3,812	-3,650	-3,700
Rent	-7,692	-6,194	-4,150	-4,700
Current transfers	1,849	1,750	1,150	1,700

(f) Forecast.

Source: Central Bank of Chile.

## INFLATION

	2014	2015	2016 (f)	2017 (f)
	(annual change, percent)			
Average CPI inflation	4.4	4.3	4.1	3.1
December CPI inflation	4.6	4.4	3.6	3.0
CPI inflation in around 2 years (*)				3.0
Average CPIPEF inflation	3.6	4.7	4.4	3.0
December CPIPEF inflation	4.3	4.7	3.6	2.6
CPIPEF inflation in around 2 years (*)				2.6

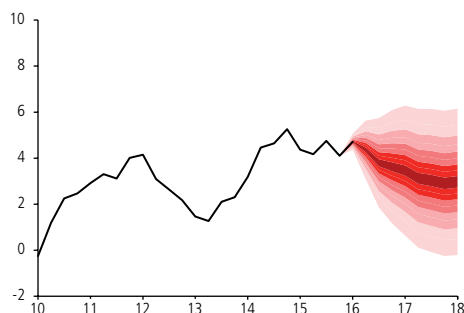
(f) Forecast.

(\*) Corresponds to the projected inflation for the first quarter of 2018.

Source: Central Bank of Chile.

**CPI INFLATION FORECAST (\*)**

(annual change, percent)



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

Source: Central Bank of Chile.

On the domestic front, incoming data shows output and demand losing strength, the labor market has weakened and expectations of consumers and enterprises are still in pessimistic territory. In this context, it cannot be ruled out that growth may be lower than estimated in the baseline scenario if, say, one of these phenomena intensifies. However, since the economy is well balanced from a macro perspective, with a responsible fiscal policy, well anchored inflation expectations and a stable and well regulated financial system, more favorable news may cause growth to recover faster than assumed in the baseline scenario.

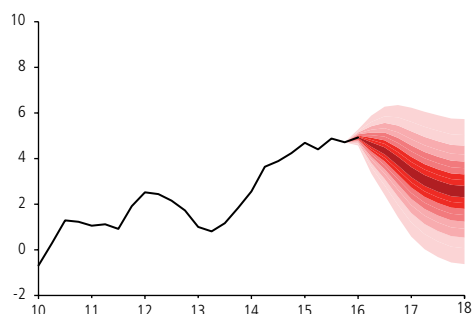
As inflation has stayed high for a lengthy period of time, there is the risk of a delay in its convergence, coming from both its indexation related effects and its possible impact on the formation of expectations. In the short run, its dynamics will continue to be linked with the movements of the exchange rate. Thus, in line with the scenarios just described, there are risks in either direction.

Having assessed them, the Board estimates that the risk balance is unbiased for both inflation and output.

Inflation will remain above 4% still for some months, to return to 3% in 2017. Growth in output and demand has weakened and is expected to gradually recover over the projection horizon. The external scenario has dwindled. The Board reiterates its commitment to conduct monetary policy with flexibility, so that projected inflation stands at 3% over the policy horizon.

**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 working assumption that the MPR will follow a trajectory like the one that can be deduced from the various expectations indicators at the statistical closing of this Report.

Source: Central Bank of Chile.

# MONETARY POLICY DECISIONS IN THE LAST THREE MONTHS

## BACKGROUND: DECEMBER 2015 MONETARY POLICY REPORT AND MEETING

In December, the external scenario had become increasingly complex for emerging economies, with commodity prices expected to be low for some time and with less favorable financial conditions. Domestically, confidence indexes remained pessimistic, despite the fact that economic growth, while still low, had stabilized, and the labor market had been resilient. At the same time, a faster adjustment in this variable could have a negative effect on inflation, consumption and output. The Research Division presented two options at the December meeting: holding the monetary policy rate (MPR) at 3.25% or raising it by 25 basis points (bp), to 3.50%. The former was justified by the downside risks to output; the latter was founded on the higher real and projected core inflation in the short term in the face of the peso depreciation, the narrow output gap (as suggested by the evolution of the labor market) and the effects of historical indexation patterns. These factors made it advisable to move up the partial withdrawal of the monetary stimulus. Moreover, the real MPR remained low, and given the assumptions used in the Monetary Policy Report then under preparation, it would clearly be below the neutral level two years out. The Board decided to raise the MPR by 25 bp to 3.50% and to maintain a tightening bias, but it stated that these adjustments would be gradual.

The December Monetary Policy Report indicated that short-term inflationary pressures had intensified, but they were somewhat lower in the medium term. This translated into an upward adjustment in core inflation in 2016, with an easing of the inflation rate in late 2016 and early 2017. The drop in fuel prices and the lower contribution of foods had helped contain inflation. Thus, while annual CPI inflation would remain over 4% throughout much of 2016 and might even approach 5% early in the year, it would end 2016 within the target range and reach 3% toward the end of the forecast horizon.

For 2016, the GDP growth forecast was between 2 and 3%, lower than projected in September. This was largely due to the lower external impetus, in particular the decrease in the terms of trade, the lower growth of trading partners and the less favorable financial conditions. The working assumption was that the MPR would

undergo partial and gradual adjustments through the year, although monetary policy would remain expansionary in line with output growth below potential. In addition, fiscal policy would continue to support expenditure growth, albeit less than in 2015.

There were a number of risk factors in the external context, such as the differences in opinion between the U.S. Federal Reserve and the market regarding the speed of the monetary policy adjustment, the widening of the rate differential between the United States and other countries, the complex situation of some Latin American countries and the developments in China, which could trigger a new depreciation of the peso and put pressure on inflation in the short term. The medium-term effects were less clear, however, since it was possible that output would also suffer an impact. Domestically, the risks were related to the length of time that inflation had been high, which could affect the speed of its convergence to the target—not only due to indexation, but also as a result of changing expectations, taking into account narrow margins and limited excess capacity. On the other hand, these pressures might be mitigated by the drop in oil prices and the lower external inflation relevant to Chile. Moving into the medium term, output performance could potentially be lower than forecast, increasing excess capacity and easing inflationary pressures. While the labor market remained resilient, the possibility of a significant adjustment could not be ruled out, with lower wage growth and an increase in unemployment that would affect spending. In addition, the absence of a recovery in confidence could undermine the economy's performance. Another possibility was a faster recovery of output, if the labor market remained resilient or if the oil price drop had a bigger impact on national income, generating a faster recovery of confidence. All things considered, the Board deemed that the balance-of-risk assessment was broadly balanced for inflation and skewed to the downside for output.

## JANUARY AND FEBRUARY 2016 MEETINGS

In January, domestic data was consistent with the baseline scenario of the Monetary Policy Report. The November growth of the Monthly Economic Activity Indicator (IMACEC) was lower than in previous months, mainly due to mining. Inflation remained high and over 4% in annual terms. The main news that month was the increased volatility of international financial markets, with declining stock



market, greater global risk aversion, dollar appreciation, and lower oil and copper prices in response to developments in China.

The implications of the Chinese situation for inflation were not obvious. On the one hand, the sharp depreciation of the peso had magnified the pressure on short-term inflation and could affect the speed of convergence to the target through second-round effects. On the other, the intensity would depend on the persistence of the shock and its effects on output, which alone would put downward pressure on medium-term inflation in the event of a slowdown. Thus, the ultimate effect would depend on the relative intensity of the different transmission mechanisms. In the opinion of the Research Division, there was insufficient evidence to support any significant changes in the baseline scenario of the Monetary Policy Report, so it presented the options of raising the MPR by 25 bp, to 3.75%, or holding it at 3.50%.

The option of raising the MPR was justified by the persistent high inflation, the large degree of labor market resilience and the clearly expansionary monetary policy in place, which could delay inflation convergence to the target. In particular, the new peso depreciation could be longer-lasting, thereby affecting medium-term inflation. The option of holding the MPR at its current rate was more consistent with the scenario described in December. The downward bias in output and the existing risks made it less attractive to move up the withdrawal of the monetary stimulus. It seemed prudent to gather more information on recent events, since the consequences for inflation were not obvious. Moreover, the low oil price would help inflation converge as projected. Market expectations two years ahead remained anchored at 3.0%. The Board therefore held the MPR at 3.50%.

In February, the international financial markets continued to be fairly volatile. With a few exceptions, high-risk assets had lost value, commodity prices remained low and different measures of volatility had risen toward their peak of the last four years. In addition to the concerns about China, there was a new perception of increased risk in the global economic scenario. The lower oil price had rekindled fears of low inflation in the main developed economies, and the growth forecast had been revised downward, although world output and employment data in the month had not changed significantly from their projected trends. The authorities in various developed economies had given clear signals of a more expansionary monetary policy, which had translated into cuts in long-term interest rates. While this would support their economies, it was likely to have a bigger impact on financial conditions for emerging economies than had been the case in previous monetary easing cycles, since now the problems originated in the other economies.

In Chile, the effect on spreads and the exchange rate had been somewhat milder than in other economies in the region and more in line with the trend in other commodity exporters, such as Australia, Canada and New Zealand. The market had lowered its GDP growth forecast for Chile for 2016 and 2017. The IMACEC for December 2015 had been consistent with the short-term scenario described in the Monetary Policy Report, albeit with negative surprises in the agricultural and mining sectors. The labor market was showing signs of a gradual slump, as evident in lower job quality and lower wage growth. Inflation was just under 5%, consistent with the Report's baseline scenario.

In this context, the Research Division presented the options of raising the MPR by 25 bp, to 3.75%, or holding it at 3.50%. As in the previous Meeting, the option of raising the MPR was justified by the delay in inflation convergence, the persistence of high inflation, the still-resilient labor market and the expansionary monetary policy. However, a faster withdrawal of the monetary stimulus had its risks. Most notable were the possible negative effects on the economy in the event of a deterioration in external conditions. Inflation expectations two years ahead were still anchored at 3%, despite high prices and the volatility of expectations one year ahead, which attenuated the risk of higher inflation in the medium term. Moreover, the downside risks to output had intensified. Given this environment of increased uncertainty, it seemed advisable to gather more information on the short and medium-term effects of the different events under discussion, since the consequences for inflation were not obvious. Finally, the drop in the international oil price would contribute to inflation convergence. The Board decided to hold the MPR at 3.5%.

# I. INTERNATIONAL SCENARIO

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

The international scenario that the Chilean economy will face over the next two years is expected to be less favorable than projected in December. The world growth outlook has declined. Consequently, Chile's trading partners will grow at a similar rate to the 2014-2015 period, whereas the forecast a few months ago was for higher growth (table I.1). The terms of trade will also be somewhat lower. The international financial markets had calmed down by the cutoff date for this Report, but several of the factors that triggered the sharp volatility of the first few months of the year were still present. The probability of similar episodes occurring in the forecast horizon remains, although it is also possible that investors will maintain the higher appetite for risky assets displayed over the past few weeks. In the immediate future, the atmosphere of greater uncertainty is expected to prolong the tightening of financial conditions for emerging economies.

January and February were marked by a sharp increase in volatility in the financial markets (figure I.1), which was reflected in substantial drops in value for the riskiest assets and downward adjustments in risk-free interest rates. Measured by the MSCI in local currency, the stock markets retrenched around 10%, on average, between the start of the year and mid-February, when the highest volatility was recorded. In the same period, ten-year government bond rates fell 20 to 60 bp in developed economies—and even turned negative in Japan, which introduced a negative monetary policy rate in late January (figure I.2). In the majority of the emerging economies, the tension in the financial markets was evidenced in rising spreads. By mid-February, five-year CDS spreads were between 30 and 50 bp higher than at the start of the year (figure I.3). In the same period, Latin American currencies recorded sharp depreciations, especially in Colombia and Mexico. As mentioned, however, calm returned to the markets in the weeks prior to the cutoff date for this Report, and the stock exchanges, currencies and spreads are currently similar to or better than at year-end 2015.

One of the key sources of volatility in recent months has to do with doubts about the strength of the recovery in the developed economies and the implications for monetary policy decisions. In the United States, consumption remains dynamic, led by high consumer expectations, expansionary financial conditions and a robust labor market. The services sector has also recorded solid

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

	Avg. 00-07	Avg. 10-13	2014 (e)	2015 (e)	2016 (f)	2017 (f)
World at PPP	4.2	4.1	3.4	3.1	3.1	3.3
World at market FX rate	3.2	3.1	2.7	2.4	2.4	2.7
Trading partners	3.6	4.4	3.4	2.9	2.9	3.1
United States	2.6	2.0	2.4	2.4	2.3	2.4
Eurozone	2.2	0.6	0.9	1.5	1.5	1.6
Japan	1.7	1.9	-0.1	0.5	0.7	0.5
China	10.5	8.9	7.3	6.9	6.4	6.1
India	7.1	7.2	7.3	7.4	7.5	7.5
Rest of Asia	5.1	5.2	4.0	3.5	3.6	3.9
Latin America (excl. Chile)	3.5	4.2	1.1	-0.7	-0.9	1.3
Commodity exp.	3.1	2.6	2.6	1.8	1.8	2.0

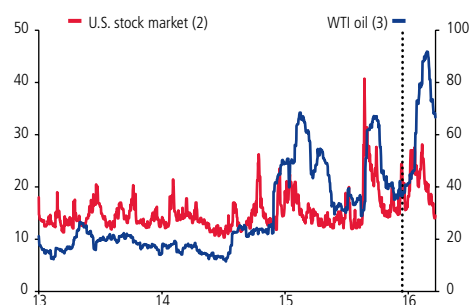
(\*) See glossary for definitions.

(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**  
Volatility: U.S. stock market and oil prices (1)  
(percent)



(1) The vertical dotted line indicates the cutoff date of the December 2015 Monetary Policy Report.

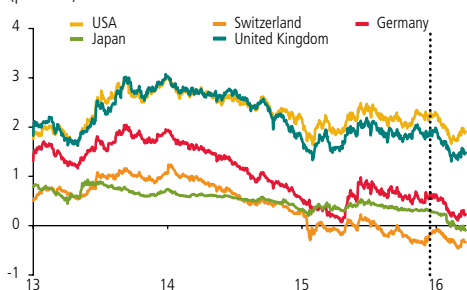
(2) The VIX volatility index.

(3) Implicit volatility in 30-day options.

Source: Bloomberg.

