

# **INFLATION REPORT**

March 2016

Recent trends and macroeconomic forecasts 2016-2017



BANCO CENTRAL DE RESERVA DEL PERÚ

### INFLATION REPORT: Recent trends and macroeconomic forecasts 2016-2017

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This *Inflation Report* was prepared using data on the Balance of Payments and Gross Domestic Product at Q4-2015, data on the operations of the Non-Financial Public Sector, Monetary Accounts, Inflation, Financial Markets, and the Exchange Rate at February 2016.

## Foreword

- According to the Constitution of Peru, the Central Reserve Bank of Peru (BCRP) is a public autonomous entity whose role is to preserve monetary stability. The BCRP is responsible for regulating the money supply and credit in the financial system, for managing the country's international reserves, and for reporting on the nation's finances.
- In order to consolidate this goal, the Bank's monetary policy is based on an inflation targeting scheme, with an inflation target of 2.0 percent, plus or minus one percentage point (between 1.0 and 3.0 percent). The Central Bank's inflation target is aimed at anchoring inflation expectations at a similar level to the inflation rate observed in developed economies and reflects the BCRP's permanent commitment with monetary stability.
- Each month, and according to a previously announced schedule, the Board of BCRP sets a reference rate for the interbank lending market. Since this interest rate, which is the monetary operational target, affects the rate of inflation through several channels in different timeframes, this rate is set based on inflation forecasts and forecasts of inflation determinants.
- The Central Bank takes into account that inflation may be influenced by factors beyond the control of monetary policy actions, such as shocks that may affect the supply of goods and services like fluctuations in the prices of imported products or climate factors, which may result in transitory deviations of inflation from the target. In its evaluations, BCRP considers the annual increase in the consumer price index registered each month and not only end-of-year figures.
- Additionally, the Central Bank implements preventive actions to preserve financial stability and monetary policy transmission mechanisms. Through interventions in the foreign exchange market, the Central Bank reduces excessive volatility in the exchange rate and accumulates international reserves in periods of capital inflows or high export prices, thus developing strengths to face negative events in an economy with still high levels of financial dollarization. The Central Bank also uses other monetary policy tools that affect the volume of liquidity and credit in a more direct manner, such as reserve requirements in domestic currency and in foreign currency, to avoid excessive credit or credit constraints.
- This Inflation Report includes macroeconomic forecasts that support the monetary policy decisions of BCRP as well as the risk factors that can modify these forecasts.



## Summary

- i. Reflecting lower economic dynamism in economies like China, Russia, and Brazil, the rate of global growth in 2015 was the lowest rate recorded since 2009. A gradual recovery of growth is forecast for 2016 with a rate of 3.3 percent (vs. 3.1 percent in 2015). In contrast with what was observed in previous Reports, the developed countries account mostly for the downward revision of global growth today due to uncertainty in financial markets, fears of deflation in Europe, and the strength of the dollar observed until recently. The forecast of global growth in 2017 remains at 3.6 percent, although growth in the region has been revised on the downside (1.8 percent in 2017 vs. 2.3 percent forecast in our previous Report).
- ii. In 2015 the deficit in the current account of the balance of payments was higher than in 2014 (4.4 percent of GDP vs. 4.0 percent). Nonetheless, a lower current account deficit is forecast for 2016 (3.9 percent) as a result of increased volumes of traditional exports. In line with the strong growth of mining exports and with the slight improvement of the terms of trade, the deficit in the current account is foreseen to decline from 3.9 percent in 2016 to 3.0 percent in 2017.
- iii. Peru's GDP grew 3.3 percent in 2015, higher than estimated in our previous Inflation Report (2.9 percent), due to the better output recorded in metal mining as a result of the expansion of Cerro Verde and the start of operations at Las Bambas.

The growth forecast for 2016 remains at 4.0 percent –as estimated in our Inflation Report of December–, but with a higher contribution to growth from the primary sectors resulting from the higher production levels being observed in some mining units like Cerro Verde, for example. In addition to this, the earlier-than-initially foreseen start of operations at Las Bambas has also been considered here. On the other hand, the growth forecast of the non-primary sectors has been revised down due to the impact that lower growth in the Latin American region would have on non-primary manufacturing as well as due to the impact of a lower pace of implementation of public works on the construction sector.

In 2017, GDP would continue to show an upward trend, a growth rate of 4.6 percent being forecast.

 Showing for a second consecutive year a negative economic balance, the operations of the non-financial public sector registered a deficit of 2.1 percent of GDP in 2015. This negative balance is explained by the decline of the current revenue of the general







government, associated with the drop of commodity prices, with the slowdown of economic activity, and with tax reduction measures. In 2016 the deficit is estimated to be equivalent to 2.6 percent of GDP, after which it would start showing a downward trend and register 2.3 percent of GDP in 2017.

v. Inflation accumulated in the last twelve months rose from 4.4 percent in December 2015 to 4.5 percent in February 2016. Food supply shocks reversed in part in February and a decline was also observed in fuel prices. Moreover, the annual rate of inflation without food and energy rose to 3.8 percent in February after showing rates around 3.5 percent for several months due to the effect of higher-than-seasonal rises in education costs.

Since our last Inflation Report was published, the risks on the upside of the inflation forecast have continued to materialize. The effect of an increased depreciation on prices has generated a rise in inflation and in inflation expectations, while supply shocks associated with El Niño have temporarily affected inflation.

vi. In this context, with the aim of favoring the convergence of inflation expectations to the target range and offsetting the second-round effects of inflation in price formation in the economy, the Board of BCRP raised the benchmark interest rate by 25 basis points in both January and February, to 4.25 percent. The Board also reiterated that the BCRP oversees inflation forecasts and inflations determinants and stands ready to make further adjustments in the policy rate, if necessary, to lead inflation and inflation expectations to converge to the target range.

Since March, with the aim of complementing the actions taken to sterilize banks' liquidity surpluses, the BCRP also raised the minimum current account reserve requirement used to calculate reserve requirements in the general regime of reserves in domestic currency by 25 basis points.

- vii. The projected evolution of the output gap is determined by the evolution of external conditions, the monetary policy stance and other financial conditions, the fiscal impulse and economic agents' confidence in the course of the economy. With the available information to date, a negative output gap indicating no inflationary pressures on the side of the demand is estimated. Moreover, a gradual reduction of the output gap is estimated in the 2016-2017 forecast horizon.
- viii. The balance of risks remains neutral in the inflation forecast, which means that there are no signals indicating an upward or a downward bias of the inflation forecast. The events that could divert the rate of inflation from the baseline scenario would include greater volatility in international financial markets, a slowdown of domestic demand, slower global growth, and the occurrence of supply shocks.

#### a. Volatility in international financial markets

This risk could materialize if the withdrawal of monetary stimulus by the U.S. Federal Reserve brought about volatility in international financial markets. In such case, this could generate capital outflows from the emerging markets and depreciation pressures on the currencies of these countries, which could lead to higher inflation.

#### b. Slowdown in domestic demand

In this year of elections, economic recovery could take longer than expected if the implementation of both public and private investment projects were postponed, which would generate a more negative output gap and lower inflation in the forecast horizon.

#### c. Lower global growth

The baseline scenario considers a slower recovery in the world economy in 2016-2017 than the one estimated in our Inflation Report of December, due mainly to lower growth in the United States and in the emerging economies as well as due to uncertainty about China. However, if such recovery were to take even longer and if the terms of trade deteriorated, the resulting lower external impulse would translate into a lower output gap and into lower domestic inflation.

#### d. Supply shocks

A rise in international oil prices and other imported products significantly above the levels considered in the baseline scenario could generate inflationary pressures. Similarly, more severe effects of El Niño than those foreseen could push upwards the prices of some food products.



	FORECAST SL	JMMAF	RY				
		2014	0045	20	16 <sup>1/</sup>	20	17 <sup>1/</sup>
		2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
	Real % chan	ge					
1.	GDP	2.4	3.3	4.0	4.0	4.8	4.6
2.	Domestic demand	2.1	3.0	3.0	2.5	3.8	3.8
	a. Private consumption	4.1	3.4	3.5	3.5	3.8	3.8
	b. Public consumption	10.1	9.5	5.3	4.0	4.0	3.0
	c. Private fixed investment	-2.1	-4.3	0.0	0.0	4.0	4.0
	d. Public investment	-2.0	-7.5	10.9	7.4	5.0	5.0
3.	Exports (goods and services)	-0.8	3.3	5.4	6.4	7.9	6.7
4.	Imports (goods and services)	-1.5	2.4	1.3	0.7	4.0	3.5
5.	Economic growth in main trading partners	2.4	1.8	2.1	1.6	2.5	2.3
Mem	0:						
0ι	utput gap <sup>2/</sup> (%)	-1.0 ; 0.0	-1.5,; -1.0	-1.5,; 0.0	-1.5,; -0.0	-1.0 ; -0.0	-1.0 ; 0.0
	% change						
6.	Inflation	3.2	4.4	2.5 - 3.0	3.0 - 3.5	2.0 - 2.5	2.0 - 2.2
7.	Average price of crude oil	-4.9	-47.7	-6.8	-27.3	7.8	17.8
8.	Terms of Trade 3/	-5.4	-6.3	-4.0	-2.6	1.7	0.1
	a. Export price index	-6.9	-14.9	-6.4	-5.2	3.5	2.3
	b. Import price index	-1.5	-9.2	-2.5	-2.7	1.8	2.2
	Nominal % cha	ange			1		
9.	Currency in circulation	11.2	3.8	8.0	4.6	8.0	5.0
10.	Credit to the private sector 4/	10.4	9.6	9.0	8.0	9.0	7.0
	% GDP	1			I		
11.	Gross fixed investment	25.7	24.3	23.8	23.9	23.9	24.0
12.	Current account of the balance of payments	-4.0	-4.4	-3.6	-3.9	-2.6	-3.0
13.	Trade balance	-0.7	-1.7	-1.3	-0.9	-0.3	-0.4
14.	Long-term external financing to the private sector 5/	7.2	5.3	3.9	3.8	4.0	4.3
15.	Current revenue of the general government	22.2	20.0	19.8	19.5	19.6	19.5
16.	Non-financial expenditure of the general government	21.5	21.3	21.3	20.8	21.0	20.6
17.	Overall balance of the non-financial public sector	-0.3	-2.1	-2.9	-2.6	-2.7	-2.3
18.	Total public debt balance	20.0	23.3	24.8	24.7	24.2	24.0
1/For	ecast.	1	1				

2/ Differential between GDP and potential GDP (%).

3/ Average.

4/ Includes loans made by banks' branches abroad.

5/ Includes Foreign Direct Investment, portfolio investment, and private sector's long-term disbursement.

IR: Inflation Report.

# I. International Environment

#### Output

 Recent indicators of activity in the sectors of services and manufacture in the largest economies show a slowdown compared to the last months of last year, reflecting high volatility in financial markets as a result of the uncertainty caused by the monetary and fiscal policy responses of these economies.

In the last months, the levels of the global indicators of activity (PMI) in the sectors of both manufacturing and services have decreased compared to the levels observed in December. The global manufacturing PMI fell from 50.7 in December 2015 to 50.0 in February, while the services PMI, which had been the most dynamic component, fell from 52.9 to 50.7 in the same month.







2. In line with these developments, the growth forecasts for 2016 and 2017 have been revised slightly down. Contrasting with previous reports, the revision on the downside this time is explained mainly by lower dynamism in the developed economies, whose growth forecast for 2016 has fallen from 2.2 to 1.9 percent. Activity in the manufacturing sector in the United States shows signs of a slower economic recovery, in part due to the strong appreciation of the dollar in the past two years, while investment in energy has been hit by low oil prices.

In response to these trends, the monetary authorities of the developed economies have pointed out the possibility of maintaining or enhancing accommodative monetary policies that may contribute to consolidate the recovery of their economies in a context of low inflationary pressures. For instance, in December the ECB reduced (from a negative level) its interest rates on banks' deposits, the Bank of Japan introduced a similar measure in January (for part of banks' reserves in excess of legally required reserves), and China recently reduced its rate of reserve requirements. These measures, and expectations of additional measures, have influenced a greater demand for higher-risk assets in recent weeks and generated upward pressures in stock and commodity markets.