FIGURE I.2

Interest rates on 10-year government bonds (\*) (percent)

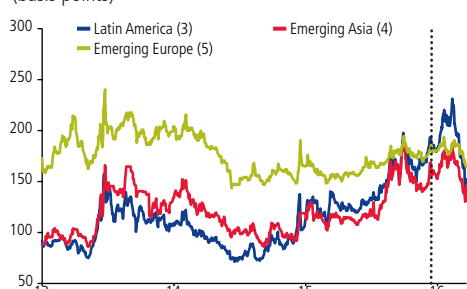


(\*) The vertical dotted line indicates the cutoff date of the December 2015 Monetary Policy Report.

Source: Bloomberg.

FIGURE I.3

Emerging market spreads (1) (2) (basis points)



(1) The vertical dotted line indicates the cutoff date of the December 2015 Monetary Policy Report.

(2) Measured by 5-year CDS spreads, taking the simple average of the countries in each region.

(3) Includes Brazil, Chile, Colombia, Mexico, Panama and Peru.

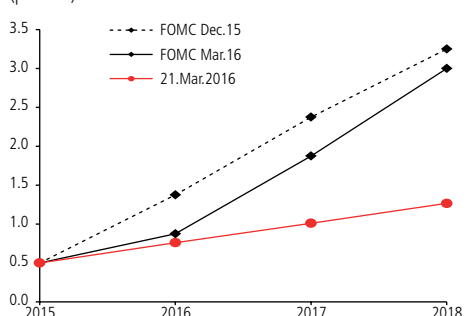
(4) Includes China, Indonesia, Malaysia, Philippines and Thailand.

(5) Includes Bulgaria, Croatia, Czech Rep., Hungary and Turkey.

Source: Bloomberg.

FIGURE I.4

Fed funds rate expectations, December of each year (\*) (percent)



(\*) Red lines: expectations measured by interest rate futures; black lines: the median FOMC forecast.

Sources: Bloomberg and U.S. Federal Reserve.

growth, despite a recent decline in some indicators. However, there are strong concerns associated with the weakening of the manufacturing sector, which, together with the export sector, has suffered the effects of the appreciation of the dollar and less dynamic external demand. In addition, the declining oil price has affected industrial investment, paralyzing various projects. This fired the debate on the real impact of low fuel prices on activity. While some believe that the positive effect on consumption will dominate the adjustment in investment, others argue that given the current deleveraging cycle, the latter effect will be stronger. In the baseline scenario, the economic recovery is considered to be in consolidation, and while the growth forecast is more moderate than in December, the U.S. economy is expected to expand at around its average growth rate of the last two years. Total inflation is expected to remain below 2%, although the core measures point to an upward dynamic, approaching or exceeding 2% in recent months.

The baseline scenario projects that the U.S. federal funds rate will undergo two hikes this year and two more in 2017, which is in line with the assumption in December. Since the March meeting, the difference between what the U.S. Federal Reserve (the Fed) says it will do and what the market thinks it will do (as deduced from asset prices) has decreased, but the market still expects a more expansionary monetary policy from 2017 onward (figure I.4). This discrepancy is a source of risk: if the federal funds rate increases more than forecast by prices, it could decompress term spreads, generating an increase in long-term interest rates. Some recent events tend to mitigate this risk. First, other developed central banks have strengthened their stimulus; second, in an environment of heightened risk aversion, it is normal to see an increase in the demand for long-term bonds from developed countries. The Fed has reiterated that its decisions will be contingent on the evolution of macroeconomic variables. Given the recovery in the labor market, the evolution of inflation will be key for determining the speed of the policy interest rate in the United States.

In the rest of the developed world, the growth outlook has also been revised downward. Moreover, despite expansionary monetary policies, inflation is still significantly below the targets, with a risk of disinflation given the low oil price. This has led to even more expansionary monetary policies. In Japan and the Eurozone, reference rates reached negative territory, and the European authority again stepped up its asset purchase program. Thus, despite a more cautious Fed, there is still a discrepancy between the future monetary policies of these countries and the United States. This can be seen in the evolution of interest rates on two-year government bonds, which suggests that the U.S. dollar will remain appreciated at the world level (figure I.5). This is an issue of concern in the United States, because there are doubts about how much the strengthening of the dollar will affect the economic recovery and whether, to avoid it, the Fed will end up delaying its rate hikes. Finally, the current electoral debates in several European countries and the United States suggest that a shift toward more protectionist policies is becoming increasingly probable. On the positive side, the stimulus measures in the developed world could potentially result in higher-than-forecast world growth.

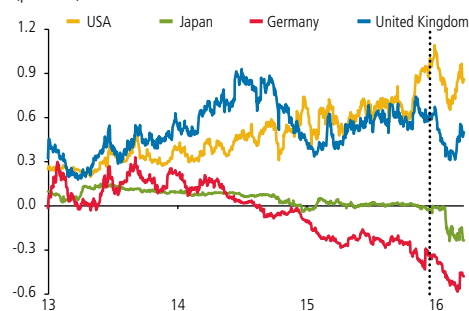


Another source of volatility is the situation in China, especially given the market's doubts about how the country will face the challenges imposed by the economic adjustment process. There are also doubts about the true state of the financial system and the measures the authority will take to face these problems. In particular, the dilemma of maintaining a managed exchange rate and an independent monetary policy, in a context of an apparently *de-facto* open capital account, has been a key source of uncertainty, which has been corroborated by sharp capital outflows and a reduction in the country's international reserves. At the same time, the economy has continued to decelerate, with an ongoing reorientation toward consumption and the services sector. To address the lower growth rates, the authorities have announced more expansionary monetary and fiscal policies and have shown a certain willingness to slow the rate of pro-market reforms (box I.1).

In the rest of the emerging economies, the main news come from Latin America, with a new downward revision in the growth forecast (figure I.6). The economic, institutional and political problems in Brazil have worsened in recent months. After the economy contracted 3.8% in 2015, expectations for 2016 point to another drop of the same magnitude. The complex fiscal situation limits the space for stimulus packages. The scope for monetary policy is restricted by high inflation and by the fact that the public debt is largely indexed to the monetary policy rate. Colombia, in addition to facing an increase in both actual inflation and inflation expectations, is in need of a big adjustment: the current account deficit has grown to 7% of GDP, and everything indicates that in the absence of some type of reform, the government will post a high fiscal deficit. In Mexico, the monetary authorities have expressed concern for the recent exchange rate trend, which they believe does not reflect changes in macroeconomic fundamentals. In February, the Mexican Central Bank surprised the market by raising its policy rate, claiming concern for the impact of the currency depreciation on inflation expectations. The measure was taken in conjunction with changes in the Bank's foreign exchange market intervention mechanism and a fiscal adjustment package, reflecting concern for the effects of the lower oil price on public finances. Venezuela has also been strongly affected by the drop in the oil price, as well as an increase in political risks. In Argentina, negotiations with creditors could open the door to international market access. In general, inflation and, in several cases, inflation expectations in the medium term are below the respective targets. The region's central banks are thus facing an important challenge in terms of containing inflation dynamics, with the majority embarking on rate hike processes (figure II.2).

The tension in international financial markets has been especially strong in Latin America due to the region's significant exposure to commodity prices and to China. Over and above the market volatility in recent months, the region has experienced large capital outflows, spread increases, currency depreciations and higher long-term rates relative to a year ago (figures I.3, I.7, II.3 and II.4). In Chile, financial indicators have been more moderate. Long-term interest rates in local currency are stable, and the sovereign spread on dollar debt has increased less. Nevertheless, the situation in the region is an important source of risk, which, if it materializes, could have negative effects on Chile's international financial conditions and external demand.

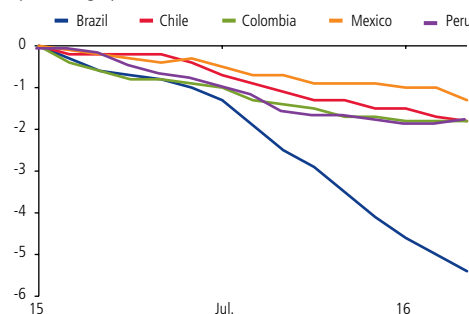
**FIGURE I.5**  
Interest rates on two-year government bonds (\*)  
(percent)



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

Source: Bloomberg.

**FIGURE I.6**  
Latin America: Change in the 2016 growth  
forecast  
(percentage points)

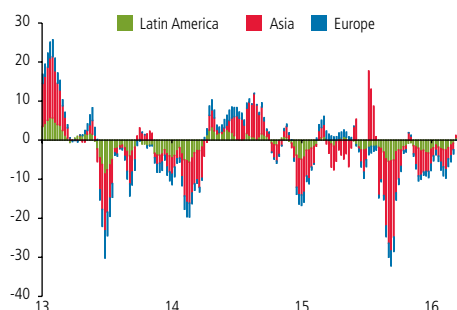


Source: Consensus Forecasts.



**FIGURE I.7**

Capital inflows to emerging economies (\*)  
(billions of dollars)

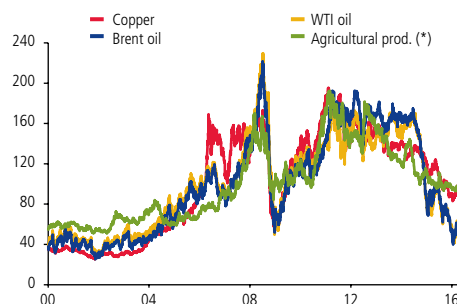


(\*) Four-week moving sum.

Source: Emerging Portfolio Fund Research.

**FIGURE I.8**

Commodity prices  
(index: average 2000-2016 = 100)



(\*) Goldman Sachs aggregate index.

Source: Bloomberg.

Commodity prices have fluctuated considerably. Since the cutoff date of the last Report, commodities fell reaching their lowest levels of the last two years, but then returned to their December levels or even higher (figure I.8). The oil price was the most volatile (figure I.1), contributing to noise in the financial markets, especially due to the impact on the fiscal health of oil-exporting countries and the exposure of financial institutions to firms in the sector. Price forecasts were revised downward, given the expectations for crude production and the high inventories. Thus, for 2016–2017, the WTI oil price is projected to average US\$43 per barrel, while the Brent oil price should average US\$44 (versus US\$46 and US\$48 in December, respectively). The gas price on the New York Stock Exchange, which also fluctuated, fell almost 8% relative to the last Report, in line with the change in inventories in the United States.

Copper also recorded strong price movements, especially in mid-January when it dropped below US\$2.00 per pound. This mainly reflected the growing doubts about the Chinese economy and the world manufacturing sector. The price later began to recover, in line with lower risk aversion in the markets due to the attenuation of fears about world output. As of the cutoff date, the copper price was around US\$2.30 per pound. Going forward, the fundamentals will not change, reflecting production cuts and lower world demand. Therefore, the baseline scenario uses the same copper price forecast for 2016 and 2017 as in December (US\$2.20 and US\$2.30 per pound, respectively).

The drop in commodity prices has contributed to keeping inflation down throughout the world (with the exception of Latin America). Together with the global appreciation of the dollar, this generated a drop in the external prices relevant to the Chilean economy (the external price index, or EPI) of almost 10% in annual terms in 2015. This effect will continue to operate in 2016. The baseline scenario projects a new drop in the EPI (of 5.8%).

## BOX I.1

### GLOBAL RISKS EMERGING FROM CHINA

Over the last three decades, China has recorded an average annual growth rate of 10%, following a model based on investment and exports. As a result, China has become the world's second-largest economy, the biggest exporter and a key driver of world growth. In recent years, however, the economy has become less dynamic. This process has involved a reorientation of growth sources, repeated efforts to reignite the economy and an increasing financial openness, resulting in a build-up of tensions that represent risks for China and the global economy.

This box reviews the main risks for the Chinese economy. These can be divided into three categories: (i) uncertainty about the management of macroeconomic policy; (ii) large debt and a possible adjustment on corporate balance sheets; and (iii) the possibility of a forced adjustment to lower growth. The economy is characterized by institutional gaps and limited transparency, which could make it difficult to contain these risks. The volatility observed in the financial markets since August suggests that, compared with a few quarters ago, the probability of one of these risks materializing has increased. More recently, however, the Chinese authorities have shown a clear willingness to keep these risks in check, even at the cost of delaying the market liberalization process. Another important factor is that China is in a good position in terms of economic stocks. The country has a high level of reserves, a saving rate of over 40% of GDP and a current account surplus of around 3% of GDP. This should allow the economy to cope with the risks, at least in the forecast horizon.

#### Risk 1: Doubts about macroeconomic management

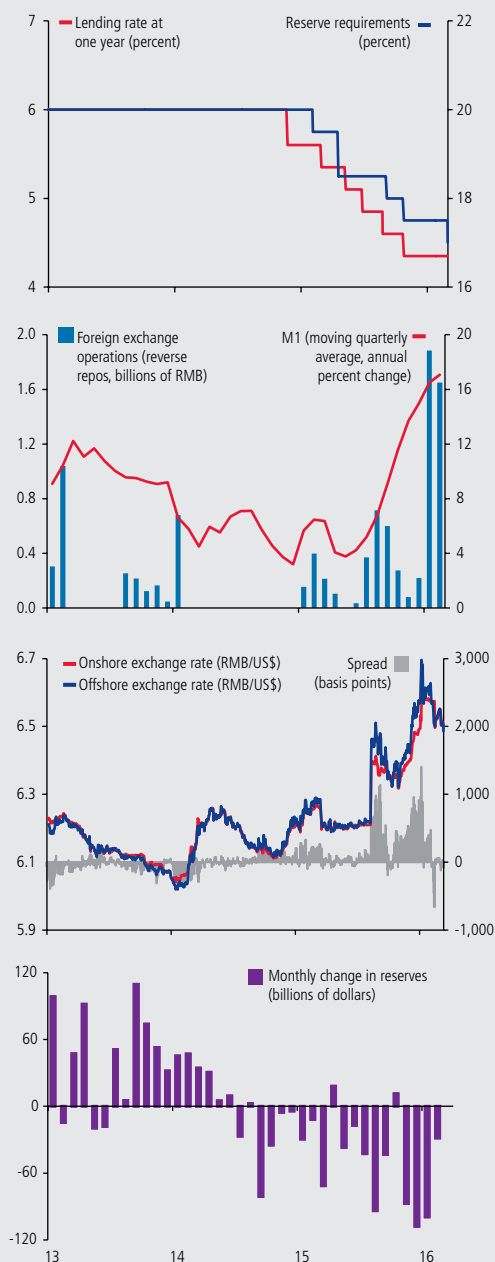
China is committed to opening its capital account, which imposes certain limits on the capacity of the Central Bank (PBOC) to set the renminbi if it also wants to maintain its monetary autonomy<sup>1/</sup>. Since early 2015, the authorities have cut reference rates and expanded the money supply in order to stimulate demand (figure I.9). At the same time, the PBOC sets a daily benchmark exchange rate for the currency, which is not allowed to fluctuate freely. However, the greater liquidity and lower dynamism of the tradables sector could translate into growing expectations of depreciation, which would make it difficult to maintain the exchange rate policy. In 2015, the PBOC lost US\$512 billion in reserves, in part due to operations to defend the renminbi exchange rate. This is the first time in twenty years that reserves contracted in a calendar year (figure I.9). What options will be available if these pressures intensify? First, the PBOC could allow the free float of the currency. While this may sound like a very reasonable exit, a sharp depreciation carries risks for economic agents with mismatches on their balance sheets. A depreciation in China could also have deflationary effects at the global level, with a negative effect on commodity prices. A second option is to rein in expansionary monetary policy. This would put pressure on the financial costs of a highly indebted corporate sector (see Risk 2). Finally, the authorities could reverse the measures aimed at opening the capital account. This course of action was even proposed by Haruhiko Kuroda, Governor of the Bank of Japan, at the last Davos Forum. However, setting aside the costs that this could represent for China and other markets, it is not clear that it would be possible to effectively reintroduce capital controls.

<sup>1/</sup> This dilemma is known as the "impossible trinity."



FIGURE I.9

China: Reference rates, liquidity, exchange rate and change in reserves (\*)



(\*) Reference rates and the exchange rate are based on data through the cutoff date. Foreign exchange operations, M1 and reserves have a monthly frequency and use data available through February 2016.

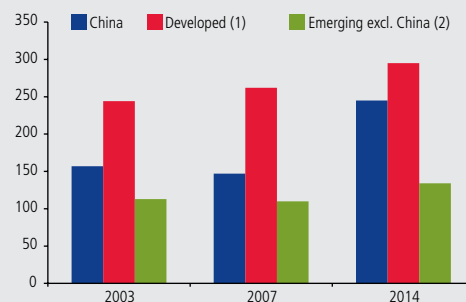
Source: Bloomberg.

## Risk 2: The debt level and potential adjustment

The current debt level in China is high in absolute terms, and it has grown significantly in recent years. According to Morgan Stanley, the total debt level in China grew from 157% of GDP in 2007 to 245% in 2014. These figures are on par with developed economies and higher than other emerging economies (figure I.10). McKinsey, a management consulting firm, estimates even higher levels: 283% of GDP in mid-2014 (table I.2).

FIGURE I.10

Total debt  
(percent of GDP)



(1) Includes Australia, Canada, France, Germany, Italy, Netherlands, Spain, United Kingdom and United States.

(2) Includes Brazil, India, Indonesia, Mexico, Rep. Korea, Russia, Taiwan, Thailand and Turkey.

Source: Morgan Stanley (2015).

TABLE I.2

China: Debt  
(percent of GDP)

	2000	2007	2Q 2014
<b>Government</b>	<b>23</b>	<b>42</b>	<b>55</b>
Financial institutions	7	24	65
Firms	83	72	125
Households	8	20	38
Total debt	121	158	283
Shadow banking (% of total debt)			30
Shadow banking (% of GDP)			65
Real estate sector (% of total debt)			40-45

Source: McKinsey (2015).

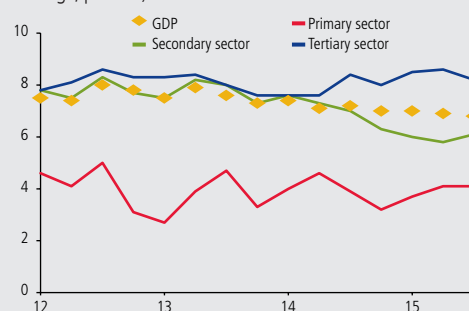
In China, debt is mainly concentrated in the corporate sector. According to data from McKinsey, government debt was around 55% of GDP in the second quarter of 2014<sup>2/</sup>, and was mostly denominated in local currency (table I.2). Some of the risks associated with this element derive, in part, from the fact that the economy is no longer growing at nominal rates that allow firms to painlessly settle their debts. Consequently, more and more firms are rolling over their debt. A report by Deutsche Bank puts the share of debt in this category at 10 to 15% of the total in the corporate segment. In addition, according to the McKinsey report, a credit volume equivalent to nearly 65% of GDP has been issued by shadow banking institutions, which are generally outside the conventional regulatory circle. According to the same source, almost half of the debt is tied to the real estate market, which is showing signs of oversupply in several regions of the country. In 2015, over half of the regions recorded declining housing prices. If it were necessary to reconfigure balance sheets in a short lapse of time, some agents would require an adjustment that could trigger a recessionary and deflationary cycle in China.

### Risk 3: Forced adjustment to lower growth

During the years of high growth, China accumulated excess capacity in a number of industrial and export sectors. Building this capacity required very dynamic investment, which was fed by the high saving rates of families—which in turn derived from a highly distorted financial and social security system. In this context, consumption and the sectors that provide goods and services recorded low growth. Over time, this strategy became difficult to sustain, and some of the excess capacity in unproductive sectors became a burden on growth. Furthermore, to the extent that an economy grows into becoming the primary world exporter, it becomes increasingly difficult to remain significantly more dynamic than its trading partners based on a manufacturing export model. Finally, in a context of great financial repression, different financial markets began to exhibit signs of excess to the extent that families and businesses sought higher yields and new funding sources. Thus, although the authorities have promoted the sectoral recomposition of growth (figure I.11), there are doubts about whether the slow pace of

the process is sustainable over time, due not only to the usual costs associated with the process of reallocating resources, but also to doubts regarding the true capacity of the authorities to support the economy with its fiscal and monetary policy.

**FIGURE I.11**  
China: Economic growth  
(annual change, percent)



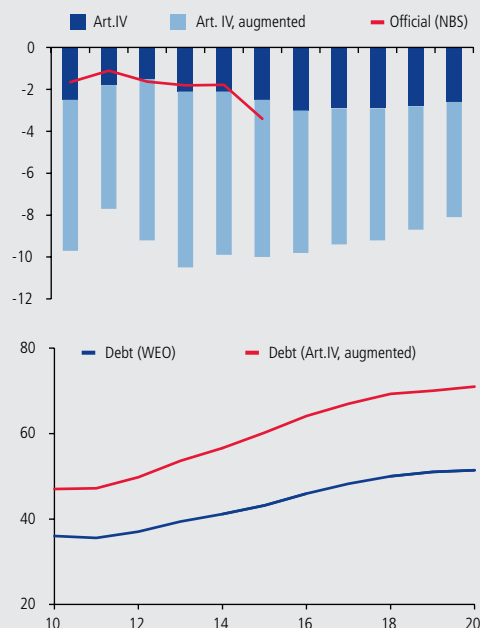
Source: Bloomberg.

In the most recent period, the authorities set a growth target of 6.5 to 7.0% for this year and approximately 6.5% for the average of the next five years. To achieve this, they have proposed stimulus measures that recognize the effects on public finances. Based on official estimates, China should still have room to implement an expansionary fiscal policy (the deficit is under 3% of GDP). However, alternative estimates by the IMF, which incorporate local governments, point to a more delicate fiscal position in terms of both stocks and flows of debt (figure I.12). At the same time, another factor to consider is that after the implementation of ambitious investment plans in 2009, the productivity of investment in infrastructure is no longer very high.

<sup>2/</sup> Different sources estimate different debt levels. For example, the WEO shows a debt level of 41% of GDP in 2014. However, the evolution of the trends described here is the same.

**FIGURE I.12**

China: Fiscal deficit and debt (\*)  
(percent of GDP)



(\*) IMF forecasts since 2014 for debt and since 2015 for the fiscal deficit.

Sources: Bloomberg and IMF.

## Conclusions

Given the size of the Chinese economy and its weight vis-à-vis the rest of the world, any development is highly significant for the evolution of the global economic scenario, especially for commodity exporters such as Chile. This growth process has given rise to risks that appear to be an increasing market concern, as shown by the heightened sensitivity of the financial markets to doubts about the strength of China.

This box has described three important sources of risk for the Chinese economy that, should they materialize, would imply substantial deviations from the baseline scenario, which assumes that the Chinese authorities can handle a gradual adjustment.

## II. FINANCIAL MARKETS

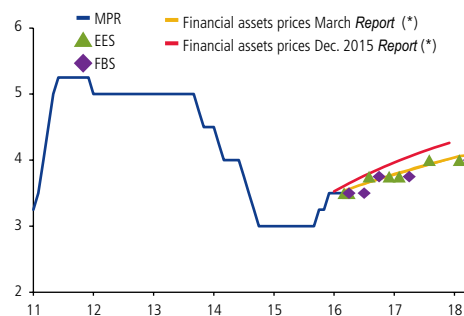
*This chapter reviews the evolution of local financial markets in connection with the transmission of monetary policy.*

### MONETARY POLICY

In the last months, inflation has followed the projected trend. It remains high, mainly due to the effects of the significant depreciation of the peso, in a context where indexation to past inflation and tight capacity have prevented nontradables inflation from coming down. In terms of output, the economy was weaker than expected at year-end 2015, which lowers the outlook for this year, especially given the milder external impulse. The inflation forecast is slightly lower than in December, with core inflation (the CPIEFE) expected to be under 4% by the fourth quarter of 2016, while non-EFE prices (mainly food) should contribute to a slightly faster convergence than previously forecast. The Board increased the monetary policy rate (MPR) twice in the last quarter of 2015, bringing it to 3.5%. The Board then communicated that additional adjustments would be necessary, but they would be more gradual than the rate hikes of late 2015. The MPR was thus held at 3.5% in the January, February and March meetings.

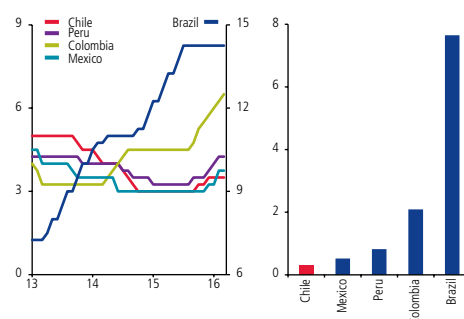
In line with the events of December, the different measures of MPR expectations point to an additional withdrawal of the monetary stimulus within the forecast horizon, but the timing of the rate hikes has been pushed back. Specifically, the market expects two increases of 25 basis points (bp) each over the next two years, one in the second quarter of this year and one in 2017 (figure and table II.1). As a working assumption, the baseline scenario uses an MPR path that is similar to the trend deduced from the different expectations measures on the cutoff date of this Report, where the monetary policy rate will continue to be expansionary throughout the forecast horizon. Chile has the lowest policy rate among Latin American countries and, measured in real terms, one of the most expansionary within this group of economies (figure II.2) and also among other emerging economies and commodity exporters. As always, the implementation of monetary policy will be contingent on the effects of new information on projected inflation dynamics. Thus, events in one direction or the other will trigger the necessary monetary policy adjustments.

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



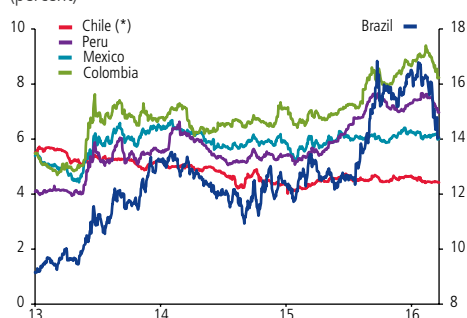
(\*) Calculated using the interest rates of swap contracts of up to 10 years.  
Source: Central Bank of Chile.

**FIGURE II.2**  
Latin America: nominal and real MPR (\*)  
(percent)



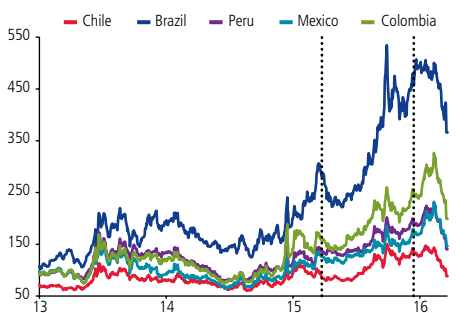
(\*) Calculated as the current MPR less expected inflation one year ahead.  
Sources: Central bank of each country.

**FIGURE II.3**  
Latin America: Nominal 10-year government bond rates  
(percent)



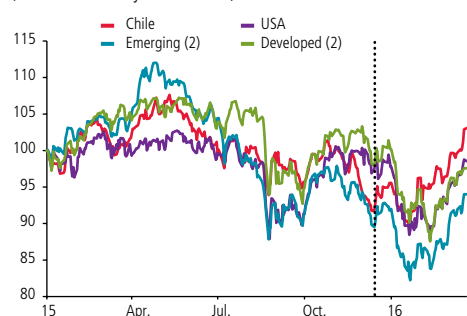
(\*) Includes Central Bank and Treasury bonds.  
Sources: Central Bank of Chile and Bloomberg.

**FIGURE II.4**  
Latin America: Risk premia (\*)  
(basis points)



(\*) Measured by five-year CDS spreads. Vertical dotted lines indicate the cutoff dates of the March and December 2015 Reports.  
Source: Bloomberg

**FIGURE II.5**  
Stock markets (1)  
(index: 1 January 2015=100)



(1) The vertical dotted line indicates the cutoff date of the December 2015 Monetary Policy Report.  
(2) Morgan Stanley Capital International stock indexes in local currency by region.  
Source: Bloomberg.