	<b>wo</b>	Table RLD GDP ( Annual % c	<b>1</b> GROWT :hange)	н				
	<u>PPP %</u> Ti	ra <u>ding Pe</u> ru %	2044	2045	201	16*	20	17*
	2015	2015	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
Advanced economies	42.4	47.4	1.8	1.9	2.2	1.9	2.1	2.0
Of which:								
1. United States	15.9	17.5	2.4	2.4	2.6	2.2	2.6	2.3
2. Eurozone	12.0	11.0	0.9	1.5	1.6	1.5	1.7	1.7
Germany	3.4	2.8	1.6	1.5	1.5	1.5	1.5	1.5
France	2.3	0.9	0.2	1.1	1.4	1.2	1.5	1.6
Italy	1.9	1.7	-0.3	0.8	1.2	1.1	1.2	1.2
Spain	1.4	2.5	1.4	3.2	2.5	2.7	2.1	2.1
3. Japan	4.3	3.0	0.0	0.4	1.3	0.9	0.4	0.6
4. United Kingdom	2.4	1.1	2.9	2.2	2.4	2.1	2.2	2.2
5. Canada	1.4	4.4	2.5	1.2	2.1	1.6	2.2	2.2
Emerging market and developing economies	57.6	52.6	4.6	4.0	4.3	4.3	4.7	4.7
Of which:								
1. Developing Asia	30.9	26.9	6.8	6.6	6.4	6.4	6.2	6.3
China	17.2	22.2	7.3	6.9	6.4	6.5	5.9	6.2
India	7.1	2.2	7.2	7.3	7.4	7.4	7.6	7.6
<ol><li>Commonwealth of Independent States</li></ol>	4.4	0.7	1.0	-2.6	0.7	0.0	1.9	2.0
Russia	3.1	0.5	0.6	-3.7	-0.2	-1.1	1.0	1.2
<ol><li>Latin America and the Caribbean</li></ol>	8.3	23.2	1.3	-0.1	0.5	-0.4	2.3	1.8
Brazil	2.8	4.1	0.1	-3.8	-1.8	-3.5	1.5	0.0
Chile	0.4	3.2	1.9	2.1	2.6	2.2	3.2	2.7
Colombia	0.6	3.0	4.6	3.1	2.5	2.4	3.5	3.2
Mexico	2.0	3.4	2.1	2.5	2.8	2.6	3.3	2.9
Peru	0.3	-	2.4	3.3	4.0	4.0	4.8	4.6
World Economy	<u>100.0</u>	<u>100.0</u>	<u>3.4</u>	<u>3.1</u>	<u>3.4</u>	<u>3.3</u>	<u>3.6</u>	<u>3.6</u>
Peru's trading partners 1/	66.2		3.6	3.1	3.2	2.9	3.4	3.2
BRICs 2/	30.2		5.8	4.9	5.0	5.0	5.3	5.4

\* Forecast.

Source: Bloomberg, FMI and Consensus Forecast.

Memo: Since this report forecasting used PPP weighted 2015 (previous report used weighted PPP 2013).

1/ Basket of Peru's 20 main trading partners (previous report used basket 2006).

2/ Brazil, Russia, India, and China.

The emerging economies, on the other hand, would grow 4.3 percent in 2016 and 4.7 percent in 2017. These economies are still affected by volatility in international financial markets, by the low prices of commodities, and by uncertainty regarding China's growth. Moreover, growth forecasts in other important economies, i.e. Brazil and Russia, have been revised down.

3. Activity in the **U.S.** economy slowed down in Q4-2015, affected by the appreciation of the dollar and by the low prices of crude oil. After growing 2 percent in Q3, the output grew 1 percent in Q4.

After showing a growing trend for 16 consecutive quarters, non-residential investment fell 1.9 percent, affected by greater uncertainty about global demand, lower profit margins, and the low level of oil prices which continues affecting investment in the energy sector. Consumption has slowed down, especially the consumption of nondurable goods, and net exports continue declining due to weak global demand and to the appreciation of the dollar.

(	<b>U</b> Seasonally adjusted	Table 2 ISA: GDP d annualized	quarterly rat	es)		
	20	014		2	015	
	III	IV		II	111	IV
Private consumption	3.5	4.3	1.8	3.6	3.0	2.0
Fixed investment	7.9	2.5	3.3	5.2	3.7	0.1
Change on inventories *	0.0	0.0	0.9	0.0	-0.7	-0.1
Net exports *	0.4	-0.9	-1.9	0.2	-0.3	-0.3
GDP	<u>4.3</u>	<u>2.1</u>	<u>0.6</u>	<u>3.9</u>	<u>2.0</u>	<u>1.0</u>
Memo						
Unemployment rate **	5.9	5.6	5.5	5.3	5.1	5.0
* Contribution to growth. ** End-of-period. Source: BEA and BLS.						

4. Recent indicators –particularly the indicators of employment, retail sales, and orders of durable goods– would be pointing to some recovery of consumption and investment in the first quarter of this year. Consumption remains supported by the strengthening of the labor market. A total of 242 thousand non-agricultural new jobs were created in February –a higher rate than the average rate of 229 thousand new jobs per month recorded in 2015–, and the unemployment rate was 4.9 percent, the minimum level observed since February 2008 and in line with the long-term rate estimated by the Fed.





On the other hand, investment in the energy sector would remain weak due to the low prices of oil. Exports would continue being affected by the appreciation of the dollar which, at the sector level, would be reflected in the evolution of the manufacturing.

In such a context, economic growth in 2016 and 2017 would be lower than projected in our previous Inflation Report. The economy would grow 2.2 percent in 2016 and 2.3 percent in 2017. The main risks of this projection are on the downside and associated with potential scenarios of a further appreciation of the dollar, having low oil prices or having an additional drop in the price of oil, a higher-than-expected slowdown in the emerging economies, or greater volatility in global markets.

5. The evolution of inflation, which showed a rising trend in recent months, reduces the risks of deflation due to the low prices of oil and the strength of the dollar. In February, the inflation rate was 1.0 percent –higher than a year ago when it was 0.0 percent–, while core inflation –which excludes the prices of food and energy–registered 2.3 percent, the highest level since May 2012.



6. The likelihood of rising rates at the beginning of this quarter has shown a downward trend because of the higher volatility observed in international financial markets and the slowdown of growth in China. In line with these developments, Federal Reserve officials issued warnings saying that the Fed has to be cautious and that delaying the next rate rise and having a slower pace of rate hikes is supported by many specialists. However, in line with the publication of some positive indicators of activity, the probability of a rate hike has increased over the past few weeks although it is still below the percentages observed in December. The probability of a rise in implied futures rates indicates that there would be at least one rate rise this year, but investment houses consider that there would be between 1 and 3 interest rate hikes this year.



Finally, the Fed decided to maintain its interest rate unchanged at its March policy meeting. Even though the Fed pointed out the recent rising trend of inflation, they revised the inflation forecast for this year slightly downwards and revised the growth forecast in 2016 and 2017 to 2.2 and 2.1 percent, respectively. In this context, the Fed revised down the projection of interest rates hikes, with an implicit increase of 2 hikes of 25 basis points in 2016 and 4 hikes of 25 basis points in 2017.

	Table 3 FED: FORECASTING										
				Centra	l trend						
	2016 2017 201			018	Long-term						
	Dec.15	Mar.16	Dec.15	Mar.16	Dec.15	Mar.16	Dec.15	Mar.16			
Growth Unemployment rate Inflation (PCE)	2.3 - 2.5 4.6 - 4.8 1.2 - 1.7	2.1 - 2.3 4.6 - 4.8 1.0 - 1.6	2.0 - 2.3 4.6 - 4.8 1.8 - 2.0	2.0 - 2.3 4.5 - 4.7 1.7 - 2.0	1.8 - 2.2 4.6 - 5.0 1.9 - 2.0	1.8 - 2.1 4.5 - 5.0 1.9 - 2.0	1.8 - 2.2 4.8 - 5.0 2.0	1.8 - 2.1 4.7 - 5.0 2.0			
Core Inflation (PCE Core)	1.5 - 1.7	1.4 - 1.7	1.7 - 2.0	1.7 - 2.0	1.9 - 2.0	1.9 - 2.0		-,-			
Memo: Core PCE excludes food and energy.											
Means of the interest rate projections (%)*	1.4	0.9	2.4	1.9	3.3	3.0	3.5	3.3			
* la palale dese fuero 17 individual presidentione of the pe	analaana af tha		f parted								





As in previous quarters, the GDP growth rate in Q4 is explained by the evolution of domestic demand. An upturn in private investment stands out, particularly in investment in equipment and construction, whereas private consumption has grown at a more moderate pace. Public spending continues showing positive growth rates, in part due to the costs associated with the influx of refugees. On the other hand, net exports continue having a negative contribution to growth given the unfavorable international context of slowdown observed in the emerging economies.

Table 4           EUROZONE: GDP GROWTH           (Seasonally adjusted annualized quarterly rates)										
		2014 2015								
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Private consumption	0.1	0.7	1.7	2.2	1.8	1.2	2.0	0.9		
Fixed investment	1.8	-1.8	2.1	1.9	5.9	0.4	1.7	5.4		
Change on inventories*	1.0	0.1	-0.8	-0.6	0.7	-0.9	1.0	0.4		
Net exports*	-0.6	-0.1	0.4	0.3	-1.0	1.4	-1.5	-1.2		
Government expenditure	0.8	0.8	1.2	0.6	1.8	1.1	1.3	2.2		
GDP	<u>0.9</u>	<u>0.2</u>	<u>1.2</u>	<u>1.4</u>	<u>2.3</u>	<u>1.6</u>	<u>1.2</u>	<u>1.3</u>		
Memo Unemployment rate**	11.8	11.5	11.5	11.4	11.2	11.0	10.7	10.4		
* Contribution to growth										

\* Contribution to growth \*\* End-of-period.

Source: Eurostat

8. The decline of investor and consumer confidence in the Eurozone in recent months suggests that if volatility persists in financial markets, it would offset the recent recovery of investment and that the slowdown of consumption could increase in the first and second quarter of this year. In this context, it is estimated that the Eurozone would continue growing at moderate rates (1.5 percent in 2016), which would imply a slight correction in the forecast (down 0.1 percent) of our previous report. This slightly slower pace of growth is explained by the negative effect of volatility in financial markets on domestic demand during the first half of 2016, which would disappear thereafter.

This evolution of economic activity has taken place in a context marked by low inflation and even by increased deflationary risks. Inflation in the region returned to negative grounds in February (levels not observed since September 2015) and registered the lowest rate in a year, while core inflation was below an annual rate of 1 percent.



Similarly, in line with the 5-year forward rates of 5 year inflation swaps, inflation expectations in markets since mid-December have been declining from an annual rate of 1.8 percent at the beginning of December 2015 to 1.4 percent at the end of February 2016.



In this context, in order to ensure an inflation path consistent with the mediumterm goals, the ECB has hinted repeatedly that it will do everything necessary to fulfill its mandate of long-term price stability. The ECB minutes of January indicated concern over the realization of second round effects of lower oil prices. In March, the ECB issued a series of measures (some of which were not expected by the market).

Within the conventional measures, the ECB reduced the deposit rate by 10 basis points (to -0.40 percent) and the refinancing and marginal loan rates by 5 basis points each (to 0.0 percent and 0.25 percent, respectively). On the other hand, non-conventional measures included increasing its asset purchase program (from  $\in 60$  to  $\in 80$  billion per month) and including non-banking corporate bonds with investment-grade in this program. The ECB also announced a new series of long



term (4 years) liquidity injections with rates potentially as low as the deposit facility rate.

9. In **China**, the economic slowdown of growth has continued. Although the growth of GDP was higher than expected in Q4-2015 (6.8 percent), this was the lowest annual rate recorded since Q1-2009. This slowdown is explained mainly by the services sector (which accounts for over 50 percent of GDP). In response to these developments, the authorities have issued stimulus measures that are estimated to continue in the following quarters.



10. In the first months of 2016, indicators confirm the slowdown of activity in the services sector and, in addition, a lower dynamism in the manufacturing (industrial) sector. On the expenditure side, the growth in consumption (in particular retail sales) has slowed down and investment (in manufacturing and real estate) has continued decelerating significantly.

CHINA'S EC	Table 5 CHINA'S ECONOMIC INDICATORS									
	2012	2013	2014		2	015		2016		
Indicators	Dec.	Dec.	Dec.	Mar.	Jun.	Sep.	Dec.	Feb.		
Industrial Production (12 month % change)	10.3	9.7	7.9	5.6	6.8	5.7	5.9	5.4		
Investment in fixed assets (Accum. annual % change)	20.6	19.6	15.7	13.5	11.4	10.3	10.0	10.2		
Real estate Investment (Accum. annual % change)	16.2	19.8	10.5	8.5	4.6	2.6	1.0	3.0		
Average price of houses (Annual % change)	-0.1	9.7	-4.5	-6.4	-5.7	-2.1	0.3	n.d.		
Retail sales (12 month % change)	15.2	13.6	11.9	10.2	10.6	10.9	11.1	10.2		
Exports (12 month % change)	14.1	4.3	9.7	-15.0	2.8	-3.7	-1.4	-25.4		
Imports (12 month % change)	6.0	8.3	-2.4	-12.7	-6.1	-20.4	-7.6	-13.8		
New loans in yuans (Annual %)	15.0	14.1	13.6	14.0	13.4	15.4	14.3	13.3		
Total new financing (Annual %)	19.4	17.8	14.4	12.8	11.7	12.1	11.7	12.7		
M2 (Annual % )	13.8	13.6	12.2	11.6	11.8	13.1	13.3	13.3		
Consumer Price Index (12 month % change)	2.5	2.5	1.5	1.4	1.4	1.6	1.6	2.3		
* Average January/February. Source: Bloomberg and IMF.										