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

	December 2016		One year ahead		Two year ahead	
	December Report	March Report	December Report	March Report	December Report	March Report
EES (1)	3.75	3.75	3.75	3.75	4.00	4.00
FBS (2)	3.75	3.75	3.75	3.75	4.00	4.00
Financial asset prices (3)	3.93	3.76	3.93	3.83	4.26	4.07

(1) December 2015 and March 2016.  
(2) First half of December 2015 and second half of March 2016.  
(3) Considers the average rate of the last ten business days before the cutoff date.  
Source: Central Bank of Chile.

The interest rates on Central Bank and Treasury instruments have declined since the December Report. Comparing the cutoff dates of this and the last Report, both nominal and real rates decreased around 20 bp, on average. In the last year, the evolution of Chilean long-term rates contrasts with the trends in other Latin American countries, where rates followed an increasing trend (figure II.3), amid episodes of substantial volatility in the financial markets (chapter I).

## FINANCIAL CONDITIONS

The international financial scenario for the emerging world has become less favorable over the past year, with increasing spreads and capital outflows from these markets. For Chile, the changes from start to end point have been smaller in magnitude. Domestically, lending conditions have continued to tighten, as indicated by different sources. The cost of credit remains low from a historical perspective, despite the increases of the last few months, and loan growth has recovered somewhat relative to the first half of last year.

The cost of external financing has risen for emerging economies in the last year. Although risk-free rates (long-term government bond rates in developed countries) are the same or slightly lower than a year ago, sovereign and corporate spreads (CDS and CEMBI) have increased in several countries, including emerging Asia and especially Latin America (figure I.3 y II.4). These variables have been quite volatile, as demonstrated by the events of August 2015 and the first two months of this year. In this context, in the last year there have been considerable capital outflows from emerging economies (figure I.7), and emerging stock markets have fallen (figure II.5).

External financial conditions for Chile are somewhat different from other emerging economies. Chile's sovereign spread is currently almost identical to a year ago—albeit with increases of up to 50 bp in the period—and the increase in the corporate spread has been low, around 40 bp (after rising almost 130 bp through February). This reflects Chile's stronger macroeconomic fundamentals, its policy framework and its institutions. Additionally, Chile made an earlier macroeconomic adjustment to adapt to the new external conditions and maintains an orderly fiscal position, in part due to the government's fiscal spending adjustment. Another area where Chile stands out is in overseas debt

placement. Early in the year, the Chilean government placed two ten-year bonds, one in euros and one in dollars, with an average spread differential of 120 bp over the reference instruments. Brazil, Colombia, Mexico and Peru issued bonds in the same period, with higher rate differentials.

In the local market, lending conditions have become less favorable according to various sources. The Bank Lending Survey (BLS) of December 2015 reveals that the conditions for approving new loans continued to tighten, for both individuals and firms. In the February Business Perceptions Report (BPR), the firms interviewed stated that they face a more thorough background check by banks and slightly higher interest rates. At the same time, the December BLS shows a lower demand for credit, with the exception of mortgage and business loans to small and medium-sized enterprises (SMEs).

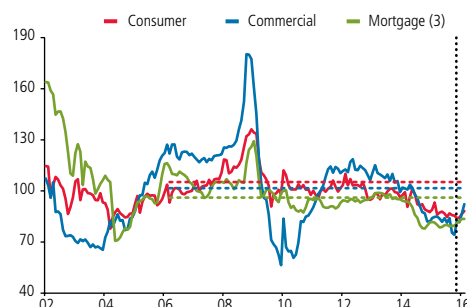
The cost of credit remains low from a historical perspective, although it has risen in the last months (figure II.6). As of November (the latest data available on the cutoff date for this Report), the interest rates on consumer and commercial loans had increased around 120 and 80 bp, respectively. Home loan rates increased much less (10 bp). The difference between lending and deposit rates had also widened as of November, especially at longer maturities (between 25 and 140 bp).

The real annual growth rate of loans has recovered somewhat relative to the first half of 2015, to around 6%. This is higher than the annual growth rate of domestic demand, which in part reflects the expansionary monetary policy. Thus, the annual growth in the volume of consumer and commercial loans exceeded the minimal rates recorded in the past few quarters (figure II.7). Home loans continued to post high growth rates in line with the growth of the real estate market. With regard to other funding sources, in the February BPR, firms from various sectors indicated that they have gone back to using more factoring for accounts receivable. They also mentioned that they are taking longer to reconcile accounts payable to suppliers. In terms of mortgage loans, those interviewed emphasized that the growth in this segment reflects both higher housing prices and the effect of the future application of VAT on construction.

With regard to the monetary aggregates, the available data for February indicate that the annual growth rate of M1, which comprises the most liquid assets, increased to around 13% (versus 11% in November), mainly due to a higher annual growth of demand accounts. M2 grew almost 12%, as the annual growth of time deposits more than offset the drop in mutual fund shares and investment. M3 recorded an annual growth rate of 12% in February.

**FIGURE II.6**

**Lending rates (1) (2)**  
(index: 2002-2015=100)



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

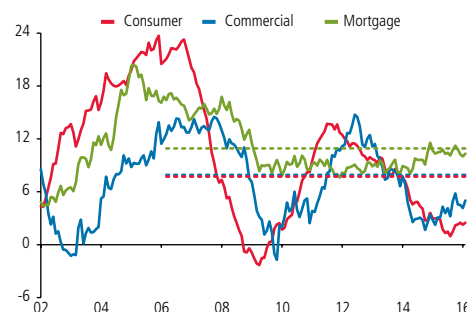
(2) The horizontal dotted lines indicate the average of the last ten years for each series.

(3) Mortgage interest rates are in UF.

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

**FIGURE II.7**

**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 SBIF data.

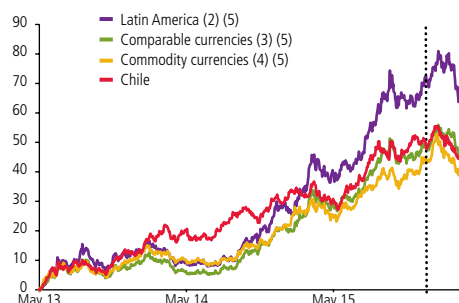




FIGURE II.8

## Nominal exchange rate (1)

(accumulated change since the minimum in May 2013, percent)



(1) The vertical dotted line indicates the cutoff date of the December 2015 Monetary Policy Report.

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

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

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

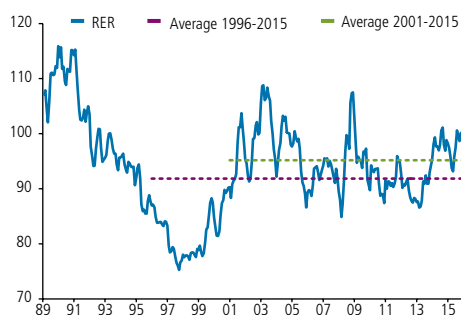
(5) Constructed using the weights in the WEO, October 2015.

Sources: Central Bank of Chile and Bloomberg.

FIGURE II.9

## Real exchange rate (\*)

(index: 1986=100)



(\*) Data for March 2016 is through the 21st.

Source: Central Bank of Chile.

## EXCHANGE RATE

The exchange rate has been highly volatile in the past few months (as deduced from three-month options), in line with events in the international arena. This was reflected not only in daily averages, but also in intraday movements. In this period, the peso-dollar exchange rate oscillated between about 670 and 730 pesos to the dollar.

TABLE II.2

## Exchange rates against the U.S. dollar (1) (2)

(percent)

	Change in NER		
	Mar.16/Dec.15 Reports	In one year	Spot/Minimum of 2013
Russia	1.3	11.7	127.8
Brazil	-3.7	13.2	86.3
South Africa	3.7	24.7	80.5
Colombia	-3.6	16.9	74.7
Latin America (2) (5)	-1.0	13.6	64.9
Turkey	-1.7	10.0	63.6
Norway	-2.2	3.1	53.7
Mexico	3.9	13.9	45.7
<b>Chile</b>	<b>-3.5</b>	<b>6.4</b>	<b>45.2</b>
Comparable currencies (3) (5)	-1.0	8.7	44.5
Commodity currencies (4) (5)	-1.6	6.8	42.5
Australia	-3.6	1.4	39.7
Indonesia	-5.8	0.0	36.7
Peru	0.5	9.6	33.6
Canada	-2.6	3.2	33.1
Czech Rep.	-2.3	-6.2	28.9
New Zealand	-0.2	9.6	27.8
India	0.3	6.2	25.2
Thailand	-2.5	6.5	21.8
Rep. Korea	1.2	3.4	10.8

(1) A positive (negative) sign indicates a depreciation (appreciation) of the currency against the U.S. dollar. Spot rates are on the cutoff date

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

(3) Includes Brazil, Colombia, Czech Rep., Israel, Mexico, Philippines, Poland, Rep. 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 y Bloomberg.

Over the past few months, the peso-dollar exchange rate has appreciated more than comparable currencies of other commodity exporters and Latin American countries (figure II.8 y table II.2). In the period, a number of the region's economies raised their monetary reference rates and intervened in the foreign exchange market. Thus, considering Chile's trading partners, the multilateral exchange rate (MER) declined almost 5% between the cutoff dates of this and the last Report, which puts it around the level of January 2015.

These trends, together with shifts in domestic and international inflation, led to a decrease in the RER relative to the cutoff date of the last report. As of the cutoff date of this Report, the RER was around 94 (where 1986=100), which is around the average of the last fifteen years (figure II.9). While this is consistent with the long-term RER level, cyclical economic conditions suggest a level somewhat above current values. Therefore, as a working assumption, the RER is expected to depreciate 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

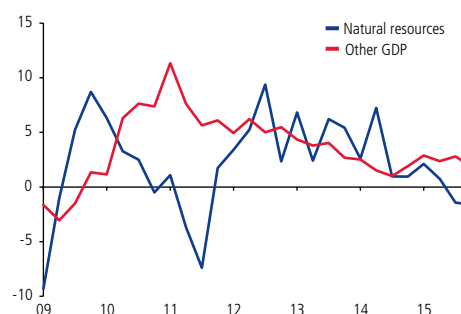
In 2015, GDP growth was 2.1%, as forecast in the December report. However, the National Accounts revision showed that in the fourth quarter of 2015, output and domestic demand slowed more than projected back them. In that period, economic growth was 1.3% annual, below market expectations (1.8% annual in the December EES). Mining output continued to slow down, meanwhile the rest of the sectors had a lower performance, in particular services (figure III.1). On the demand side, the growth slowdown toward the end of the year was greater, due to the evolution of both private consumption and investment. The available information for the first quarter of 2016 point to a similar output and demand performance as in late last year.

In the fourth quarter, other GDP grew at an annual rate of 1.8%, lower than in previous quarters (2.7% on average between the first and third quarters). Transport, communications, financial services and public administration grew less in annual terms. Trade saw an annual drop, in large part due to the deterioration in wholesale sales. The annual performance of the hotel and restaurant sector became more negative. The industrial sector was affected by a weakening of subsectors associated with nondurable goods, in particular the production of beverages, tobacco and food. Finally, construction slowed at the margin, due to less dynamic engineering works.

Natural resources GDP fell 1.6% in annual terms in the last quarter of 2015, with no major changes relative to the previous quarter. The mining contraction declined to 2.3% annual, which largely reflected a less negative performance in copper mining. EGW trimmed its annual growth rate; the sector continued to be driven by electricity generation, thanks to improved hydrologic conditions (table III.1).

The fact that annual GDP growth was in line with the forecast, despite lower growth in the fourth quarter, rests on an upward revision of the previous quarters, in particular the first half of 2015. The largest revisions were for

**FIGURE III.1**  
Natural resources and other GDP  
(annual change, percent)



Source: Central Bank of Chile.

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

	Share 2015	2014				2015			
		I	II	III	IV	I	II	III	IV
Agriculture, livestock and forestry	2.9	-2.4	-10.6	-8.4	1.1	8.4	7.4	6.1	-2.4
Fishing	0.6	8.3	20.9	0.9	-6.3	-3.9	-6.6	1.5	-2.5
Mining	9.0	3.3	6.3	0.6	0.2	3.2	1.5	-3.0	-2.3
Manufacturing	10.9	1.1	-1.1	-2.6	0.3	1.0	1.8	3.6	1.8
EGW	2.5	-1.8	8.4	2.3	6.8	-2.3	-3.7	5.4	5.1
Construction	7.6	4.1	3.8	-0.3	2.9	1.0	2.3	3.5	2.3
Trade	8.6	1.8	-0.9	-0.8	-0.9	1.2	1.3	2.0	-0.7
Restaurants and hotels	1.8	4.9	3.9	4.5	0.1	2.5	0.2	-1.9	-3.6
Transport	4.9	4.7	2.0	0.9	3.6	5.2	2.0	2.6	1.2
Communications	1.5	9.0	7.7	5.9	6.5	9.0	9.6	9.7	3.3
Financial services	4.9	4.8	3.5	2.6	3.8	3.2	4.0	5.2	4.7
Business services	13.8	1.9	1.2	0.5	-0.1	1.0	1.4	2.1	3.0
Residential property	5.4	1.6	1.7	1.7	1.8	1.8	1.6	1.7	1.7
Personal services (1)	12.0	3.5	4.1	5.1	4.2	3.9	2.5	2.4	2.8
Public administration	4.8	2.7	2.7	2.4	5.9	3.4	4.2	4.6	2.9
<b>Total GDP</b>	<b>100.0</b>	<b>2.7</b>	<b>2.3</b>	<b>0.9</b>	<b>1.6</b>	<b>2.7</b>	<b>2.1</b>	<b>2.2</b>	<b>1.3</b>
<b>Other GDP (2)</b>	<b>79.1</b>	<b>2.5</b>	<b>1.5</b>	<b>1.0</b>	<b>1.9</b>	<b>2.9</b>	<b>2.4</b>	<b>2.8</b>	<b>1.8</b>
<b>Nat. res. GDP (2)</b>	<b>12.1</b>	<b>2.6</b>	<b>7.3</b>	<b>1.0</b>	<b>1.0</b>	<b>2.1</b>	<b>0.8</b>	<b>-1.4</b>	<b>-1.6</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			
		2015	I	II	III	IV	I	II	III	IV
<b>Domestic demand</b>	<b>100.3</b>	<b>-0.2</b>	<b>0.2</b>	<b>-0.7</b>	<b>-0.5</b>	<b>1.0</b>	<b>1.9</b>	<b>3.3</b>	<b>1.0</b>	
Domestic demand (excl. change in inventories)	100.5	2.3	1.1	-0.2	1.4	1.1	0.3	2.8	1.1	
Gross fixed capital formation	22.7	-2.9	-4.9	-10.5	1.6	-3.3	-5.5	4.3	-1.3	
Construction and works	15.1	3.3	1.5	-1.8	1.5	-0.1	1.8	3.6	2.6	
Machinery and equipment	7.6	-14.1	-15.8	-24.6	1.7	-9.6	-19.3	5.7	-8.4	
Total consumption	77.8	4.1	3.0	3.0	1.3	2.5	2.0	2.5	1.8	
Private consumption	64.4	3.9	2.3	2.2	1.3	2.2	1.2	1.3	1.1	
Durable goods	6.4	1.9	-2.7	-4.6	-5.0	-5.0	-1.2	1.6	1.9	
Nondurable goods	26.5	3.6	1.0	2.1	1.5	2.5	1.1	1.6	0.7	
Services	31.5	4.6	4.2	3.6	2.6	3.4	1.9	1.1	1.1	
Government consumption	13.4	6.2	6.5	7.0	1.4	4.5	5.6	7.8	4.9	
Change in inventories (*)	-0.2	0.1	-0.2	-0.4	-0.8	-0.9	-0.5	-0.4	-0.4	
Goods and services exports	30.1	5.0	0.3	-2.7	1.9	1.1	-6.2	-1.4	-0.9	
Goods and services imports	30.3	-4.0	-6.5	-7.2	-4.8	-4.1	-7.3	1.7	-1.8	
<b>Total GDP</b>	<b>100.0</b>	<b>2.7</b>	<b>2.3</b>	<b>0.9</b>	<b>1.6</b>	<b>2.7</b>	<b>2.1</b>	<b>2.2</b>	<b>1.3</b>	