These signals have been accompanied by increased deflationary pressures. In February of this year, CPI inflation rose slightly (to 2.3 percent, reflecting higher food prices), but it still remains at low levels. On the other hand, core inflation fell to 1.3 percent (the lowest level in 12 months).



11. As pointed out in our previous report, this deceleration of growth in the Chinese economy is in line with the adjustments and with the progress of the reforms that are being implemented in this economy to re-orient its course towards a more sustainable growth in the long term. However, the risks of a sharp slowdown in China's economy have not disappeared and continue affecting the evolution of financial markets. Fears of a significant depreciation of the Chinese currency, the adjustment of the over leveraged corporate sector, and the correction of the housing bubble have affected the evolution of asset markets and are still considered risk factors in the forecast.

In view of these risks, the Government has reiterated its commitment to maintain reasonable growth rates and avoid abrupt corrections through fiscal and monetary policies and to continue with a gradual implementation of the reforms. For example, the Government said that it could ease its fiscal target for 2016 and the Central Bank has recently reduced its rate of reserve requirements by 50 basis points (this is the first general measure taken since October 2015). In line with these actions, additional measures are expected in the following quarters.

In this context, China is forecast to grow 6.5 percent in 2016 (the estimate is similar to the lower band of the Government's new target range), while the growth forecast for 2017 has been revised up from 5.9 to 6.2 percent due to the expected effect of stimulus actions on domestic demand, particularly on consumption, and on the services sector.



12. In Q4-2015, the main **Latin American** countries with inflation targeting registered, in most cases, a slowdown in their pace of growth and Brazil recorded a contraction in its levels of activity (in a context of high political uncertainty).



Some monthly indicators –i.e. industrial production, retail sales, and other indicators– show that this trend has continued in most countries in the first months of the year. The economies in the region are facing a context marked by high volatility in financial markets, low commodity prices, and slower global growth.

In line with these developments, the growth forecast for the region has been revised down from 0.5 to -0.4 percent in 2016 and from 2.3 to 1.8 percent in 2017. The biggest revision of growth on the downside is that of Brazil, a country that represents around a third of the region's GDP. According to Consensus Forecast, market projections also foresee a contraction of the output in Venezuela and, to a lesser extent, in Argentina and Ecuador.



Latin American countries have been facing at the same time higher inflation and an increase in inflation expectations due to the depreciation of their currencies and to supply shocks associated with the climate. Except for Mexico, inflation has been above the target range in most countries in the first two months of 2016. In this context, several central banks in the region (Mexico and Colombia) have continued with the cycle of rate hikes.

	Table 6 LATIN AMERICA: INFLATION									
Target range	Brazil 2.5-6.5	Chile 2.0-4.0	Colombia 2.0-4.0	<u>Mexico</u> 2.0-4.0	Peru 1.0-3.0					
Dec.13	5.9	2.9	1.9	4.0	2.9					
Mar.14	6.2	3.9	2.5	3.8	3.4					
Jun.14	6.5	4.3	2.8	3.8	3.5					
Sep.14	6.8	4.9	2.9	4.2	2.7					
Dec.14	6.4	4.6	3.7	4.1	3.2					
Mar.15	8.1	4.2	4.6	3.1	3.0					
Jun.15	8.9	4.4	4.4	2.9	3.5					
Sep.15	9.5	4.6	5.4	2.5	3.9					
Dec.15	10.7	4.4	6.8	2.1	4.4					
Jan.16	10.7	4.8	7.5	2.6	4.6					
Feb.16	10.4	4.7	7.6	2.9	4.5					
Source: Bloomberg.										

The largest price rises are expected to be seen in 2016 in Venezuela, Argentina, Uruguay, and Brazil. In countries with inflation targeting, on the other hand, inflationary pressures are expected to moderate in line with a reduction of the depreciation pressures and with the reversal of some supply shocks.







#### **Financial Markets**

13. International markets started the year with a high turbulence associated mainly with two factors: the volatility of the oil price and uncertainty about global growth, especially because of China (particularly after the significant fall of its stock indices and activity data, which continue pointing to a slowdown of growth).

However, this was in part offset by expectations of further stimulus programs in the Eurozone and China, by the unexpected action of the Bank of Japan (which introduced a negative compensation to part of banks' reserve requirements in excess), and by the lower likelihood, at the beginning of the year, that the Fed will raise its rates. This would explain the demand for assets of relative higher risk –.i.e. variable income assets and commodities– observed since the last weeks of February.

In the emerging markets, continuing the trend observed since 2015, greater global risk aversion and prospects of slower growth have generated a significant decline in capital flows. According to estimates of the Institute of International Finance (IIF), total flows to emerging markets at February would have been negative for eight consecutive months. It is worth pointing out that, in contrast with other regions, Latin America recorded some small capital inflows in the first two months of the year.



In March, there have been positive flows to the emerging economies. According to the information collected by Barclays and JP Morgan –which do weekly follow-ups of capital flows to the emerging economies– there has been an important inflow of

capital to these economies after several months, supported by the recent actions taken by the ECB.

14. The dollar showed two different trends in the foreign **exchange markets**. At the beginning of the year, it showed a clear appreciation trend associated with the fact that it is considered a hedge asset in contexts of risk aversion. However, this trend reversed in part in recent weeks as expectations that the Fed would raise its rates decreased. Thus, after appreciating by 1.9 percent in January, the dollar depreciated 1.0 in February against the currency basket of its major trading partners.

As a result, year-to-date, the dollar index has appreciated slightly (0.9 percent). An aspect worth highlighting has been the depreciation of the pound against the U.S. dollar (4.5 percent) –the pound recorded its lowest level in 7 years–, associated with uncertainty about the possible withdrawal of the UK from the European Union (Brexit) and the appreciation of the yen (6.4 percent) as it is considered a safe asset during periods of risk aversion. Despite this, the euro has fluctuated around the levels it recorded at the end of last year.



On the other hand, most of the currencies of the emerging economies continue to show a depreciation against the dollar given the previously mentioned context of risk aversion and low commodity prices. It is worth pointing out that at the beginning of the year the Yuan recorded a depreciation that was subsequently reversed (as a result of the measures of the Central Bank). In this context, China's international reserves have dropped by US\$ 800 billion from its maximum level in June 2014 (US\$ 4 billion). By March, the currencies of the emerging economies reversed this trend in part, showing a sharp appreciation given the previously explained better conditions observed in financial markets.



	Table 7 EXCHANGE RATE (C.U. PER US\$)								
		Feb.16 (1)	<u>Dec.15</u> (2)	<u>Dec.14</u> (3)	<u>% cł</u> (1)/(2)	nange (1)/(3)			
FED index*	C.U. per US\$	124.04	122.98	111.29	0.9	11.5			
Eurozone	US\$ per Euro	1.087	1.086	1.210	0.1	-10.1			
Japan	Yen	112.72	120.34	119.71	-6.3	-5.8			
United Kingdom	US\$ per Pound	1.392	1.474	1.557	-5.6	-10.6			
Brazil	Real	4.019	3.962	2.658	1.4	51.2			
Chile	Peso	697	709	607	-1.7	14.8			
Colombia	Peso	3,292	3,180	2,389	3.5	37.8			
Mexico	Peso	18.15	17.19	14.75	5.6	23.0			
Peru	Sol	3.53	3.42	3.00	3.1	17.6			
Israel	Shekel	3.91	3.90	3.90	0.3	0.2			
South Africa	Rand	15.89	15.49	11.58	2.5	37.2			
Turkey	Lira	2.97	2.92	2.34	1.6	27.0			
China	Yuan	6.56	6.50	6.21	0.9	5.6			
Philippines	Peso	47.52	46.95	44.83	1.2	6.0			
Indonesia	Rupia	13,500	13,790	12,390	-2.1	9.0			
Malaysia	Ringgit	4.21	4.30	3.50	-2.0	20.4			
Thailand	Bath	35.66	36.04	32.92	-1.1	8.3			

\*\* Last day February 26. Source: Reuters and FED.

15. **Stock markets** were also influenced by uncertainty regarding global growth, the drastic collapse of the stock market in China in January (24 percent), and the volatility of oil prices. However, since mid-February stock exchange markets have shown a recovery associated with expectations of the stimulus programs pointed out above and the recovery of oil prices, which confirms expectations about the future of the world economy.

The banking sectors of stock markets were affected worldwide (particularly in Europe and Japan) by concerns about their profitability due to the current context of low rates and weak growth, which has led investors to reduce their exposure in this sector.

As for stock exchanges in the region, a positive trend has been observed so far this year due to the recovery of the prices of basic metals, particularly in the month of February.



16. Yields in **public debt markets** were affected by uncertainty and by expectations about the stimulus actions mentioned above, the yields in the developed countries (considered to be of lower risk) showing the greatest declines.

In the **United States**, yields dropped significantly as the demand for bonds increased considerably, favored by the fact that they are considered safe assets and by the lower expectations of rate rises given the context of volatility in financial markets.

In the **Eurozone**, expectations of further stimulus actions by the ECB influenced the decline of yields in general. In Greece, yields have been affected by political uncertainty as well as by fears that this country will fail to comply with the targets and progress in the implementation of the reforms agreed upon in its third bailout program.

In the emerging economies, yields showed lower declines or remained almost stable, affected by the volatility of financial markets and investors' lower appetite for risky assets. In **China**, yields have risen slightly (4 basis points) influenced by fears about the evolution of the Chinese economy, while in **Latin American** markets, yields have been affected also by the evolution of commodity prices.

	Table 8         YIELDS ON 10-YEAR TREASURY BONDS         (%, end of period)									
	Feb.16	Dec.15	Dec.14	Dec.12	Public debt (% GDP 2014)					
United States	1.74	2.27	2.17	1.76	105					
Germany	0.11	0.63	0.54	1.31	73					
France	0.47	0.99	0.82	1.99	95					
Italy	1.42	1.59	1.88	4.49	132					
Spain	1.53	1.77	1.60	5.23	98					
Greece	10.07	8.07	9.42	11.68	177					
United Kingdom	1.34	1.96	1.76	1.83	90					
Japan	-0.07	0.26	0.32	0.79	246					
Brazil	16.06	16.51	12.36	9.17	65					
Colombia	8.97	8.66	7.10	5.48	38					
Chile	4.45	4.66	3.99	5.49	14					
Mexico	6.09	6.26	5.83	5.36	50					
<b>Peru</b>	<b>7.49</b>	<b>7.31</b>	<b>5.41</b>	<b>4.09</b>	<b>21</b>					
South Africa	9.40	9.76	7.96	6.78	46					
Israel	1.76	2.10	2.31	3.99	69					
Turkey	10.48	10.46	7.86	6.55	33					
China	2.90	2.86	3.65	3.59	41					
South Korea	1.79	2.08	2.63	3.17	36					
Indonesia	8.22	8.69	7.75	5.15	25					
Thailand	2.11	2.49	2.69	3.51	47					
Malaysia	3.92	4.19	4.12	3.50	57					
Philippines	3.87	4.22	3.83	4.42	37					

Source: Bloomberg and FMI.



# II. Balance of Payments

#### **Current Account Balance**

- 17. A current account deficit of 3.9 percent of GDP is foreseen for **2016**. This deficit, which is higher than the one estimated in our December report (3.6 percent of GDP) but lower than the one recorded in 2015 (4.4 percent of GDP), would be explained by a greater volume of traditional exports (due to increased mining production) but also by a greater contraction of non-traditional exports (as a result of slower growth in the countries of the region). In addition, the forecast also considers higher profits of companies with foreign shareholding associated with the upward revision of export prices, which would fall less than expected in our previous report. In line with the strong increase foreseen in mining exports and with a slight growth in the terms of trade, the current account deficit is projected to decline from 3.9 percent in 2016 to 3.0 percent of GDP in **2017**.
- 18. Long-term financing from private sources is expected to represent 4.3 percent of GDP in 2017. This estimated level is lower than that observed in recent years, which would be associated in part with the end of the cycle of large mining investment, but would continue to be higher than the gap in the current account in 2017, foreign direct investment being the main component.