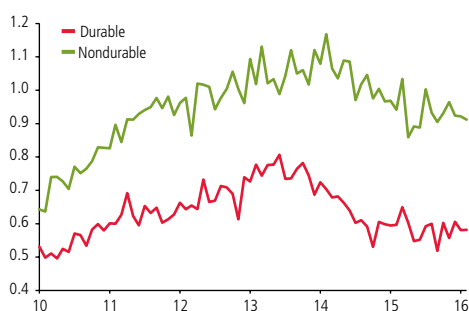
(\*) Ratio of inventory change to GDP, at average prices of the previous year, accumulated in the last 12 months.

Source: Central Bank of Chile.

FIGURE III.2

## Nominal consumer goods imports (\*)

(billions of dollars)



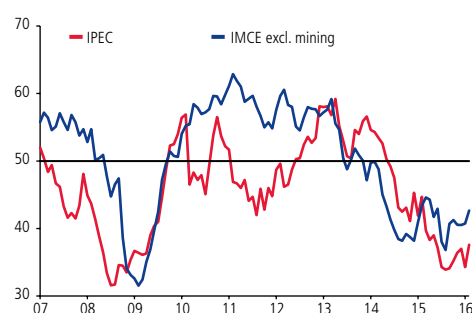
(\*) Seasonally adjusted series.

Source: Central Bank of Chile.

FIGURE III.3

## Consumer and business expectations (\*)

(index)



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

Sources: Adimark and Icare/Universidad Adolfo Ibáñez.

industrial growth rates: preliminary data indicated growth of just over 0% in the first half, whereas the revised data showed an average annual growth of almost 1.5%. Third-quarter industrial growth was also adjusted upward, by one percentage point. Within these results, the subsectors that are most exposed to international competition posted the strongest performance, which suggests that the peso depreciation contributed to making the import-substitution sector more dynamic. In other GDP sectors, some service sectors (mainly business and personal services) and EGW were revised downward.

For the first quarter of the year, private expectations (the March EES) anticipate annual growth of 1%, which was adjusted downward over the course of the quarter (from 1.8% in January). For 2016 as a whole, private expectations (EES) for growth are of 1.7%, lower than the December forecast (2.2%). The baseline scenario in this Report also incorporates a downward revision in the growth forecast range: 1.25 to 2.25%, with a broadly balanced risk balance (2 to 3% in December, with a downward skew). This forecast adjustment is based on a weaker economy than projected in late 2015 and early 2016, and a milder boost from the international to the domestic economy.

## DOMESTIC DEMAND

At year-end 2015, total consumption had grown 2.2% in the year, below the December forecast (2.4%). This poor performance reflects downward revisions to growth in the first half of the year and a low growth rate in the fourth quarter. Gross fixed capital formation (GFCF) contracted 1.5% in the year; largely explained by the upward revision to investment in 2014, which increased the basis of comparison. Another factor was the continuing drop in mining investment and the less dynamic performance of construction and works. Thus, final demand grew 1.3% in the year.

In the last quarter of 2015, private consumption continued to post a lean performance, with a decline in growth relative to previous quarters. For the most part, this was due to weaker growth of nondurable goods consumption at year-end. There was a slowdown in services consumption over the course of the year, together with the low performance of durables. In the fourth quarter, this was somewhat offset by a better performance of durables consumption due to the low basis of comparison, although this segment recorded a contraction in the year. Public consumption grew less than in the previous quarter, but the annual growth rate was around the average of the first half of 2015 (table III.2).

Data for early 2016 indicate that private consumption continues to be sluggish. Imports of these kinds of goods have been consistently low in recent quarters (figure III.2), and the main determinants of consumption do not point to a larger recovery in the short term. Consumer expectations (IPEC) remain pessimistic, with some fluctuations (figure III.3). In February, both the overall indicator and its components showed a recovery, with an increase in the measure of current perceptions of the personal economic situation, which while still low, has improved steadily since last November.

The labor market in 2015 was marked by very dynamic salaried employment, low unemployment rates and robust wage growth. In the most recent period, however, there have been signs of a slowdown. The growth of salaried employment has slowed in recent months, while the share of workers who say they have wage jobs with no written contract and fewer benefits, or who work part time has increased (figures III.4 and III.5). Total employment continues to grow at around 2%, thanks to the strong growth of self-employment. The unemployment rate remains low (5.8% according to the latest data from INE) due to lower than usual growth of unemployed workers. This has to do with a lower labor force participation rate among people over 54 years of age and a substantial shift of workers from salaried jobs to self-employment. Real wage growth has gradually declined over the course of the year, to between 1.0 and 1.6% in January (figure III.6), despite the fact that there was a higher monthly increase than usual in January due to an exceptional adjustment in the minimum wage. Thus, the growth of labor income—as measured by the real wage bill—has declined, but remains in line with the phase of the cycle.

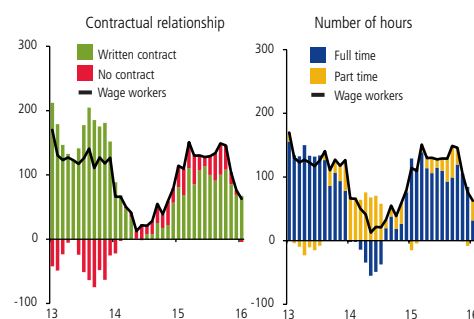
Finally, according to the Bank Lending Survey (BLS) for December 2015, lending conditions on consumer loans have tightened again. Several factors indicate that demand has also narrowed, as people continue to behave more cautiously in terms of consumption and indebtedness. Consumer loan rates remain below their historical averages, even after increasing in recent months, and the annual growth rate of consumer loans has followed a slightly rising trend in the last few quarters.

Investment remains weak, and there is no sign of recovery in the immediate future. GFCF fell 1.3% in annual terms in the fourth quarter, which is below the forecast and lower than in the prior quarter. The machinery and equipment component fell 8.4% annual. The annual growth rate of construction decreased as a result of the less dynamic performance of engineering works, but it is still receiving a boost from housing construction. The latter is in line with the strong home sales in Greater Santiago (Chilean Chamber of Construction, CCHC) in the fourth quarter.

Data at the margin continue to indicate that investment has not changed much and that it will remain weak in the first part of 2016. On the one hand, capital goods imports, excluding uncommon transport vehicles, fell slightly in levels (figure III.7). On the other, the most recent survey by the Capital Goods and Technological Development Corporation (Corporación de Desarrollo Tecnológico y de Bienes de Capital, CBC) showed no major changes, in general, relative to the previous survey.

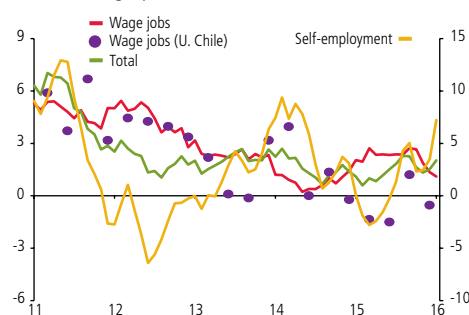
As highlighted in previous Reports, a large share in the decline in GFCF is explained by the contraction in mining investment, given the effects of the fall in the copper price. The lower growth rate of investment in 2014 and 2015 is largely explained by this factor (figure V.3).

**FIGURE III.4**  
Annual growth of wage employment by contractual relationship and number of hours  
(thousands of people)



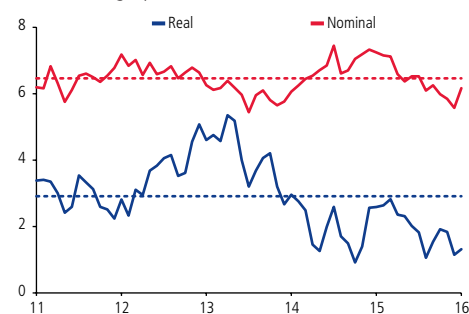
Source: National Statistics Institute (INE).

**FIGURE III.5**  
Job creation by occupational category  
(annual change, percent)



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

**FIGURE III.6**  
Nominal and real wages (1) (2)  
(annual change, percent)

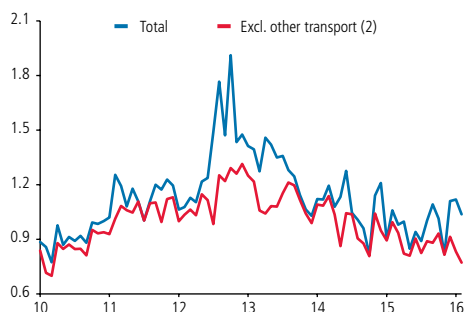


(1) Nominal (real) wages are the simple average of annual changes in the nominal (real) wage index (WI) and the labor cost index (LCI).  
(2) Dashed lines indicate the average from January 2011 to January 2016.

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

**FIGURE III.7**

**Nominal capital goods imports (1)**  
(billions of dollars)



(1) Seasonally adjusted series.

(2) Excluding uncommon transport vehicles (airplanes, trains, helicopters and ships).

Source: Central Bank of Chile.

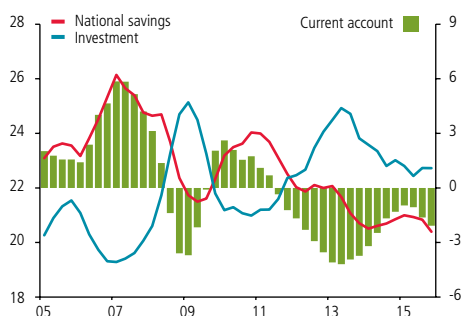
Other determinants of investment, such as business perspectives (IMCE) excluding mining, remain in pessimistic territory. However, both trade and manufacturing recovered at the margin. Expectations declined in the construction sector in the recent period, revealing a worse perception of demand and the current situation of the firms. This coincides with the diminishing positive effect from the application of VAT on construction, the recent slowdown in the sector and the increased uncertainty going forward expressed by the people interviewed for the Business Perceptions Report (BPR) in February.

Lending conditions have also become tighter for businesses, according to the December 2015 BLS and the February BPR. Interest rates for this type of loans remain low relative to historical averages, despite rising in recent months. Additionally, the real annual growth of loans has recovered somewhat relative to mid-2015. With regard to mortgage loans, the cost has not changed significantly. The growth rate of the volume of loans has also been stable, consistent with the dynamic real estate market.

## CURRENT ACCOUNT

**FIGURE III.8**

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



Source: Central Bank of Chile.

In 2015, the current account recorded a deficit of US\$4.761 billion, equivalent to 2.1% of GDP (figure III.8). This was due to a negative income balance (US\$6.194 billion), which was partially offset by a positive trade balance (US\$3.494 billion). The surplus in the trade balance was smaller than in 2014, because the reduction in the value of exports (16.9% annual) was greater than the drop in imports (14.4% annual). Exports ended the year with a lower performance than projected, mainly as a result of the new drop in the price of shipments, especially copper. This was visible both in the fourth-quarter data and in the data revision for previous quarters. Imports recorded price decreases in various sectors, in particular oil. For 2016, the baseline scenario incorporates a current account deficit of 2.5% of GDP (1.7% in the December Report) and 2.0% of GDP for 2017.

## IV. PRICES AND COSTS

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

### RECENT EVOLUTION OF INFLATION

Annual CPI inflation remains high. In February, it reached 4.7%, completing nearly two years above or very close to the ceiling of the target range (figure and table IV.1). As mentioned, the increase in inflation in recent quarters has to do with the direct and indirect effects of the significant peso depreciation, indexation to past inflation and narrow excess capacity. Most recently, some one-off factors contributed to a sharper rise in inflation. The baseline scenario projects that the inflation trend will be similar to the forecast in December. In particular, annual CPI inflation will stay over 4% for a few more months, before returning to the target range in the second half of 2016 and approaching 3% in the first half of 2017. It will then fluctuate around that level. Private inflation expectations are consistent with this scenario: over 3% in one year and at the target in two years.

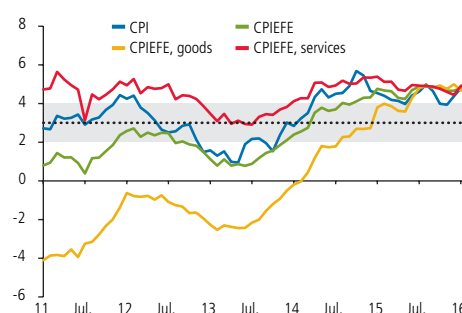
**TABLE IV.1**  
Inflation indicators (\*)  
(annual change, percent)

	CPI	Food	Energy	CPIEFE	CPIEFE goods	CPIEFE services
2014 avg.	4.4	6.9	5.5	3.6	1.6	4.9
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
Sep.	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
Dec.	4.4	4.7	1.2	4.7	5.0	4.4
2016 Jan.	4.8	4.3	5.9	4.8	4.7	4.9
Feb.	4.7	4.0	4.2	5.0	4.9	5.0

(\*) See glossary for definitions.

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

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

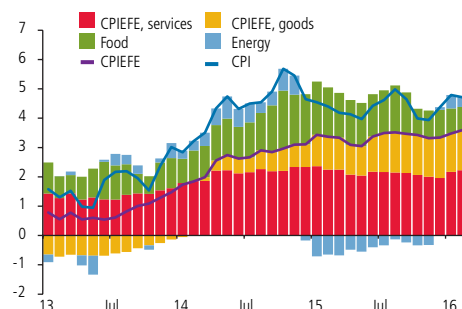


(1) See glossary for definitions.

(2) Starting in January 2014, calculations are based on the new indexes 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)

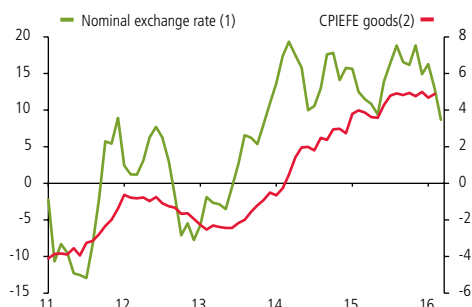


(\*) Starting in January 2014, calculations are based on the new indexes with base year 2013=100, so they may not be strictly comparable with earlier figures.

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



**FIGURE IV.3**  
Exchange rate and CPIPE goods  
(annual change, percent)

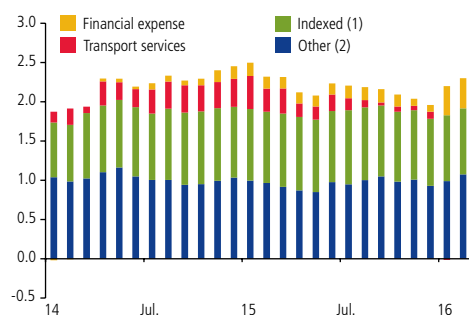


(1) The March 2016 exchange rate is calculated using the monthly average through the cutoff date of this Report.

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

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

**FIGURE IV.4**  
Contribution of CPIPE services to annual CPI inflation  
(percentage points)

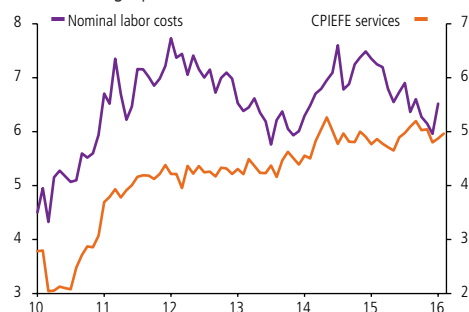


(1) Includes health, education and other indexed services.

(2) Includes personal care, recreation, food, clothing, housing, regulated tariffs and other services.

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

**FIGURE IV.5**  
Nominal wages and CPIPE services excluding financial and transport services  
(annual change, percent)



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

Between the cutoff dates for this and the last Reports, annual CPI inflation increased from 3.9% (November) to 4.7% (February), in line with the December forecast. In addition to the factors mentioned above, the high inflation in recent months is the product of the effects of two phenomena: higher annual fuel inflation and an increase in stamp duties in January. The former reflects the change in the basis of comparison, in that the higher fuel prices in place throughout most of 2014 resulted in negative inflation in the energy component of annual CPI in 2015 (figure IV.2). The increase in stamp duties, in turn, was expected under the tax reform and generated a one-time increase of 0.3 percentage points (pp) in the January inflation. This adjustment adds to the increase in other regulated prices.

Annual CPIPE inflation (core inflation) also followed the expected trend, rising from 4.7% in November to 5.0% in February. By component, CPIPE goods inflation has stabilized after rising nonstop from mid-2013 to mid-2015, but it is still high at around 5%. As mentioned in past Reports, the behavior of this group is strongly related to the exchange rate, which fluctuated between 670 and 730 pesos to the dollar in the last three months (figure IV.3). Estimates based on disaggregated groups of the CPI basket show that the pass-through coefficient from the exchange rate to prices is higher for CPIPE goods than for CPIPE services (box IV.1).

Annual CPIPE services inflation, which was 4.4% in December, returned to around 5.0% early this year. The increase was influenced by the aforementioned tax change, which raised the annual contribution of financial expense to around 0.4 pp of the total CPI. The persistence of this high inflation reflects the impact of indexation to past inflation and narrow excess capacity. The exchange rate has also played a role, especially in transport services, where prices have historically been more sensitive to currency fluctuations. Inflation in this last group has fallen since early 2015, however, thanks to lower international fuel prices (figure IV.4).

Inflationary pressure from labor costs has eased over the past year, as illustrated by the steady decline in annual wage growth in both real and nominal terms. This is the case even after taking into account the higher-than-usual monthly increase in January, due to the exceptional adjustment of the minimum wage that month. Thus, in January 2016, annual nominal wage growth was between 5.8 and 6.5% according to the available measures (versus 7.1 and 7.4% in January 2015), while real wages grew between 1.0 and 1.6% (2.5 and 2.7% in January 2015) (figure IV.5).



With regard to non-core items, the energy component recorded an increase in inflation to 4.2% in February, after spending almost a year in negative territory (-4.5% average in 2015). This turnaround stems from the fuels component, due to the end of the high basis of comparison before the oil price dropped in late 2014 (figure IV.6). In the past three months, international oil prices have fluctuated strongly, from around US\$40 per barrel on the cutoff date of the last Report to nearly US\$25 in February, then back to the late-2015 level. Given the pass-through mechanism to domestic prices, this resulted in negative monthly inflation from this group in the first two months of the year, while in annual terms it increased to around 0% (figure IV.7). Electricity rates rose in the first two months of the year due to the lagged incorporation of the higher exchange rate. Annual inflation of this component thus remains high, at over 10%, albeit with a decline from the last Report due to the significant rate adjustment that occurred in the same period of 2015.

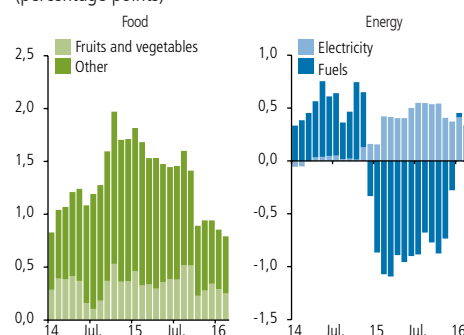
With regard to food, the positive contribution of this group to total CPI inflation decreased, such that annual inflation fell from 4.7 to 4.0% between November and February (figure IV.2). While the fruits and vegetables component was stable, the contribution of other foods continued to decrease to around 0.5 pp of the annual CPI, with a lower contribution in particular from some meat and dairy products (figure IV.6). This is consistent with the reduction in external food prices. The annual inflation of the FAO index continues to be negative, especially in the product lines discussed above (figure IV.8). The local market has adjusted more gradually, in part because of the opposite effect from the exchange rate depreciation.

## INFLATION OUTLOOK

In the past three months, annual inflation has evolved in line with the forecast, and the outlook is not very different from in the December Report. The data confirm that inflation will gradually converge to 3%, although it will remain over 4% in the first half of 2016. This is mainly due to the effects of the accumulated depreciation of the peso, in a context of narrow excess capacity and significant indexation to past inflation. The consensus of the people interviewed for the February Business Perceptions Report (BPR) is that narrow margins will continue to be one of the main repercussion of the currency depreciation. This is an important factor for inflationary pressures, although the weakening of domestic demand could help contain the pass-through to final prices.

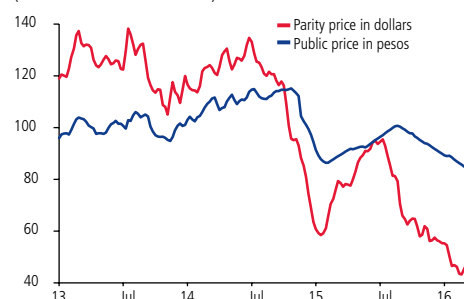
In the baseline scenario, annual CPI inflation will reach 3.6% in December of this year (3.8% in the December Report). It should converge to 3.0% in the first half of 2017 and then fluctuate around that level. The CIEFE is projected to be 3.6% in December 2016 (3.7% in the last Report). Private inflation expectations are consistent with this scenario. The March Economic Expectations Survey (EES) expects inflation of 3.6% in December of this year (3.4% in December),

**FIGURE IV.6**  
Contribution of food and energy to annual CPI inflation  
(percentage points)



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

**FIGURE IV.7**  
Weekly gasoline price (1) (2)  
(index: 2013-2016 = 100)

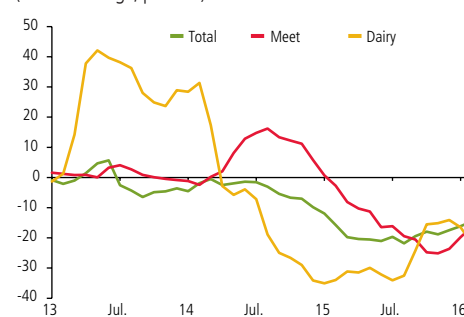


(1) Starting in August 2014, the CNE publishes the parity price in pesos; after that date, the price is converted to dollars using the average observed exchange rate in the two weeks prior to a given date.

(2) Real data through the week of 18 March 2016 for the parity price in dollars. For the public price in pesos, real data through the week 4 March 2016 and preliminary estimates thereafter.

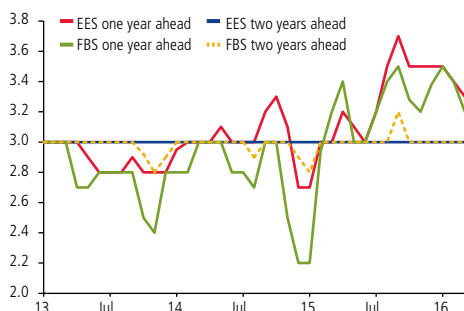
Sources: Central Bank of Chile and National Energy Commission (CNE).

**FIGURE IV.8**  
FAO index in dollars  
(annual change, percent)



Source: United Nations Food and Agriculture Organization (FAO).



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

(\*) The FBS uses the survey for the first half of each month, except for March 2016, which uses the survey for the second half of the month.

Source: Central Bank of Chile.

which is also the average for inflation insurance instruments in the ten days prior to the cutoff date of this Report. One-year-ahead inflation expectations are just over 3%. In particular, the EES projects 3.3%, versus 3.2% for the Financial Brokers Survey (FBS) for the second half of March and inflation insurance instruments. Two years ahead, the outlook is still 3.0% (figure IV.9).

The risks for inflation point in both directions. If inflation stays high for a long time, it could affect the speed of convergence, either through indexation or from the possible effect on expectations formation. In the short term, inflation dynamics will also be closely tied to exchange rate movements and, therefore, to various risks emanating from the international scenario. The materialization of certain negative risks in this arena could depreciate the peso, while the opposite could happen in the event of news in the other direction.

## BOX IV.1

### EXCHANGE RATE PASS-THROUGH TO PRICES

The exchange rate is a key determinant of inflation, and its impact—the so-called exchange rate pass-through (ERPT) coefficient—has therefore been the subject of much academic research, within and outside the Central Bank. For Chile, this research has yielded two main results. First, the ERPT coefficient is between 0.1 and 0.2 in a period of one year. That is, an exchange rate shock of 1 percentage point (pp) is associated with an inflation increase of 0.1 to 0.2 pp in one year (Bertinatto and Saravia, 2015; Justel and Sansone, 2015; Albagli et al., 2015). Second, the estimated ERPT for Chile is relatively high from an international perspective, which is also the case for other emerging economies (Albagli et al., 2015).

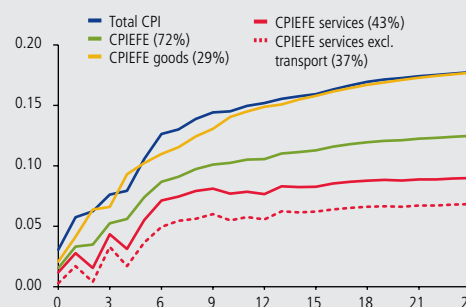
This box reviews new ERPT estimates for Chile based on a more extensive use of disaggregated data. It also presents results that describe the ERPT for prices paid in customs, differentiating between the effect of the peso-dollar exchange rate (NER) and the multilateral exchange rate (MER). The main conclusions are as follows: (i) the new estimates are similar to those obtained using more aggregate data; (ii) the ERPT is substantially higher for goods that have a higher imported content; (iii) the ERPT to customs prices is large and fast, while the pass-through to final consumer prices is smaller and slow, which suggests that margin compression plays an important role in the transmission of exchange rate movements; and (iv) a depreciation of the peso against the dollar has less of an effect if trading partners also depreciate against the dollar, since in that case the dollar price of imported goods falls.

#### Pass-through coefficient for CPI components

Given the different characteristics of CPI goods and services, the aggregate ERPT could hide significant heterogeneity among categories. Contreras and Pinto (2016) measure the ERPT relative to the peso-dollar exchange rate for 131 of the 137 subclasses of the CPI, using monthly data from 2000 to 2015. These are then aggregated into different goods and services categories. The results show that the weighted-average ERPT in one year for 131 subclasses is estimated at 0.15. This number is consistent with the range of previous estimates using aggregated data. The authors also find that the pass-through is lower (0.11) if only core categories (EFE) are considered (figure IV.10) and that there are significant differences between the response in one year of CPIPEFE goods (0.15) and CPIPEFE services (0.08).

This difference is even greater if the transport sector is excluded from services, as this subclass has a large share of imported inputs and because some of the sector's prices are indexed to the dollar. More specifically, the ERPT is above the average in sectors such as energy or clothing and below the average in service sectors such as health and education. One possible explanation for this difference is the importance of imported components in each sector. The authors test this hypothesis with a cross-sectional regression between the estimated ERPT for the 131 subclasses and the share of imported components in each subclass; they find a positive and significant relation between the two variables.