Table 9         BALANCE OF PAYMENTS         (Million US\$)										
		2016*	016*	20	17*					
	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16				
I. CURRENT ACCOUNT BALANCE	-8,093	-8,430	-7,005	-7,405	-5,347	-6,014				
% GDP	-4.0	-4.4	-3.6	-3,9	-2.6	-3.0				
1. Trade Balance	-1.406	-3,207	-2,574	-1.742	-588	-713				
a. Exports	39,533	34,157	33,300	34,494	37,338	37,559				
b. Imports	-40 939	-37,363	-35,875	-36,236	-37,926	-38,272				
2. Services	-1,730	-1,732	-1,458	-1,538	-1,488	-1,224				
<ol><li>Investment income</li></ol>	-9,328	-6,823	-6,560	-7,556	-6,982	-7,643				
<ol><li>Current transfers</li></ol>	4,372	3,331	3,588	3,431	3,711	3,566				
Of which: Remittances	2,637	2,725	2,890	2,819	2,978	2,923				
II. FINANCIAL ACCOUNT	5,915	8,503	8,005	8,055	5,847	6,514				
1 Drivate Sector	E 020	1 5 4 6	2 0 0 2	A 1E 0	1 100	1 953				
1. Filvale Sector	5,920	4,540	2,90Z 2,021	4,150	4,105	4,000				
b Short term 1/	570	7,290	3,901	4,158	4,105	4,000				
2. Public Sector <sup>2/</sup>	-6	3,957	4,024	3,897	1,665	1,661				
III. BALANCE OF PAYMENTS (=I+II)	-2,178	73	1,000	650	500	500				
<b>Memo:</b> Long-term external financing of the private sector(% GDP) <sup>3/</sup>	7.2	5.3	3.9	3.8	4.0	4.3				

1/ Includes net erros and omissions.

2/ Includes exceptional financing.3/ Includes net foreign investments, portfolio investment and private sector's long-term disbursement.

IR: Inflation Report. \* Forecast.

- 19. The reduction of the current account deficit in 2016-2017 is consistent with a greater participation of domestic savings, which would increase from 20 percent of GDP in 2016 to 21.1 percent of GDP in 2017. Investment would increase slightly, but would show a more infrastructure-oriented composition and would not reach the magnitudes of investment in mining projects observed over the past years.

Table 10           SAVINGS -INVESTMENT GAP           (% GDP)								
	2044	2015	2016*		2017*			
	2014		IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16		
1. Gross fixed investment	25.7	24.3	23.8	23.9	23.9	24.0		
<ul> <li>2. Net domestic savings <sup>1/</sup></li> <li>a. Private</li> <li>b. Public</li> </ul>	<b>21.7</b> 16.4 5.2	<b>20.0</b> 17.0 2.9	<b>20.1</b> 17.8 2.3	<b>20.0</b> 17.4 2.7	<b>21.2</b> 18.8 2.5	<b>21.1</b> 18.1 2.9		
3. External savings	4.0	4.4	3.6	3.9	2.6	3.0		

1/ Excluding change on inventories.

\* Forecast





#### Trade Balance

- 20. In 2015 the trade balance recorded a deficit equivalent to US\$ 3.2 billion, a higher deficit than in 2014. This deficit, which is higher than the one recorded in 2014, reflects a reduction of exports of 14 percent, while imports showed a contraction of 9 percent in a context of lower terms of trade. The decline of exports was mainly associated with the decrease of the prices of traditional products (in a year where most exporters of commodities were affected by the reduction of the prices of the major commodities), together with the effect of lower volumes of exports of non-traditional products (the lower demand of the countries of the region being worth highlighting). On the side of imports, the reduction was associated with the dynamics of consumption and investment observed during the year.
- 21. The projected balance in the trade balance for **2016** has been revised up from a deficit of US\$ 2.6 billion (IR of December) to a deficit of US\$ 1.7 billion in this report, taking into account the effect of higher traditional exports of mining products associated with a greater volume of these goods than that estimated in the previous report. In particular, the volume of copper exports has been revised on the upside, in line with the latest data and production announcements.

Exports are also estimated to increase significantly in **2017** due to the increased production of major copper projects, the stabilization of the prices of the metals we export, as well as due to greater volumes of exports of fishmeal and to a recovery of nontraditional exports.

Table 11       TRADE BALANCE       (Million US\$)							
	2045	2016*		2017*			
	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16		
<b>Exports</b> Of which:	34,157	33,300	34,494	37,338	37,559		
Traditional products	23,263	22,289	23,895	25,720	26,502		
Non-traditional products	10 807	10 806	10 506	11,413	10 967		
<b>Imports</b> Of which:	37,363	35,875	36,236	37,926	38,272		
Consumer goods	8,762	8,633	8,604	8,988	8,886		
Inputs	15,932	15,588	15,405	16,642	16,510		
Capital goods	12,006	11,453	11,895	12,201	12,715		
Trade Balance	-3,207	-2,574	-1,742	-588	-713		
* Forecast. IR: Inflation Report.							

Table 12         TRADE BALANCE       (% change)							
	2045	20	16*	2017*			
	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16		
1. Value:							
Exports	-13.6	-1.2	1.0	12.1	8.9		
Traditional products	-16.0	-2.7	2.7	15.4	10.9		
Non-traditional products	-7.5	1.1	-2.8	5.6	4.4		
Imports	-8.7	-1.9	-3.0	5.7	5.6		
2. Volume:							
Exports	1.5	5.2	6.6	8.3	6.4		
Traditional products	5.5	6.1	9.4	10.5	7.9		
Non-traditional products	-5.7	3.4	0.5	4.1	3.4		
Imports	0.8	0.8	-0.6	3.8	3.2		
3. Price:							
Exports	-14.9	-6.4	-5.2	3.5	2.3		
Traditional products	-20.4	-8.3	-6.1	4.4	2.8		
Non-traditional products	-1.8	-2.2	-3.3	1.4	0.9		
Imports	-9.2	-2.5	-2.7	1.8	2.2		

22. Contrasting with our previous estimation that exports would decline by 1.2 percent in **2016** (IR of December), exports are now foreseen to grow 1.0 percent this year due mainly to increased exports of traditional products (greater production of copper at Cerro Verde and Las Bambas).

This report also considers a downward revision of non-traditional exports due mainly to the decline of shipments of textiles and chemical products to other Latin American countries, some of the main destinations of these exports, as a result of the negative growth forecast in the Latin American region.

Mining exports, especially copper exports, are estimated to grow in **2017**, reflecting the positive impact on production of current operations at mining project Las Bambas and the expansion of Cerro Verde. Moreover, increased shipments of fishing products are also forecast considering the normalization of climate conditions.

Non-traditional exports would grow gradually in 2017 as a result of the recovery of prices and greater demand, in line with the recovery of growth in our main trading partners.









23. In **2016** the volume of imports of capital goods is expected to be lower, in line with the lower mining investment anticipated, while the volume of imports of consumer goods would be lower as a result of the depreciation of the sol recorded until February. On the other hand, in **2017** imports would show greater growth in real terms, in line with the growth of domestic demand.



#### **Terms of Trade**

24. Showing the fourth consecutive annual decline, Peru's terms of trade fell 6.3 percent during 2015. This decline is basically explained by the drop observed in the prices of the country's main exports, particularly copper (20 percent). This trend was in part offset by the decline recorded in import prices, especially crude oil (48 percent).

The prices of commodities continued declining in the first weeks of the year, but started showing a price correction in February. The latter has continued so far in the month of March.

As a result, in 2016 the terms of trade are estimated to show an additional decline of 2.6 percent in annual average terms, lower than that estimated in the IR of December, in line with the lower fall of export prices (5.2 percent).



Table 13						
TERMS OF TRADE: 2013 - 2017						
(Annual average data)						

				2016*		2017*	
	2013	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
Terms of Trade	<u>-5.7</u>	<u>-5.4</u>	<u>-6.3</u>	<u>-4.0</u>	<u>-2.6</u>	<u>1.7</u>	<u>0.1</u>
Price of exports Copper (US\$ cents per pound) Zinc (US\$ cents per pound) Lead (US\$ cents per pound) Gold (US\$ per ounce)	<b>-5.7</b> 332 87 97 1,411	<b>-6.9</b> 311 98 95 1,266	<b>-14.9</b> 250 88 81 1,160	<b>-6.4</b> 215 75 75 1,075	- <b>5.2</b> 215 77 80 1,200	<b>3.5</b> 216 77 77 1,083	<b>2.3</b> 216 78 80 1,200
<b>Price of imports</b> Oil (US\$ per barrel) Wheat (US\$ per ton) Maize (US\$ per ton) Soybean oil (US\$ per ton)	<b>0.1</b> 98 266 235 992	<b>-1.5</b> 93 243 155 812	<b>-9.2</b> 49 186 141 667	<b>-2.5</b> 46 182 149 623	<b>-2.7</b> 35 172 145 692	<b>1.8</b> 49 203 159 644	<b>2.2</b> 42 195 155 717

Source: BCRP. \* Forecast.





#### Copper

25. After dropping 28 percent in 2015, the price of **copper** fell 1 percent in the first two months of 2016, closing with a monthly average price of US\$ 2.08 per pound in February. Year-to-date, the price of copper has decreased rapidly until it reached a minimum low of US\$ 1.96 per pound on January 15, showing a recovery thereafter and rising 3 percent in February relative to the previous month. The recent rise was associated with the return of investors to commodity markets amid stimulus measures adopted by the Chinese government.

The downward pressures on the price of copper are explained by prospects of a lower demand, particularly due the decline observed in China's demand (the Chinese currency has depreciated a little over 5 percent in the last 6 months) and in the demand of other countries such as Japan, Europe, Russia, and Brazil.

The rapid adjustment in China's consumption of copper was mainly associated with lower investment in key sectors for the demand for copper, such as the real estate sector and the sector of energy grids, the former being affected by the reversal of the bubble in this sector, while investment in the latter being halted due to investigations of corruption in electric power companies. However, even though the demand in the energy sector is already showing a recovery, such recovery has been offset by the scarce dynamism observed in other activities associated with the production of consumer goods such as cars or durable goods such as electric appliances, air conditioners, and other items.

In the forecast horizon, the prices of copper would be those pointed out in our previous report given that a balanced market is foreseen in the next two years. The slowdown in the demand is being offset by the voluntary production cuts of Glencore in its mines in Africa and Freeport MacMoRan in its operations in Chile and the United States.

The risks on the upside remain associated with a likely recovery of China's demand as a result of the stimulus measures that the Chinese Government would be implementing, support to the expansion of credit for industrial activity and increased investment in infrastructure in the electricity sector being especially key factors. Further supply cuts to balance the market are also quite likely to be observed. On the other hand, the downside risks are associated with the possibility that China's copper consumption continues to deteriorate and with a greater availability of supply due mainly to the onset of mega production projects as from the following year. Production is expected to grow, especially in the next two years, due mainly to mining projects in Peru and Zambia.





#### Zinc

26. The average price of **zinc** rose 12 percent in the first two months of the year, reaching a monthly average price of US\$ 0.78 per pound in February 2016. As a result, the price of zinc reverses in part the drop of 30 percent recorded in 2015 when the price fell from an average monthly price of US\$ 0.99 a pound in December 2014 to an average of US\$ 0.69 per pound in December 2015.

The rise in the price of zinc was supported by the revision of the global deficit of zinc in the next years given the shortage of zinc concentrates that has begun to be observed after the closing of Vedanta's mine Lisheen and MMG's Century mine, and the production cuts announced by several producers. This recovery is taking place in a context of stabilization of the global demand for zinc after the poor performance it recorded in 2015, especially in the markets of the United States and China. Much of the reduction in consumption is explained by a lower use of zinc to galvanize steel as a result of lower demand in the sector of construction and the automobile industry, as well as by the replacement of zinc using other methods to prevent steel corrosion.

In this context, the price of zinc in the forecast horizon has been revised up due to prospects of a lower global supply. The forecast shows downside risks associated with an increased slowdown in the Chinese economy, while risks on the upside risks are associated with a rapid recovery of global consumption in a context of supply cuts resulting from the closure of large mines due to their exhaustion.



#### Gold

27. The price of **gold** fell 11 percent in 2015, closing December with a monthly average price of US\$ 1,068 per troy ounce. However, in the first two months of 2016 the price of gold rose 12 percent, closing with a monthly average price of US\$ 1,199 per troy ounce in February.

The price of gold maintained a rising trend in the first two months of the year, affected by increased financial volatility and by the impact of the negative interest rates applied in the Eurozone and Japan. In addition to this, the price of gold was also supported by fears of a recession in the United States and the greater likelihood that the Fed will delay raising interest rates as well as by the statement of the Chairperson of the Fed who said that negative rates could be applied if it was necessary.

Moreover, the price of gold was also supported by expectations of seeing an improvement in fundamentals. The recovery in Asia's physical demand recorded in the last quarter of 2015 is expected to continue being observed in 2016 and the global production of gold mines is estimated to continue declining after it recorded its greatest decline since 2008.

The price of gold in the forecast horizon is expected to be above the level estimated in our previous report. Signals indicating that the Federal Reserve could reverse its decision to raise its interest rate and that the U.S. economy could slowdown would contribute to reverse in part the downward pressures on the price of gold.





#### Crude Oil

After declining by 18 percent in 2015, the price of WTI oil accumulated a fall of 19 percent in the first two months of 2016 and closed with a monthly average price of US\$ 30/barrel in February.

This downward trend is associated with a global oversupply of crude resulting both from increased global production and fears of lower demand. The global production of crude continued to be supported by the increased production of the OPEC member countries which continue competing to maintain their market share. The aim of this strategy is to cause the oil producers that have the higher costs to be the ones to reduce their supply, namely the producers of non-conventional crude oil. In addition, in this context the sanctions preventing Iran from increasing its exports of crude were lifted. Moreover, some non-OPEC countries, like Russia, for instance, have also continued increasing their oil production. On the other hand, concerns of a global slowdown which negatively affected the outlook for the global demand for crude have intensified, especially in China, and the global demand has also been affected by an unusually warm weather in the winter time of the Northern Hemisphere.

This global oversupply has resulted in an increase of global inventories of crude oil. The United States Energy Information Administration (EIA) estimates that crude inventories have risen to levels unheard of since 1930.

In this context, the forecast of the price of WTI oil is revised down relative to our previous Inflation Report. However, both downward and upward risk factors remain high. The downside risks are associated with a rapid return of Iran's production to the market, the likelihood that the demand has been affected by a less cold winter in the Northern Hemisphere due to El Niño, the possibility that the U.S. production does not decrease as estimated, and a decline in China's consumption. On the other hand,
Graph 25 WTI OIL: JANUARY 2007 - DECEMBER 2017 (US\$/bl) Average IR Dec.15 IR Mar. 16 140 2001 - 2015 66 120 100 80 60 40 % Annual cho % Annual cho 20 0 Jan.08 Jan.09 Jan.10 Jan.11 Jan.12 Jan.13 Jan.14 Jan.15 Jan.07 Jan.16 Jan.17 Source: Bloomberg and BCRP.

risks on the upside include a rapid reduction of production in non-OPEC countries, which is reflected in the reduction of the number of oil rigs operating.

#### Maize

29. In February 2016, the average international price of **maize** was lower than in December 2015.

The price of maize declined, affected by good climate conditions in Brazil and Argentina, which favored good harvests, as well as by the depreciation of the currencies of these countries, which increases the relative competitiveness of maize from Brazil and Argentina vis-à-vis U.S. maize crops. This effect was offset by the U.S. Department of Agriculture (USDA) downward revision of global end inventories in January and February, which reflects the production drop foreseen in South Africa, USA, and Russia, offset by a higher production foreseen in Argentina and Brazil (in line with the developments mentioned above).

Based on these reasons, the price of maize is estimated to show slightly lower levels than those forecast seen in our previous report.







## Wheat

30. In February, the average international price of **wheat** showed a drop of 2.4 percent compared to December 2015, closing with an average price of US\$ 160.0 per ton at the end of February.

The price of wheat was affected by the revision of global final inventories of wheat by the USDA in the months of January and February. The higher inventories are associated with better prospects for crops in the USA, Argentina, Russia, and Ukraine, as well as by a decline in the global demand for wheat due mainly to China's lower consumption of wheat.

Because of these factors, it is estimated that the price of wheat will show lower levels than those considered in our previous Inflation Report.



### Soybean Oil

31. The average price of **soybean oil** in February was US\$ 659.9 per ton, 0.4 percent higher than the average price level recorded in December 2015.

The price of soybean oil rose influenced by the fact that both the USDA and the Brazilian governmental agency cut their projection of the soybean yield in Brazil, as well as influenced by a greater-than-expected reduction in Malaysia's production of palm tree oil due to climatic factors. These pressures were offset by the upward revision of global inventories by the USDA, the favorable climatic conditions for this crop observed in Argentina, China's lower imports of soybean, and the low prices of crude oil.



Because of these factors, it is estimated that the price of soybean oil will show higher levels than those considered in our previous Inflation Report.

## **External Financing**

32. The net flow of private long-term external financing would amount to US\$ 4.2 billion in **2016**, a slightly higher level than that estimated in our previous report. A recovery is foreseen in the net inflow of long-term capital in **2017**, with positive net flows amounting to US\$ 4.9 billion (2.4 percent of GDP) and direct investment continuing to be the most important component.

Table 14           FINANCIAL ACCOUNT OF THE PRIVATE SECTOR (Million US\$)						
	2014	2015	2(	)16*	20	)17*
	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
a. <u>Long-term</u> % GDP	<u>6,490</u> 3.2	<b>7,296</b> 3.8	<u>3,981</u> 2.1	<u>4,158</u> 2.2	<u><b>4,183</b></u> 2.1	<b><u>4,853</u></b> 2.4
1. Assets	-4,548	-224	-1,516	-1,146	-2,374	-1,419
2. Liabilities	11,038	7,520	5,498	5,304	6,557	6,272
Foreign direct investment in the count	ry 7,885	6,861	4,625	4,625	4,847	4,847
Non-financial sector	3,023	1,828	872	944	1,709	1,426
Long-term loans	1,078	2,410	-498	360	15	416
Portfolio investment	1,945	-582	1,370	584	1,695	1,010
Financial sector	131	-1,170	0	-265	0	0
Long-term loans	-593	-1,156	-500	-265	-550	-161
Portfolio investment	723	-14	500	0	550	161
b. <u>Short-term</u> <sup>1/</sup>	<u>-570</u>	<u>-2,751</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
c. Private Sector (A + B)	<u>5,920</u>	<u>4,546</u>	<u>3,982</u>	<u>4,158</u>	<u>4,183</u>	<u>4,853</u>

IR: Inflation Report.

\* Forecast.



- 33. The positive flow expected in the **financial account of the public sector** in the next 2 years (nearly US\$ 5.6 billion) reflects major disbursements destined to finance several investment projects –i.e. the expansion of the refinery in Talara and the development of Lima's Metro Line 2–, as well as the treasury's funding needs.
- 34. At end-2015, the private sector' external indebtedness represented 17.9 percent of GDP, while the indebtedness of the public sector was equivalent to 13.0 percent of GDP. The level of the external debt is expected to remain stable in the forecast horizon, with economic agents showing a higher preference for borrowing domestic currency.



35. The soundness of the balance of payments to face negative events in the global economy is reflected in the position of Peru's international reserves relative to the balance of its short term external liabilities or comparing the total of these liabilities with the country's current account deficit. The high-levels the Peruvian economy registers in these indicators in the region has been preventively achieved over the period of time characterized by capital inflows and high commodity prices.

Table NIR INDIC	e 15 CATORS		
As a % of:	2006	2011	2016*
GDP	19.7	28.6	32.7
Short-term external debt <sup>1/</sup>	166	471	582
Short-term external debt plus Current account deficit	230	360	344
1/ Includes short-term debt balance plus redemption (1-year) of private an	d public sector		

1/ Includes short-term debt balance plus redemption (1-year) of private and public sector \* Forecast

\* Forecast.



Graph 31 NET INTERNATIONAL RESERVES (% GDP)







#### BOX 1 THE MINING CYCLE AND THE CURRENT ACCOUNT OF THE BALANCE OF PAYMENTS

By the beginning of the last decade, the global economy began to experience the positive effects of an expansionary phase of the economic cycle which reflected, among other things, an important increase in the terms of trade. According to the information of commodity prices of the World Bank (The Pink Data), in 2003-2007 the prices of metals increased by 135 percent worldwide, the highest increase recorded in only five years since the 1960s. This price improvement had a significant impact on the balance of the current account of the balance of payments and, through this channel, in the economies of countries exporters of such raw materials as well.

If we take some countries that export mainly metals, such as Australia, Canada, Chile, Peru, and South Africa, for example, the evolution of their current accounts has been in part associated with the behavior of metals prices. We can see periods with price improvements together with a reduction in the current account deficit (2004-2006, 2009-2010, 2013) and periods in which there is a deterioration of prices along with a higher current account deficit (2007-2009, 2011-2012, 2013-2015).



Fornero, Kirchner and Yany (2016) showed that Australia, Canada, Chile, and Peru recorded a cycle of private investment, particularly of mining investment, highly correlated with the price cycle of raw materials.<sup>1</sup> According to these authors, small open commodity-exporting economies registered a positive shock on mining investment as a result of the increase in the price of metals. However, the positive impact is not limited only to the mining sector, since it also encouraged greater investment in other sectors. Insofar as these effects occur, ceteris paribus, such increased investment can generate a persistent deficit in the current account in the medium term.

The current account deficits or reversals are associated with the response of investment, mainly in the mining sector, which is characterized by a slight reaction at the beginning and then by significant and persistent growth. This lag in

<sup>1</sup> Fornero, Jorge, Markus Kirchner, and Andrés Yany (2016). "Terms of Trade Shocks and Investment in Commodity-Exporting Economies", Documento de Trabajo N° 773, Banco Central de Chile.

the response of mining investment is associated with the time it takes mining companies to expand their production capacity to take advantage of the better export prices.<sup>2</sup> Moreover, this expansion of investment will become concrete if agents perceive the rise in prices as permanent. Thus, transitory shocks do not generate greater investment in the sectors of raw materials, whereas permanent shocks produce a significant impact. Therefore, transitory shocks tend to be associated with a current account surplus, while persistent shocks are followed by a significant current account deficit after some quarters (Fornero, Kirchner, and Yany, 2016).

The fall recorded in metal prices since 2012 has resulted in less investment in these countries. In Chile, investment decreased 3.1 percentage points of GDP between 2012 and 2015, while in Australia it fell 2.8 percentage points, 1.2 percentage points in Canada, and 0.2 percentage points in Peru.

GROSS DOMESTIC INVESTMENT (% GDP)					
	2012 (a)	2013	2014	2015 (b)	Change: 2015 - 2012 (b) - (a)
Chile	25.5	24.4	21.4	22.3	-3.1
Australia	29.1	27.6	26.7	26.3	-2.8
Canada	24.9	24.5	24.0	23.6	-1.2
Peru	26.2	27.8	26.2	26.0	-0.2
South Africa	20.1	20.1	20.4	20.0	-0.1

Source: IMF-WEO and BCRP.

During 2015, these economies have experienced lower growth rates associated with mining investment, reflecting not only the lag of new projects as a result of the fall in metal prices, but also the completion of large-scale projects. For example, according to the latest report published by the Central Bank of Australia, mining investment fell from 8 percent of GDP in mid-2012 to 5 percent of GDP by the end of 2015. In Peru, mining investment declined from 4.4 percent of GDP in 2012 to 3.9 percent of GDP in 2015 while in Chile mining investment reached historically high levels as a percentage of GDP in 2012 –higher than 6 percent of GDP– and then normalized as a result of the drop in the price of copper. The final effect will depend on economic agents' expectations regarding the persistence of this new scenario of lower prices.

In Peru, the terms of trade increased at an annual average rate of 12.7 percent between 2003 and 2007, and the balance of the current account of the balance of payments went from a deficit of 1.6 percent of GDP to a surplus of 1.5 percent of GDP during this period. This improvement in the current account is mainly explained by an improvement in the trade balance, driven by the higher export prices of primary goods, especially mining exports.

The increase in terms of trade results in an increase in private investment. According to the estimates included in the Inflation Report of July 2014, the elasticity of private investment with regard to terms of trade show values in the range between 0.2 and 0.5. The higher prices of metals increased the expected profitability of mining projects. Investment in the mining sector increased significantly in the following years, with projects such as Toromocho, Constancia, Las Bambas, and the expansion of Cerro Verde being implemented. This higher investment reflected in increased imports

<sup>2</sup> According to Fornero and Kirchner (2014), the accumulation of capital in the sector of raw materials takes time because there are adjustment costs to initiate investment projects and because there is a lag between the onset of the project and the installation of the necessary capital, effect that is known in the literature as "time to build".



of capital goods: between 2004 and 2012 private investment grew 15 percent on average in annual terms, while imports of capital goods grew at an annual rate of 19 percent, which led to a transient deterioration of the current account during the period of construction of the projects. This happened even when there was an improvement in the terms of trade, between 2010 and 2011.



In the last four years, the terms of trade have declined at an average annual rate of 4.9 percent, a faster pace than that observed during the international crisis of 2008-2009. While this has resulted in a reduction of the current account deficit, this reduction has occurred at a slower pace than during the crisis episode. Between 2008 and 2009 the current account deteriorated by 1.0 percentage point of GDP on average per year, whereas between 2012 and 2015 the current account has deteriorated by 0.6 percentage points of GDP on average each year. This is explained in part by an increase in the volume of exports of traditional products –reversing the declines recorded in 2013 and 2014, traditional exports grew 5.5 percent in 2015 due to the production of mining projects–, this rising trend being expected to continue in 2016 and 2017 as a result of the completion of the construction stage of mining projects which should now start their production stage (e.g. the expansion of Cerro Verde and Las Bambas). In turn, this translates into a slowdown of investment in this sector and in a declining trend in the current account deficit.

	Increase of commodity prices	International crisis	Post-crisis: Recovery of commodity prices	Decrease of commodity prices
	2003-2007	2008-2009	2010-2011	2012-2015
Average change on Current account (% points GDP)	0.8	-1.0	-0.7	-0.6
Terms of Trade (Annual average change)	13	-6.8	13.9	-4.9

In conclusion, the dynamics observed in Peru's current account is not an isolated case, and rather responds to the behavior of a commodity exporting economy. This type of economies show similar patterns in the dynamics of their current account deficits and in the trends of their terms of trade. Because of the cyclical nature of the prices of minerals, the accumulation of international reserves and tax surpluses in periods of boom has been a positive policy action to face the period of falling metal prices with a sound position.