**FIGURE IV.10**  
Pass-through coefficient by CPI group (\*)  
(percentage points)



(\*) Share of the CPI basket in parentheses. The horizontal axis indicates the number of months.  
Source: Contreras and Pinto (2016).

#### Estimate of the ERPT based on customs data

The above study can be complemented with a look at what happens with import prices. De la Huerta et al. (2016) use monthly data from the National Customs Service for the period 2002-2015 to construct price indexes for 44 CPI subclasses, focusing on homogeneous goods categories for comparison purposes. Following the international literature on the ERPT to import prices (Gopinath, 2015), the authors estimate the following equation:

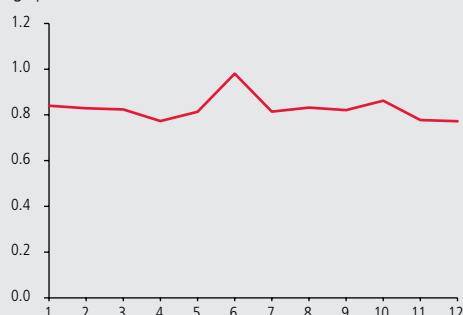
$$\Delta \text{ipb}_t = \sum_{i=1}^{12} \beta_{i, \text{MER}} \Delta \text{MER}_{t-(i-1)} + \alpha' x_t + \varepsilon_t$$

where all the variables are in logarithms,  $ibp$  is the price index (in pesos) in customs,  $MER$  is the multilateral exchange rate (expressed in number of Chilean pesos to the respective currencies), and  $x$  is a vector of controls. The pass-through coefficient at horizon  $s$  with respect to the  $MER$  is defined as  $\beta_{MER}^s \equiv \sum_{i=1}^s \beta_{i,MER}$ .

In line with the literature for other emerging countries, the authors find that the ERPT in customs is high and persistent (figure IV.11). Taken together with the finding that the ERPT to final prices is much lower on average, as shown by Contreras and Pinto (2016), this indicates that changes in the exchange rate are absorbed by business margins. Furthermore, the ERPT to final prices is much lower at the beginning and peaks after nearly one year (figure IV.10), suggesting that the recovery of margins takes time<sup>1/</sup>.

**FIGURE IV.11**

Customs prices in pesos: ERPT with respect to the  $MER$  (\*) (percentage points)



(\*) The horizontal axis indicates the number of months.

Source: De la Huerta et al. (2016).

De la Huerta et al. (2016) carried out another exercise to explore the mechanics behind the high ERPT in customs. Over 90% of the total value of imports is invoiced in dollars. Therefore, at least in the short term, the  $NER$  should dominate the price dynamics for these goods. However, only around 20% of imports are from the United States. This suggests that in the medium term, the origin of imports and the behavior of the respective currencies should be more important. For example, if the Chilean peso depreciates against the dollar but not against the real—that is, the peso and the real depreciate at similar rates—then Brazilian exporters who ship products to Chile can be expected to pass through their competitive gains from the local currency depreciation in the form of the lower prices in dollars, especially if the depreciation is common to other producers who compete in the same market.

<sup>1/</sup> This margin adjustment is consistent with the international evidence reported by Alessandria et al. (2010).

To test this, De la Huerta et al. (2016) estimate the following equation:

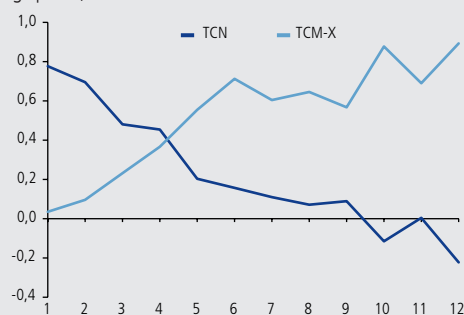
$$\Delta ipb_t = \sum_{i=1}^{12} \beta_{i,NER} \Delta NER_{t-(i-1)} + \sum_{i=1}^{12} \beta_{i,MER-X} \Delta MER-X_{t-(i-1)} + \alpha' x_t + \varepsilon_t$$

where  $NER$  is the peso-dollar exchange rate and  $MER-X$  is the nominal multilateral exchange rate excluding the dollar. The pass-through coefficient at horizon  $s$  with respect to the  $NER$  and  $MER-X$  is defined as in the previous exercise.

The results support the proposed hypothesis<sup>2/</sup> (figure IV.12). In the short term, the ERPT to prices in pesos relative to the  $NER$  is close to one, but it decreases over time. An increase in the  $MER-X$  produces the inverse behavior, with a pass-through close to zero in the short term and an increase later. These results suggest that the implications of a global appreciation of the dollar (an increase in the  $NER$ , with no changes in the  $MER-X$ ) versus a devaluation solely of the Chilean peso (an increase in both the  $NER$  and the  $MER-X$ ) relative to the rest of the world can be very different. The former can be expected to cause an immediate pass-through to prices in pesos measured in customs, through the invoicing-currency effect. In the medium term, there will be a reduction in prices to the extent that the different countries of origin (which also record a depreciation) adjust their dollar prices downward due to competitive pressures. In a depreciation only of the peso, the initial impact should not be reversed, since none of the countries of origin would have incentives to change their prices (in dollars) for the Chilean market.

**FIGURE IV.12**

Customs prices in pesos: ERPT with respect to the  $NER$  and  $MER-X$  (\*) (percentage points)



(\*) The horizontal axis indicates the number of months.

Source: De la Huerta et al. (2016).

<sup>2/</sup> An alternative is to estimate the effect of changes in the  $NER$  and  $MER-X$  directly on customs prices expressed in dollars. The cited paper presents the results of this exercise, which are fully consistent with the exercise discussed here.

## V. INFLATION SCENARIOS

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

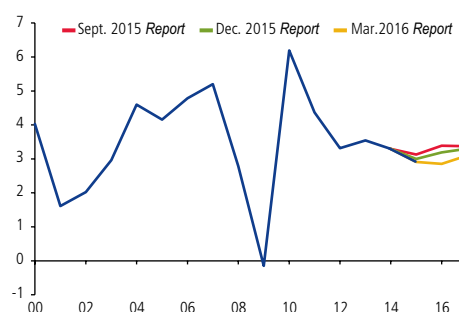
### BASELINE PROJECTION SCENARIO

Inflation has evolved in line with December's projections, and its level continues to be high. The inflation outlook in the new baseline scenario shows no major changes compared to December's outlook. Annual CPI inflation will remain above 4% through the first half of 2016 and will gradually approach 3%, although this convergence will be somewhat faster than projected.

Regarding economic activity, since December the main changes in the baseline scenario come from two sources. On one hand, National Accounts numbers showed a deceleration of domestic output and demand towards the end of 2015, while recent indicators suggest that this trend continued into the early months of this year. On the other hand, the impulse that the Chilean economy will receive from abroad will be milder than forecast in December, both because trading partners' growth will not increase as foreseen but will remain in the levels of 2014-2015, and because the terms of trade will be slightly lower and external financial conditions will be tighter than thought in December. Thus, this Report revises the GDP growth range estimated for 2016 downward and assumes a moderate recovery in 2017.

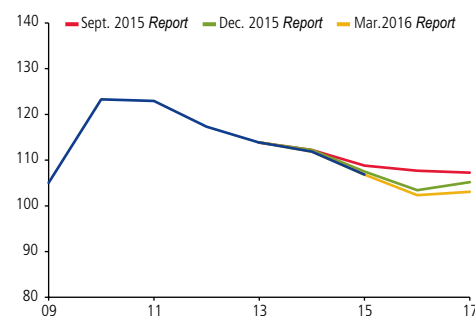
On the external front, this Report's baseline scenario considers downward adjustments in the growth outlook of trading partners, with sharper ones for some developed economies and Latin America (figure V.1). In the former, actual data for the past few months have been weaker than expected, as reflected in the assessments made by the monetary authorities of these economies in their speeches and more expansionary actions. Thus, projections for developed economies are cut three tenths of a point for 2016 and 2017, yielding for the projection horizon a similar expansion to that of 2015. It is worth noting that in the emerging world, a contraction is expected in 2016 in Latin America, of 0.9% (+0.4% in December). This revision considers the effects that the fall in commodity prices has had on the economies of the region, together with pending adjustments to private and/or public expenditures in a number of them,

**FIGURE V.1**  
GDP of trading partners and forecasts  
(annual change, percent)



Source: Central Bank of Chile.

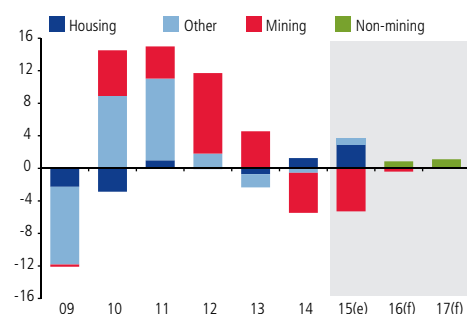
**FIGURE V.2**  
Terms of trade and forecasts  
(index 2008=100)



Source: Central Bank of Chile.

FIGURE V.3

Real annual contribution to gross fixed capital formation (\*)  
(percentage points)



(e) Estimate.

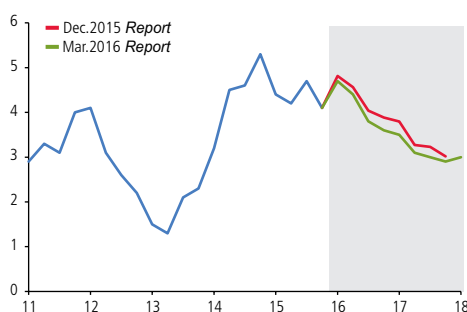
(f) Forecast.

(\*)2015 mining investment is estimated using available information from listed companies (FECUS) up to the third quarter and Codelco's investment plan. Housing investment uses data from the Chilean Chamber of Construction and National Accounts by institutional sector. Non-housing and non-mining data uses residues. For the 2016 and 2017 forecasts, Central Bank projection models and sectoral sources are considered, including the Capital Goods Corporation's investment plans and surveys.

Source: Central Bank of Chile

FIGURE V.4

CPI inflation forecast (\*)  
(annual change, percent)



(\*) Gray area, as from the first quarter of 2016, shows forecast.

Source: Central Bank of Chile .

the worsened external funding conditions and the fact that the authorities' room for maneuver is scant, due to increased inflation and tight fiscal accounts, among other factors. Accordingly, the baseline scenario assumes that this year our trading partners will keep the same growth rate of 2015, to slightly pick up towards 2017.

In recent months, financial markets have been highly volatile, with large ups and downs in financial asset prices. The relative calm of the days leading to the closing of this Report does not rule out new stress episodes, as the sources of risk—associated with the Chinese economy, the true strength of developed economies' growth and the delicate situation of some Latin American countries—are still present. Thus, the baseline scenario considers the occurrence of new volatility episodes driving the financial conditions facing emerging economies to be less favorable than previously foreseen.

Commodity prices have also fallen prey to the aforementioned volatility. Since December, both copper and oil dropped to many years' lows, to later return to the vicinity of last Report's cutoff-date prices. The baseline scenario revises downward the projections for oil prices, considering the increase in inventories worldwide and production expectations. Copper projections remain unchanged. The prices of other exports have seen significant downward adjustments, affected both by market-specific idiosyncratic issues and because of lower demand, especially for some products exported to Latin America. In short, the baseline scenario now expects lower terms of trade for 2016 and 2017 than anticipated in December (figure V.2).

On the local front, this Report's baseline scenario assumes GDP growth in the range of 1.25% to 2.25% in 2016 and 2% to 3% in 2017. This implies that the economy will continue to grow below potential<sup>1/</sup> during most part of the projection horizon, so an additional widening of output gap is foreseen. The range for 2016 is below December estimates and also assumes a weaker outlook for consumption and investment. The projection is consistent with current indicators suggesting that weak consumption and investment has continued into early 2016.

In recent years the real wage mass has been growing faster than private consumption, which led to suppose that the latter could post a stronger recovery this year. However, this has not happened, so considering also the further worsening of the labor market in the past few months, the persistence of pessimistic consumer expectations, and low levels of consumer goods imports in the early months of the year, this expenditure component is corrected downward. Overall, towards 2017 a recovery of this variable is expected hand in hand with a gradual improvement in its fundamentals.

<sup>1/</sup> Refers to the GDP which is coherent with an stable inflation, not to the trend GDP. The former is estimated at around 3%, whereas the latter is estimated at around 3,5% (see boxes V.1 and V.2 of the September 2015 Report).

Gross fixed capital formation has experienced a significant adjustment in recent years, mainly due to the end of the mining investment cycle (figure V. 3). The baseline scenario of this Report lowers the growth forecast for this expenditure component compared to December's. On one hand, it is estimated that mining investment will be similar to its level of 2015. On the other hand, the boost to housing investment originating in the coming into force of the VAT on construction will fade over time. The forecast also considers the reduced momentum from public investment, derived from the recently announced fiscal adjustment. Other investments are expected to recover gradually in the projection horizon, hinging on improvements in expectations and demand.

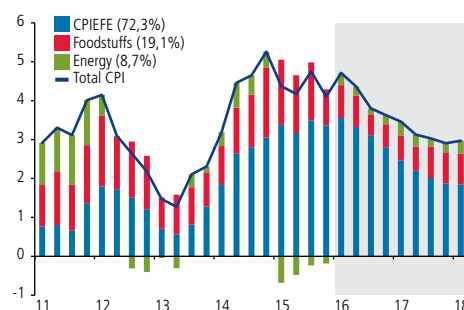
Consistently with the slower growth expected for trading partners, exports also show downward corrections from December. Industrial shipments will be most affected, considering that their destinations are more concentrated in Latin America and that some sectors, such as salmon production, have been beset by specific factors. On the imports side, changes are bigger reflecting lower domestic demand in a context of exchange rate depreciation. Thus, the current account deficit will increase in 2016, to 2.5% of GDP. This revision reflects adjustments to both prices and volumes. By 2017, the deficit will be reduced to 2% of GDP, considering increased exports of copper resulting from the entry into production of some deposits and improved terms of trade. Measured at trend prices<sup>2/</sup>, the current account deficit will have a similar evolution.