# III. Economic Activity

36. Peru's GDP grew 3.3 percent in 2015, a higher rate than that estimated in the Inflation Report of December due to the higher output registered in the sectors of metal mining and services. Domestic demand grew 3.0 percent in the year, driven both by private and public consumption. In 2016 the GDP is still projected to grow 4.0 percent growth as a result of a higher growth of exports in response to the greater dynamism expected to be seen in the mining sector. The increased contribution of the primary sectors would be offset by a slower recovery of non-primary sectors, the growth rates of non-primary manufacturing and construction having been revised down. Moreover, the growth rate projected for 2017 has been revised from 4.8 to 4.6 percent since the mining production in year 2016 would be greater than what was estimated in December.

## Sector GDP

37. Between 2014 and 2015, the rate of economic activity grew from 2.4 to 3.3 percent due to the momentum of the primary sectors (6.6 percent), particularly the momentum of mining and, to a lesser extent, manufacturing based on the processing of raw materials and fishing. The increase of mining production during 2015 (15.5 percent) was associated with the expansion of copper mining in the mineral deposits of Antamina, Toromocho, Antapaccay, and Cerro Verde, as well as with the earlier onset of operations at Las Bambas in December. The prior forecast scenario considered that these operations would start in the second half of 2016.

However, during 2015 primary sectors such as fishing and primary manufacturing based on raw materials were affected by El Niño, which generated a series of climatic disturbances such as higher marine temperatures and anomalies that affected the biomass of anchovy. El Niño also had adverse effects in the agriculture sector because crop cultivation was lower since a more severe event was anticipated. Based on these aspects, the impact of the El Niño on the output in 2016 is estimated at 0.2 percentage points.





On the other hand, in 2015 the growth rate in the non-primary sectors slowed down to 2.4 percent after growing 3.6 percent in 2014, due mostly to the weak performance of construction and non-primary manufacturing, which showed negative rates of 5.9 and 2.7 percent, respectively. The fall of spending in the sub-national governments, on the one hand, and the lower demand from goods earmarked for investment and the lower demand of the country's trading partners in Latin America were the factors that contributed most to the slowdown of activity in these two sectors.

Table 16           GDP BY PRODUCTION SECTOR           (Real % change)						
			20	)16*	20	17*
	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
Agriculture and livestock Agriculture Livestock	<b>1.9</b> 0.7 5.8	<b>2.8</b> 1.3 5.3	<b>1.6</b> 0.5 3.3	<b>1.6</b> 0.4 3.4	<b>3.7</b> 3.7 3.6	<b>3.7</b> 3.7 3.6
Fishing	-27.9	15.9	-1.2	1.1	27.9	25.2
<b>Mining and hydrocarbons</b> Metallic mining Hydrocarbons	<b>-0.9</b> -2.2 4.0	<b>9.3</b> 15.5 -11.5	<b>10.6</b> 11.2 8.1	<b>14.1</b> 17.0 1.0	<b>10.4</b> 11.6 4.6	<b>8.6</b> 9.4 4.6
Manufacturing Based on raw materials Non-primary industries	<b>-3.6</b> -9.3 -1.5	<b>-1.7</b> 1.7 <b>-</b> 2.7	<b>1.1</b> -0.1 1.5	<b>-1.5</b> 1.0 -2.2	<b>4.2</b> 10.6 2.5	<b>4.0</b> 9.4 2.5
Electricity and water Construction Commerce Services	4.9 1.9 4.4 5.0	6.2 -5.9 3.9 4.2	6.0 2.5 3.8 3.7	7.6 0.0 3.6 3.7	5.5 3.5 3.8 3.7	5.5 3.5 3.8 3.7
GDP	2.4	3.3	4.0	4.0	4.8	4.6
Memo: Primary GDP Non-Primary GDP	-2.2 3.6	6.6 2.4	6.5 3.4	8.9 2.7	9.1 3.6	7.8 3.6

\* Forecast.

IR: Inflation Report.

38. Some indicators have begun to show a greater dynamism since the end of 2015, which would be pointing to a continuing recovery of economic activity. For example, electricity production increased by 16.3 percent in February (versus an increase of 7.0 percent in the month of September 2015) and the domestic consumption of cement recorded positive rates in the first two months of this year.



39. A growth forecast of 4.0 percent is still considered in the forecast scenario, but with changes in the contribution of the primary and non-primary activities. Mining production is foreseen to show a more dynamic growth due to the earlier start of operations of Las Bambas and due to the announcement of some companies of increases in their production goals for this year. On the other hand, the growth of non-primary sectors such as manufacturing and construction has been revised down since these sectors have been affected by the development of the market of investment-oriented goods, the external market, and the slow pace of government spending in public investment projects by the national government in a year of general elections.



The growth forecast for 2017 is revised down from 4.8 to 4.6 percent taking into account the earlier beginning of operations of Las Bambas.



40. Growth in 2016 would continue to be driven by the primary sectors. As we can see in the graph bellow, the primary sectors would contribute with 70 percent of the higher growth expected in 2016 (0.5 percentage points of 0.7 percentage points).



a) The growth forecast in the **agriculture sector** remains at 1.6 percent (IR of December). This slower growth in 2016 –2.8 percent in 2015– results mainly from a scenario that considers an El Niño event that would alter climatic conditions and would affect agricultural production. However, these climatic factors are expected to normalize by 2017, year in which this sector would grow 3.7 percent.

- b) In the **fishing sector**, it is expected that a similar quota of anchovy catch to that of the second fishing season of 2015 will be set in the first fishing season of 2016 considering that factors such as the level of biomass, the presence of young fish, and the sea temperature have not returned to normal levels yet due to the presence of El Niño. These conditions are expected to dissipate by October, which is when the second fishing season should start in the country's north areas. With all of this, the sector would grow 1.1 percent in 2016 and the growth rate would rise to 25.2 in 2017, when the climatic anomalies affecting the coastal areas are expected to disappear.
- c) Given the metal extraction levels reached in Q4-2015 and announcements made by the mining companies, the growth rate of the **metal mining sector** projected for 2016 is revised up from 11.2 percent to 17 percent. This revision is mainly explained by the higher expected production of Cerro Verde and Las Bambas during the year, which would reach 550 thousand tons and 250 thousand tons of copper, respectively. Finally, the growth forecast of metal mining in 2017 is revised down from 11.6 percent to 9.4 percent due to the advanced production that would be recorded in 2016 in comparison with what was previously estimated in the December Inflation Report.

**Copper production** grew 25.8 percent in 2015, the highest rate in 11 years, with the new copper projects of mines Toromocho and Constancia, as well as the recovery of Antamina accounting for this increased production. It should be pointed out that Las Bambas also began to produce this year, although still at minimum levels, but higher production levels are soon expected. Copper production would reach considerably greater levels in 2016, driven by the expansion of Cerro Verde and the increasing production of Las Bambas, the latter of which would account mostly for the growth of the sector in 2017 (9.4 percent).

Table 17           COPPER PRODUCTION           (Thousand MTF)				
	2014	2015	2016*	2017*
Antamina	362	412	428	450
Southern	293	298	296	300
Cerro Verde	179	208	550	575
Antapaccay	167	203	201	210
Toromocho	70	182	182	200
Constancia	0	106	125	130
Las Bambas	0	7	250	462
Rest	224	212	208	223
TOTAL	1,296	1,628	2,239	2,550
* Forecast.				



After three consecutive years of decline, the **production of gold** grew 3.5 percent during 2015, driven by the onset of operations at the mining project Inmaculada. Yanacocha, Barrick, Anama and Antappacay. In 2016 and 2017, gold production would decrease due to the natural depletion of deposits, mainly by the decline of production of Yanacocha and Barrick.

**Zinc production** grew 8.1 percent during 2015 due to increased production at El Brocal and the recovery of mineral grades at Antamina. The growth forecast for 2016 has been revised down from 1.4 percent to -4.4 percent due to the lower production of Los Quenuales associated with the closure of mining unit lscaycruz at the end of 2015.

	Table 18 MINING PRODUCT (% change)	ION	
	2015	2016*	2017*
Cooper Gold Zinc	25.8 3.5 8.1	37.6 -7.0 -4.4	13.5 -5.1 3.0
* Forecast			

- d) The projected output in the **subsector of hydrocarbons** in the year 2016 is revised down from 8.1 percent to 1.0 percent, while the forecast growth rate for 2017 remains at 4.6 percent. The downward revision for 2016 is mostly explained by the fact that the international prices of crude oil would still remain at low levels. In addition to this, the forecast also includes some unforeseen events, such as the rupture of Camisea's pipeline for liquids, which caused the transport of natural gas liquids to stop for 13 days. Furthermore, the interruption of operations at lot 192 due to the rupture of the pipelines of Oleoducto Nor Peruano in the first months of the year added on to this.
- d) The projected growth rate of **manufacturing production** in 2016 is revised down from 1.1 percent to -1.5 percent since a lower growth rate is expected in non-primary manufacturing due to the lower demand foreseen from our trading partners in the region and in line with an environment in which there is no recovery of private investment. In 2017, non-primary manufacturing is forecast to grow 2.5 percent.

### **Expenditure-side GDP**

41. GDP's growth rate of 3.3 percent in 2015 was driven by an increase in private consumption and by the growth of exports of goods and services, especially traditional



exports. This growth rate was recorded in an environment of deteriorating terms of trade and economic slowdown in the world economy. On the other hand, in the domestic arena, the decline of public investment was associated with sub-national governments' management and with the delay in the implementation of some large-scale projects, which affected economic agents' expectations and consequently affected the rate of growth of private investment.

The growth of 4.0 percent forecast for this year considers a greater growth of exports due to the increased mining expansion and a more moderate growth in domestic demand. In terms of the components of domestic demand, the growth rate estimated in public investment is revised down taking into account the negative rates shown by the investment of the national government in the first two months of the year. Public consumption, on the other hand, would maintain a moderate pace of expansion, somewhat lower than estimated in the previous report. Thus, the recovery of the economy in 2016 will be driven by net exports.

Table 19           GDP AND DOMESTIC DEMAND           (Real % change)						
			20	16*	20	17*
	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
I. Domestic demand	2.1	3.0	3.0	2.5	3.8	3.8
1. Private expenditure	1.4	2.8	2.2	2.0	3.7	3.8
Consumption	4.1	3.4	3.5	3.5	3.8	3.8
Private fixed investment	-2.1	-4.3	0.0	0.0	4.0	4.0
Change on inventories**	0.6	1.7	1.3	1.2	1.1	1.2
2. Public expenditure	6.0	4.2	6.8	4.9	4.3	3.6
Consumption	10.1	9.5	5.3	4.0	4.0	3.0
Investment	-2.0	-7.5	10.9	7.4	5.0	5.0
II. Net external demand						
1. Exports	-0.8	3.3	5.4	6.4	7.9	6.7
2. Imports	-1.5	2.4	1.3	0.7	4.0	3.5
III. <u>GDP</u>	<u>2.4</u>	<u>3.3</u>	<u>4.0</u>	<u>4.0</u>	<u>4.8</u>	<u>4.6</u>
* Forecast. ** % GDP. IR: Inflation Report.						

42. In 2017 domestic demand is expected to grow 3.8 percent, considering that private investment will be gradually returning to a faster pace of growth rate based on the implementation of projects given in concession and considering the announcements of investment projects. On the exports side, exports are expected to grow 6.7 percent, driven by a greater mining production.





- 43. Consumption indicators show mixed results. Some indicators that reflect the recent trend observed in private consumption are given below:
  - a) The consumer confidence index recorded a level of 60 points between January and February. The level of expectations was above the levels observed in October and November 2015.



b) The workforce employed in the private sector has been showing a gradual recovery, rising from a growth rate of 0.9 percent in December 2014 to a rate of 2.9 percent in February 2016.



c) The seasonally-adjusted rate of unemployment, indicator that reflects the proportion of the total labor force who are unemployed and looking for a paid job, was 6.3 percent in February 2016, a higher rate than that observed in the last quarter of 2015 (6.2 percent).



d) Credit to individuals, which includes consumer loans and mortgage loans, continues to show a moderate pace of growth. Thus, credit to individuals recorded an annual growth rate of 12.1 percent in the last quarter of 2015 and a rate of 11.5 percent in January 2016.



e) The volume of imports of consumer durables accumulated a decline of 11.9 percent in the first two months of this year. This decline is higher than that observed in the last quarter of 2015 (3.5 percent).



f) Finally, sales of new family cars recorded a drop of 0.7 percent in January 2016 compared to the same month in 2015. This decline is lower than the one observed between August and December 2015.



Considering these indicators, **private consumption** is estimated to grow 3.5 percent in 2016 and 3.8 percent in 2017.

44. **Private investment** would record zero growth in 2016 in a context of completion of the investment stage of some mining projects, delays in businesses' investment decisions, a deterioration of indicators of expectations, and lower terms of trade. In 2017, investment is expected to recover, showing rates of 4.0 percent with the impulse given by infrastructure projects (announced investment projects and projects given in concession).









- 45. Some indicators reflecting the current trends of private investment are given below:
  - a) Business expectations about demand three months ahead remain on the optimistic side with a level of 53 points in February. Moreover, business expectations about the economic situation three months ahead showed a level of 47 points in February, a higher level than that observed at end-2015. On the other hand, the indicator of investment expectations six months ahead recorded a level of 48 points in December, one of the lowest levels observed since June 2013.



Graph 48 INVESTMENT EXPECTATIONS ON YOUR COMPANY IN THE SIX MOTNH AHEAD



Graph 49 EXPECTATIONS ON THE SITUATION OF THE ECONOMY IN THE THREE MONTHS AHEAD



b) The volume of imports of capital goods –indicator of the demand for investment– fell 5.3 percent in February 2016 and accumulated a drop of 3.1 percent between January and February 2016.





c) The survey on expectations of GDP growth shows that, on average, all the economic agents expect GDP growth in 2016 and 2017 to show similar growth rates than that expected in December 2015.

Table 20           SURVEY ON MACROECONOMIC EXPECTATIONS: GDP GROWTH (% change)			
		Expectations about:	
	IR Sep.15	IR Dec.15	IR Mar.16
Financial entities 2016 2017	3.8 4.5	3.5 4.0	3.3 4.0
Economic analysts 2016 2017	3.7 4.5	3.2 4.0	3.2 4.0
Non-financial firms 2016 2017	3.5 4.0	3.5 4.0	3.5 4.0

46. Moreover, private investment projects announced to be carried out in the period of 2016-2017 amount to US\$ 24.4 billion, as shown in the table below.

Table 21           PRIVATE INVESTMENT PROJECTS ANNOUNCED: 2016-2017 (Million US\$)				
Sector	IR Dec.15	IR Mar.16		
Mining	7,888	7,044		
Hydrocarbons	3,912	3,865		
Infrastructure	3,452	3,435		
Electricity	3,016	3,140		
Industry	1,564	1,570		
Other sectors	4,784	5,335		
Total	24,616	24,389		
Source: Information of companies.				



a) Investments in the mining sector dropped 16 percent in Q4-2015 compared to the previous year. This drop is explained by the completion of investment projects, such as Constancia and Toromocho, as well as by the completion of the construction stage of some mining projects, such as Las Bambas and Cerro Verde. The latter have already started their production stages.

Investment announcements in the mining sector have been revised down. Announced investment declined mainly because Las Bambas, which began the investment stage earlier (in 2015) is currently in the production trial period, and because Quellaveco project, whose EIS has already been approved, is currently developing a new feasibility study in a context of the lower prices of minerals observed today.

The expansion of Toquepala, whose construction permit was approved in April of 2015, would continue with an investment that would reach US\$ 1.2 billion and would allow the mining company to increase its production of copper. The first stage of the expansion of Marcona, which consists of the implementation of new systems to transport the mineral ores through conveyor belts and a new plant to double the boarding capacity of dock San Nicolás, would be completed this year. Investment in this project is approximately US\$ 1.3 billion and additionally, the company would carry out a project in order to use the mineral deposits of low-grade, which would imply an additional investment of US\$ 300 million.



b) In the hydrocarbons sector, Consorcio Gasoducto Sur Peruano continues implementing the project entitled Mejoras a la Seguridad Energética del País y Desarrollo del Gasoducto Sur. Both the welding process of the secondary pipeline that will take natural gas from Camisea to the City Gates of Cusco and Anta as





well as the processes of digging the trenches and clogging the gas pipes in the first kilometers of Gasoducto Sur Peruano, in the rainforest area, began in 2015.

- c) Infrastructure projects include the progress carried out in the construction works of Lima Metro's Line 2, including the construction of two ventilation wells between Ate and Santa Anita in November as part of the first stage that will be completed in the first quarter of 2017. Additionally, Consorcio Consierra Tramo II, led by Spanish company Sacyr Concesiones, has carried out works representing 41 percent of the total investment of project Longitudinal de la Sierra, Section 2 (Ciudad de Dios-Cajamarca-Chiple-Cajamarca-Trujillo-Desvío Chilete-Emp PE-3N).
- d) In the electricity sector, the Ministry of Energy and Mines approved the Environmental Impact Study (EIS) of the implementation of the 500 Kv Transmission Line of Mantaro - Marcona - Socabaya - Montalvo and associated substations to be carried out by Consorcio Transmantaro. With an investment of US\$ 446 million, the transmission line is estimated to begin commercial operations in February 2017.

Table 22           MAIN PROJECTS TO BE IMPLEMENTED THROUGH CONCESSION ARRANGEMENTS IN 2 (Million US\$)	2015-2016
	Estimated investment
A. Awarded Broadband Installation for Integral Connectivity and Social Development of Tumbes-Piura-Cajamarca-Cusco Regions Broadband Installation for Integral Connectivity and Social Development of Ayacucho Region Broadband Installation for Integral Connectivity and Social Development of Huancavelica Region First Stage of the Carapongo Substation and Conexion Links to Associated Lines Broadband Installation for Integral Connectivity and Social Development of Apurimac Region 220 Kv Azangaro - Juliaca -Puno Transmission Line Comprehensive Broadband Connectivity for the Social Development of the Northern Zone of the Country- Lambayeque Region 220 Kv Montalvo - Los Héroes Transmission Line and associated substations Electronic surveillance services through the use of electronic devices	<b>537</b> 250 55 49 43 42 37 32 20 9
B. Called Nationwide 698-806 MHz band Headworks and Conduction for the Drinking Water Supply in Lima Longitudinal of the Sierra road project, Section 4: Huancayo-Izcuchaca-Mayocc-Ayacucho/Ayacucho-Andahuaylas- Puente Sahuinto/Dv. Pisco - Huaytará - Ayacucho Massive Use of Natural Gas - Distribution System through a Natural Gas Grid Across The Regions of Apurimac, Ayacucho, Huancavelica, Junin, Cusco, Puno and Ucayali Liquid Petroleum Gas Supply System for Lima and Callao Huancayo - Huancavelica Railway Quillabamba Thermal Power Plant Headworks for the Waters of the Chillón River The Amazon Waterway	<b>3,936</b> 1,680 600 446 350 310 220 180 80 70

Source: ProInversión.

In 2015 ProInversión awarded 8 concession contracts for the implementation of projects amounting to US\$ 537 million. In 2016, it has already awarded a concession contract for US\$ 9 million and expects to award concession contracts for 9 other projects representing investments for a total of US\$ 3.94 billion.

	Table 23 MAIN INVESTMENTS PROJECTS: 2016-2017			
SECTOR	COMPANIES	PROJECT		
Mining	Southern Perú Copper Corporation Chinalco Shougang Corporation Jinzhao Mining China Minmetals Corp Sociedad Mienra Cerro Verde	Expansion of Toquepala Expansion of Toromocho Expansion of Marcona Pampa del Pongo Las Bambas Expansion of Cerro Verde		
	Bear Creek Mining Corporation Compañía de Minas Buenaventura Compañía de Minas Buenaventura Rio Alto Mining - Tahoe Resources	Corani San Gabriel Tambomayo Shahuindo		
Hydrocarbons	Enagas, Odebrecht China National Petroleum Corporation, Repsol YPF S.A. Graña y Montero Petrolera Pluspetrol Perú Corp. S.A. Calidda Gas Natural del Perú Karoon Gas Natural	Enhance energy security country and development of pipeline in the south Lot 57: Kinteroni Improvement: Lots III - IV Exploration of Lots 88 and 56 Massive use of gas Exploration: Lot Z - 38		
Electricity	Enersur Quimpac S.A. Interconexión Eléctrica Inevarante Corsán-Corvian Isolux de México Odebrecht Generación Eléctrica Las Salinas Endesa Odebrecht	Electric Node in the South of Peru Hydroelectric Power Plant of Cerro del Águila 500 KV Mantaro - Marcona - Socabaya - Montalvo Transmission Line Hydroelectric Power Plant of Acco Pucará Hydroelectric Power Plant of Molloco 220 KV Moyobamba - Iquitos Transmission Line Hydroelectric Power Plant of Belo Horizonte Eolic Park Samaca Hydroelectric Power Plant of Curibamba Hydroelectric Power Plant of Cerro de Chaglla		
Industry	Corporación Lindley Repsol YPF S.A. Técnicas Reunidas SAB Miller Grupo Gloria Medrock Precor Grupo Romero San Miguel Industrias	Storages and infraestructures Expansion of La Pampilla plant Modernization of Talara refinery Investment projects 2015-2016 Investment projects 2011-2016 Production of medical factory in Lima Plant in Chilca Warehouses and cryogenic plant Recycling plant		
Infrastructure	Consorcio Nuevo Metro de Lima Odebrecht Consorcio Consierra II APM Terminal Lima Airport Partners Covisol Kuntur Wasi Covi Perú Graña y Montero	Line 2 Network Metro Lima (Electric Train) New highways in Lima Longitudinal de la Sierra road project, Section 2 Modernization of Not Pier Expansion of international airport (Jorge Chávez) Trujillo-Sullana: Sol Highway International airport (Chinchero) Highway network N° 6 Pucusana - Cerro Azul - Ica South Expressway		
Other sectors	Grupo Telefónica Entel Grupo Salinas Grupo Romero Grupo Falabella Besalco S. A. Graña y Montero Vivienda (GMV) Grupo Interbank Grupo Suma	Expansion and facilities of net LTE-4G Development of services National Fiber Optics Backbone Storages for minerals Expansion and New shopping centers Real Estate projects Projects of houses Expansion and New shopping centers Projects of houses		

47. As regards **public investment** in 2016, a higher rate of public spending by subnational governments is expected this year.





## Table 24 MAIN PROJECTS TOTHE NATIONAL GOVERNMENT: 2015 (Million Soles)

	Ammount
TRANSPORT	6,606
Land transport concesions	1,403
Improvement of Road Néstor Gambetta - Callao	542
Construction of line 2 network and section Av. Faucett-Gambetta in Metropolitan Lima and Callao	411
Construction of Road section 2 Piura-Paita	267
Construction and improvement of Road Camaná-Quilca-Matarani-Ilo-Tacna	252
Restoration and improvement of Road Quinua-San Francisco	219
Restoration and improvement of Road Puerto Bermúdez-San Alejandro	187
Broadband for connectivity and social development in Cajamarca Region	185
Railways concesions	185
Restoration and improvement of Longitudinal highway of the North Highlands, Tranche Cochabamba-Cutervo-Santo Domingo de la Capilla-Chipie	176
Restoration and improvement of Road Huaura - Sayan - Churin	175
Other	2,605
EDUCATION AND HEALTH	2,554
Improvement in educational infrastructure	1,405
Educational institutions for fulfillment of hours normed	199
Health services with complementary skills for emergencies and disasters	105
Other	844
OTHER	3,061
TOTAL	12,221
Source: MEF.	

48. The projection of the growth of **real exports** of goods and services shows a rising trend after the 3.3 percent increase recorded in 2015 as a result of the increase of traditional exports. Real exports of goods and services are projected to grow 6.4 percent in 2016 considering higher mining exports due to the increased production of Las Bambas, which began operations in December 2015, and due to the expansion of Cerro Verde. A growth rate of 6.7 percent, associated with increased mining exports, is projected for 2017.





49. On the other hand, imports would show a slower pace of growth associated both with a moderate growth of domestic demand and with lower imports of equipment by the public sector. Thus, **imports of goods and services** are estimated to show a growth rate of 0.7 percent in 2016 and a rate of 3.5 percent in 2017.





#### BOX 2 FACTORS AFFECTING THE POTENTIAL OUTPUT: OBSTACLES TO BUSINESS OPERATIONS

Obstacles to business operations can limit the emergence and normal development of productive activities in an economy, which results in a lower growth of the potential output. Because of this, it is worth pointing out that Peru is one of the eight countries with greater regulatory burdens, according to the indicator on the regulatory environment for business of the Global Competitiveness Index elaborated by World Economic Forum.



Doing Business, which has established a series of criteria or pillars to measure the quality and efficiency of the regulatory environment for business, reveals that in Peru completing the formalities to meet the requirements in the pillars of opening a business, construction permits, payment of taxes and cross-border trade takes 263 days,<sup>3</sup> much more than in the other countries that are members of the Pacific Alliance and the OECD.



3 An important assumption is that the procedures will not be performed simultaneously.

For example, within the requirements and procedures considered in the pillar of construction permits, the nominal time required to obtain a building permit significantly exceeds the time required in the countries member of the Pacific Alliance. In Peru, according to the Urban Regulations and Buildings Act (Law 29090), obtaining the construction permit required to build a store from the municipality may take up to 45 business days. On the other hand, as regards the pillar of opening a business, obtaining the license to operate a business may take up to 15 business days, according to the Ley Marco de Licencia de Funcionamiento (Law 28976).