As aforesaid, the evolution of inflation will be in line with the December forecast. Thus, annual CPI inflation will remain above 4% for some more months, to return to the tolerance range during the second half of 2016 and converge to 3% during the first half of 2017, slightly faster than estimated in December (figure V.4).

This process will be largely determined by the nominal exchange rate which, aside from its normal volatility, should post no depreciations of the magnitude accumulated in recent years. For now, despite significant swings, the peso/dollar parity has declined with respect to December and, as of the statistical cutoff date is near its levels of August 2015. Using the 1986=100 index, the real exchange rate (RER) has also fallen in recent months, to nearly 94, its 15-year average. Although this figure is consistent with the RER's estimated long-term value, the economy's cyclical conditions suggest a level that is somewhat higher than its current one. For this reason, the baseline scenario uses as a working assumption that the RER will depreciate slightly over the projection horizon.

Another factor helping in the inflation-reduction process will be the output gap increase which, as has been already mentioned, will be stronger. In any case, it is worth noting that empirical evidence and the experience of recent years shows that, on one hand, gaps are still fairly bounded and, on the other, the

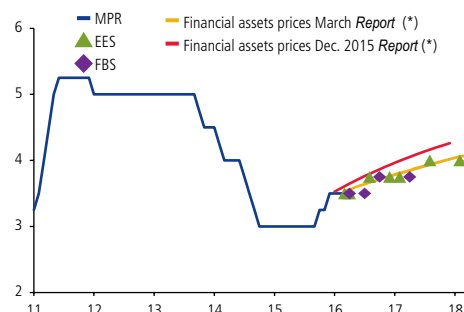
**FIGURE V.5**  
Contribution to annual CPI inflation (1) (2)  
(percentage points)



(1) Gray area, as from the first quarter of 2016, shows forecast.  
(2) In parentheses, share in CPI basket.

Source: Central Bank of Chile

**FIGURE V.6**  
MPR and expectations  
(percent)



(\*) Calculated using the interest rates of swap contracts of up to 10 years.

Source: Central Bank of Chile.

<sup>2/</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. Estimates consider a long-term copper price of US\$2,7 per pound and of oil of US\$70 per barrel (box V.2; Monetary Policy Report, September 2012 and V.1 Monetary Policy Report, December 2015).



elasticity of inflation with respect to the output gap is low. Thus, at least in the context of a gradual economic slowdown and a steadily adjusting labor market, no sharp reductions are expected in core inflation induced by lower activity. This projection also considers that the foreign prices relevant to Chile (EPI) will be lower than forecast in December (due to lower local inflation rates and the evolution of the dollar in global markets). It also assumes a lower contribution of international food prices. In the energy component, a higher gasoline price and a lower electricity price counteract each other (figure V.5).

As a working assumption, the baseline scenario assumes that the MPR will follow a trajectory like the one that can be deduced from the various expectations indicators at the statistical closing of this Report (figure V.6). Under this working assumption, monetary policy will continue to boost the economy throughout the projection horizon. As regards fiscal policy, the assumed public spending trend is consistent with the fiscal rule in place and announcements by the Administration that it will follow a path of fiscal consolidation. This has translated into an adjustment of expenditures planned for 2016, consistent with a below-trend price for copper than the one estimated when this year's budget plan was formulated.

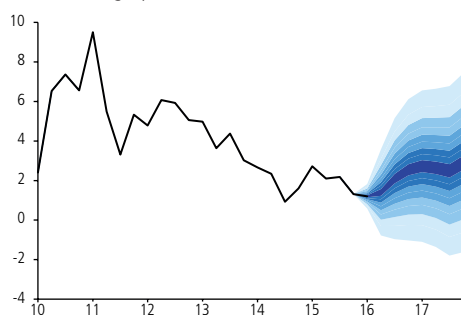
## RISK SCENARIOS

As always, monetary policy making will be contingent on the potential effects of incoming information on the projected inflation dynamics. Thus, developments pushing in either direction will prompt the necessary policy adjustments (figures V.7, V.8 and V.9).

One of the main risks coming from abroad is related to the behavior of international financial markets. New volatility episodes may be repeated, like the ones seen during the early months of the year, because several of the factors that triggered them are still present. In particular, doubts about the situation in China and the policy rate trajectory adopted by the Fed. This latter point, because of both its difference with the estimated path that can be deduced from market prices and divergences with monetary policies applied in other developed economies. It is also possible that the increased appetite for risky assets seen in recent weeks will persist. Any of the examined outcomes would have effects on, among other variables, external financial conditions, the parities of emerging currencies, and, consequently, on the local outlooks for output and inflation.

Another risk scenario has to do with prospects for global activity. On the negative side, there are doubts around China's capacity for growth, compounded with skepticism about the strength of the US recovery. Moreover, the election debates in the US and several European countries reveal that a shift towards more protectionist policies is now more likely. On the positive side, it could happen that policies to boost their economies, particularly in the developed world and in China, could succeed in achieving stronger global economic growth.

**FIGURE V.7**  
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 working assumption that the MPR will follow a trajectory like the one that can be deduced from the various expectations indicators at the statistical closing of this Report.

Source: Central Bank of Chile.

Finally, the situation in Latin America is also an important source of risks that, if materialized, could bring negative effects on the financial conditions and external demand faced by Chile. The increased exposure of the region to China and the need of several economies to make an additional adjustment are cause for concern. All in a context where several countries have seen inflation rise, where inflation expectations exceed the target and the room for further monetary and/or fiscal stimulus has shrunk. Plus the increasing political risks in Brazil and Venezuela.

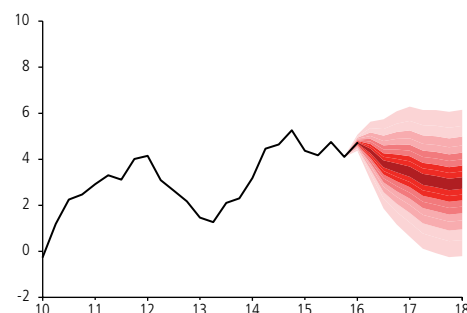
On the domestic front, incoming data shows output and demand losing strength, the labor market has weakened and expectations of consumers and enterprises are still in pessimistic territory. In this context, it cannot be ruled out that growth may be lower than estimated in the baseline scenario if, say, one of these phenomena intensifies. However, since the economy is well balanced from a macro perspective, with a responsible fiscal policy, well anchored inflation expectations and a stable and well regulated financial system, more favorable news may cause growth to recover faster than assumed in the baseline scenario.

As inflation has remained high for a lengthy period of time, there is the risk of a delay in its convergence, coming from both its indexation related effects and its possible impact on the formation of expectations. In the short run, its dynamics will continue to be linked with the movements of the exchange rate. Thus, in line with the scenarios just described, there are risks in either direction.

Having assessed the risks, the Board estimates that the risk balance is unbiased for both inflation and output.

Inflation will remain above 4% still for some months, to return to 3% in 2017. Growth in output and demand has weakened and is expected to gradually recover over the projection horizon. The external scenario has dwindled. The Board reiterates its commitment to conduct monetary policy with flexibility, so that projected inflation stands at 3% over the policy horizon.

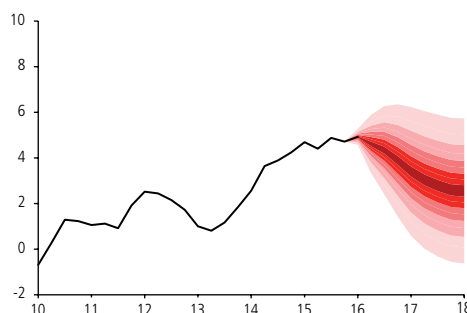
**FIGURE V.8**  
CPI inflation forecast (\*)  
(annual change, percent)



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

Source: Central Bank of Chile.

**FIGURE V.9**  
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 working assumption that the MPR will follow a trajectory like the one that can be deduced from the various expectations indicators at the statistical closing of this Report.

Source: Central Bank of Chile.



**BOX V.1****FORECASTS INCLUDED IN THE MONETARY POLICY REPORT**

Each quarter in the Monetary Policy Report, the Board presents its view of the state of the economy. The inflation and GDP growth forecasts that make up the baseline forecast scenario are key elements of this analysis. This box describes how the forecasts are presented.

**Inflation and GDP growth forecasts**

The forecasts of these variables are reported in two ways. First, an estimate of the value is included in the baseline scenario. For inflation, the estimate is the average value and the value in December of the current and the following year, as well as the expected value at the end of the policy horizon (around two years). The GDP growth forecasts are presented similarly, except that a range is given instead of a point estimate. This is because the forecast error is historically higher for GDP growth than for inflation, resulting in greater uncertainty.

With regard to the GDP growth forecast horizon and the size of the range, the Board decided that starting with this Report, the growth forecast range would include a second year in the March and June Reports. In addition, the range for the year underway will be 1.0 percentage point (pp) in March, 0.75 pp in June, 0.5 pp in September and a point estimate in December. For the following year, the range will always be 1 pp (table V.1). The narrowing of the range as the forecast horizon shortens reflects the nature of the forecast error. Estimates from four to eight quarters out have similar forecast errors, whereas the error gradually declines for shorter horizons (table V.2).

The second way that the forecasts are communicated is through the so-called fan charts<sup>1/</sup> (figures V.7, V.8 and V.9). These show the estimate of the quarterly path of annual CPI inflation, annual CPIPE inflation and GDP growth, together with the different confidence intervals for the estimates. The quarterly path of growth and inflation helps provide a better understanding of the dynamics implicit in the baseline scenario. The confidence intervals, in turn, reveal the uncertainty inherent in the estimates, by signaling that even in the presence of normal shocks, the variables can deviate from the forecast significantly. The intervals can be symmetrical or asymmetrical, depending on the bias of

the forecast. If the probability of an upward deviation from the baseline scenario (a positive bias) is higher, the figure will have a larger share of its fan in that direction. The opposite is the case with a negative bias. If the balance-of-risk assessment is broadly balanced, the figure will be symmetrical, with the same share of the fan in both directions.

Thus, a correct reading of the forecasts published in each Monetary Policy Report should not only consider the point estimate for inflation or the growth range, but also take into account the balance of risks included with the estimates. The two elements are part of a whole, not separate.

The expansion of the information set starting with this Report is in line with the standards of other central bank and should help to improve understanding of the macroeconomic scenario and the most probably course of monetary policy.

**TABLE V.1**  
Range of GDP growth estimates in the Monetary Policy Reports  
(percentage points)

	Current year	Following year
March	1.0	1.0
June	0.75	1.0
September	0.5	1.0
December	estimation dot	1.0

Source: Central Bank of Chile.

**TABLE V.2**  
Root-mean-square error of the forecast (\*)  
(quarters)

Horizon	GDP	Other GDP	CPI	CPIEFE
1	0.87	0.93	0.19	0.20
2	1.12	1.32	0.66	0.65
3	1.43	1.73	0.98	1.04
4	1.65	1.91	1.14	1.41
5	1.77	1.99	1.25	1.61
6	2.07	2.35	1.30	1.53
7	1.96	2.15	1.29	1.46
8	2.06	2.20	1.34	1.51

(\*) The period of analysis is December 2009 to December 2015, except for CPIPE inflation, which is June 2012 to December 2015.

Source: Central Bank of Chile.

<sup>1/</sup> Alonso et al. (2010) describe how the fan charts are constructed.

# GLOSSARY

---

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

**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 or banks and corporations 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, Republic of 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, Republic of 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 forecasts 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., A. Naudon and R. Vergara. 2015. "Inflation Dynamics in LATAM: A Comparison with Global Trends and Implications for Monetary Policy." Economic Policy Paper N°58. Central Bank of Chile.
- Alessandria, G., J. P. Kaboski and V. Midrigan. 2010. "Inventories, Lumpy Trade and Large Devaluations." American Economic Review 100(5): 2304-39.
- Alonso, P., J. Fornero and A. Naudon. 2010. "Nueva calibración de fancharts del IPoM." Mimeo. Central Bank of Chile. June.
- Central Bank of Chile. Monetary Policy Report. Various issues.
- Central Bank of Chile. 2016. Informe de Percepciones de Negocios. February.
- Barclays Capital. 2016. Global Economics Weekly. Various issues.
- Bertinatto L., and D. Saravia. 2015. "El rol de asimetrías en el pass-through: Evidencia para Chile." Working Paper N°750, Central Bank of Chile.
- Consensus Forecasts. 2016. A Digest of International Forecast. Various issues.
- Contreras G., and F. Pinto. 2016. "Traspaso de tipo de cambio a inflación por subclases para Chile." Mimeo. Central Bank of Chile.
- CRU. 2016. Copper Market Outlook.
- De La Huerta C., F. Giuliano and E. Luttini. 2016. "Traspaso de tipo de cambio a precios de importaciones." Mimeo. Central Bank of Chile.
- Deutsche Bank. 2016a. Macro Forecast Weekly. Various issues.
- Deutsche Bank. 2016b. The Degree of Evergreening, Part I: Industry Update.
- Emerging Portfolio Fund Research. 2016. Global Fund Allocations. <http://www.epfr.com/>.
- International Monetary Fund. 2015a. IMF Country Report No. 15/234. People's Republic of China 2015 Article IV Consultation.
- International Monetary Fund. 2015b. World Economic Outlook. October.
- International Monetary Fund. 2016. World Economic Outlook Update. January.
- Food and Agriculture Organization. 2016. FAOSTAT. <http://faostat.fao.org/>.
- Gopinath, G. 2016. "The International Price System." Jackson Hole Symposium Proceedings. Forthcoming.
- Justel S., and A. Sansone. 2015. "Exchange Rate Pass-Through to Prices: VAR Evidence for Chile." Working Paper N°747. Central Bank of Chile.
- Institute of International Finance. 2016. EM Portfolio Flows Tracker. Various issues.
- JP Morgan Chase. 2016. Global Data Watch. Various issues.
- Mckinsey Global Institute. 2015. "Debt and (Not Much) Deleveraging." February.
- Morgan Stanley. 2015. "Global Macro Outlook: A Slow Slog Back."

Alejandro Zurbuchen S.

---

**LEGAL REPRESENTATIVE**

**CENTRAL BANK OF CHILE**

Institutional Affairs Management  
Publications Department  
March 2016

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)

---

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



BANCO CENTRAL  
DE CHILE

**MONETARY POLICY REPORT** March 2016