In practice, these procedures for obtaining municipal licenses could take more time due to the existence of bureaucratic barriers<sup>4</sup>, that is, requirements outside the municipalities' TUPA which translate into more days for procedures and for meeting requirements that may lead to the cancellation of business projects.

In this line, it is important to highlight the role played by INDECOPI's Comisión de Eliminación de Barreras Burocráticas (CEB) –Committee for the Elimination of Bureaucratic Barriers– which assesses the legality and reasonableness of municipality requirements. The graph below shows the number of complaints received by this Committee and declared sustained between 2009 and 2014.



Many of the claims submitted to the CEB are associated with several similar complaints filed in a single municipality when plaintiffs were going through the procedures required to obtain an operating or building permit, because the legal framework of the CEB forces it to study each case as a specific case.

Several actions have been implemented over the past years to ease the environment for doing business, such as simplifying the requirements for the issuance of the Certificate of Technical Inspection of Safety for buildings (SD 058-2014-PCM), for example, or the following legislative decrees, enacted in 2015 (whose regulation is pending), which are intended to ease the bureaucratic burden faced by businesses when it comes to opening a business or getting a construction permit:

<sup>4</sup> Barriers that cannot reconcile public interest with private interest are called illegal and/or irrational barriers. On the one hand, illegal bureaucratic barriers: (a) violate the Constitution and/or supranational regulations, (b) are created without having a law that authorizes them, and (c) their imposition does not respect the procedures or formalities (of the law). On the other hand, unreasonable bureaucratic barriers are those inefficient regulations that generate higher costs than the benefits for which they were created and are not justified in terms of public interest.





- i) LD 1200 reduces the maximum period allowed for the issuance of an operation license.
- LD 1203 creates the Sistema Único de Trámites (SUT) –Unique Formalities System– for the development, simplification, and standardization of administrative procedures (TUPA).
- iii) LD 1211 creates the single facility for the exchange of information between public entities.
- LD 1225, which includes the role of a Revisor Urbano Reviewer or supervisor in the Urban Regulations and Buildings Act (Law 29090) in order to simplify the issuance of construction permits for high complexity projects.

Despite these efforts, however, cross-cutting policies are required to mitigate the impacts of bureaucratic barriers to business. These policies should address not only the issues associated with the time it takes to open a business, but also those associated with the conditions required for business to operate in a less rigid and more predictable environment.

#### BOX 3 LONG-TERM RELATIONSHIP BETWEEN INFLATION AND GROWTH

Except for Mexico, Latin American countries with inflation targeting policies have shown levels of inflation above the upper limit of their target range during 2015 and in most cases these rates were higher than those observed in 2014 and 2013. Monetary policy in each of these countries has been active, interest rates having been raised in Brazil by up to 250 basis points relative to December 2014 and by 150 basis points in Colombia. The purpose of these rate rises was to maintain inflation expectations anchored and to prevent their generating permanent increases in inflation due to the supply shocks which, according to empirical evidence for Latin America, have negative effects on long-term growth.

The relationship between inflation and growth has been widely studied in economic theory. It is generally assumed that, in the short term, because of the existence of nominal rigidities, both variables are positively connected. This relationship is known as the Phillips curve. However, the long-term relationship is not entirely clear. On the one hand, there are the models that consider the neutrality of money and in which price movements are not expected to have effects on real variables. On the other hand, the model developed by De Gregorio<sup>5</sup> (1992) shows that high levels of inflation lead to a reduction of real growth due to misallocation caused by the inflation tax. In order to analyze the long-term relationship between the two variables and following McCandless and Weber<sup>6</sup> we calculated the average real GDP growth<sup>7</sup> and average inflation<sup>8</sup> by country in the period 1961 - 2014. Figure 1 shows the relationship between the two variables.

<sup>5</sup> De Gregorio (1992) "The effects of Inflation on Economic Growth: Lessons from Latin America", European Economic Review.

<sup>6</sup> McCandless and Weber (1995) "Some Monetary facts", Federal Reserve Bank of Minneapolis, Quarterly Review.

<sup>7</sup> Using a geometric average.

<sup>8</sup> A semi-logarithmic transformation of inflation was used to obtain a better representation of the data. The transformation is formulated as  $\pi_t^* \begin{cases} \pi_t - 1 & si \ \pi_t < 1 \\ \ln(\pi_t) & si \ \pi_t > 1 \end{cases}$ . This transformation has been used by Khan and Senhadji (2001), Carrera and Ramírez (2013), Ibarra and Trupkin (2015).



As we can see, the graphs on the top do not show a clear relationship between real growth and inflation, while the relationship with growth per capita is slightly negative. If we breakdown the data by different groups of countries, we can see that the relationship is even more diffuse. On the one hand, there is a negative relationship in LATAM countries, while in the OECD countries this relationship would be positive. However, since the graph analysis neglects relevant structural variables, it must be used only as an exploratory tool.

To analyze the long term relationship between the two variables, we can take the following relationship as a starting point:

$$g = \alpha_n + \beta_1 \pi^* + \gamma Z + \delta W$$

Where g is the real growth rate per capita in the economy,  $\alpha_n$  is a vector of differentiated constants according to the economic aggregate of the country,  $\pi^*$  is transformed inflation,  $Z = [\sigma_g, \sigma_\pi, \ln(GDP_0)]$  is a volatility vector used as a proxy of a macroeconomic instability and W is a control variables vector<sup>9</sup>.

The estimates<sup>10</sup> are offered in the following table. Model 1 is a simplified version where only the initial point and the volatilities of the initial point and the volatilities of the macro variables are used as control variables; model 2 includes

<sup>10</sup> Each of these models was estimated for the full sample and for a sub-sample as from 1980 in order to include a greater number of observations (58 and 110, respectively).



<sup>9</sup> The control variables included are the following: i) trade liberalization, measured as the sum of exports and imports as a ratio of GDP, ii) human capital, measured as the percentage of people with secondary education, iii) a governance index taken from Carrera and Ramirez (2013) and since 1996, calculated by the World Bank as the average of the governance ratios, (iv) the annual variation in the terms of trade, and v) foreign investment as a ratio of GDP.

other controls, and model 3 is the version including a threshold effect for inflation calculated using the methodology of Hansen (2000). We found no significant relationships between the level of inflation and real growth per capita (in most models, the sign estimated is negative). When controlling for other variables, we find a significant negative relationship with the volatility of inflation. The Hansen test estimates an 8 percent threshold for the first sample and 9.6 percent threshold for the second sample, so a greater negative (and significant) relationship from the threshold should be expected. However, no significance of 10 percent was found in either case, which would imply that the ratio of real growth per capita is not correlated with inflation and that a high price volatility would have negative effects on this ratio.

RESULTS OF REGRESION OLS								
		Sample 1961-2014			Sample 1980-2014			
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3		
Constant Asia Europe LATAM OECD Other Inflation Inflation (>8%) σ (GDP growth) σ (Inflation) In (beginning GDP) Trade openness Human Capital Governance TDI	5.688** 1.832*** - 1.799*** 3.268*** 3.192*** -0.401 0.095 0.000 -0.660** - - -	2.059 1.372*** - 1.640*** 2.567*** 1.810** - <b>0.017</b> 0.172** -0.001*** -1.220*** 0.006* 0.020* 1.460*	2.062 1.371*** - 1.642*** 2.568*** 1.807*** <b>-0.009</b> <b>-0.014</b> 0.172** -0.001*** -1.221*** 0.006*** 0.020** 1.457***	3.973 1.303*** 1.917* 1.069* 1.834 1.441* - <b>0.174</b> -0.059 0.000 -0.358	0.132 1.036*** 1.306* 0.806 1.39 0.57 0.184 0.000 -0.001*** -1.006*** 0.011** 1.044*** 0.063	0.165 1.046*** 1.306** 0.799** 1.384** 0.566 0.152 0.173 0.001 -0.001** -1.005*** 0.010*** 0.010*** 1.443** 0.062		

Observations: 58 countries (sample since 1980) and 110 (countries since 1980)

Standard erros asjusted by clusters.

There are problems with the inference made with this type of estimates due to the small size of observations and little data related to scenarios of high inflation. Because of this, studies usually use models with average data in periods of 5 to 10 years11 and find a negative and significant relationship of inflation with growth with inflation rates of 12 or 13 percent. In our research, we included a cointegration12 test between the logarithm of GDP per capita and the CPI to exploit the inter-temporal variability. The results13 (see table below) show that there is insufficient evidence to conclude that there is a long-term relationship between the two variables, at least in a context that does not include thresholds.

<sup>11</sup> Bruno and Easterly (1998) find two thresholds of 12 and 40 percent, respectively, while Vaona and Schiavo (2007) find a first threshold of 12 percent for an average of 5 years and a threshold of 5 and 6 percent for an average of 8 years. Similarly, Carrera and Ramirez (2013) estimate a threshold of 13 percent.

<sup>12</sup> An Im-Pesarán and Shin-type test for unit roots was previously estimated which did not reject the hypothesis of unit root in levels, but did so in the first differences. The Westelrund test was chosen for the cointegration test since this is a second generation test that focuses on the analysis of the parameter of the lag in the independent variable within the error correction model (ECM) associated with the model proposed. This test reports two types of estimators: (i) the panel estimators (which will be called type t estimators), in which case a rejection of the null hypothesis is understood as evidence to conclude cointegration in the entire panel, and (ii) estimators of averages by groups (type a), in which case the rejection of the null hypothesis should be understood as evidence that there is at least some country where the hypothesis of no cointegration should be rejected. For further information on this type of models, see Westelrund (2007) "Testing for error correction in panel data". The routine is available in Stata as xtwest.

<sup>13</sup> The results were contrasted against the Pedroni test (implemented in Eviews) with similar conclusions, except for PP statistical data that rejected the null hypothesis at 5%, but not at 1%.

RESULTS OF COINTEGRATION TEST					
Sample <sup>1/</sup>					
1960/2015		1980/2015			
G-test	P-test	G-test	P-test		
-1.35 -3.58	-10.21 -3.36	-1.29 -4.02	-15.35 -3.39		
	1960/2 G-test -1.35 -3.58	G-test         P-test           -1.35         -10.21           -3.58         -3.36	Sample 1/           Sample 1/           1960/2015         198/           G-test         P-test         G-test           -1.35         -10.21         -1.29           -3.58         -3.36         -4.02		

2/ Cointegration vector includes an intercept, controlled by lags and step forwards.

Despite the lack of sufficient evidence to conclude the existence of a long relationship between these variables, different theoretical models show the existing relationship between inflation levels and well-being in the economy. Ravenna and Walsh (2011) show that higher inflation reduces welfare, since it generates a greater dispersion of relative prices which affects consumption and leads to inefficient production. Moreover, high levels of inflation in a partially dollarized economy may weaken the transmission mechanism of monetary policy actions due to the bias for saving in dollars. There is a level of optimal inflation which minimizes these welfare losses. Coibion et al. (2010) found that the optimal level of inflation is 1 percent yearly, and that when trend inflation shows rates of over 2 percent, this will have significant negative effects on the levels of well-being.

On the other hand, the following figure shows a scatter graph between real GDP per capita and inflation (average inflation in the period 1990-2014) where we can see that countries with GDP per capita levels higher than US\$ 20,000 recorded an average inflation level of 2.1 percent during this period, with a median of 2.0 percent.

AVERAGE INFLATION (1990-2014) BY INCOME						
Per-capita GDP	Countries	Average	Mean			
< US\$ 10 thousand Between US\$ 10 - US\$ 20 thousand > US\$ 20 thousand	112 13 29	9.7 3.7 2.1	7.5 3.3 2.0			

This result would be indicating that a necessary albeit insufficient condition for having a high income per capita is to have low inflation in the long-term since this facilitates the development of long term financial markets and long-term contracts.







In conclusion, like McCandless and Weber, we can say that there is no long term relationship between inflation and growth. However, different researches with panel data models show a negative relationship in cases of high inflation (over 12 percent) which in our opinion disappears slowly. The latter would be consistent with the results of the cointegration tests.

Secondly, there would be a negative relationship between price volatility –greater macroeconomic volatility – and the real growth rate. The literature also shows that high inflation and the consequent higher levels dispersion of relative prices would cause reductions in aggregate welfare levels. Finally, countries with high per capita incomes show low rates of inflation in the long run.

# **IV. Public Finances**

50. In 2015 the operations of the **non-financial public sector** recorded an economic deficit of 2.1 percent of GDP, explained mainly by the decrease of the current revenues of the general government associated with the fall of commodity prices, the slowdown in the pace of growth of economic activity, and the effect of tax reduction measures.





51. The levels of deficit in this report have been revised down compared to the December report from 2.9 percent to 2.6 percent of GDP in 2016 and from 2.7 percent to



2.3 percent of GDP in 2017. Similarly, a lower growth is considered in the current revenue of the general government (0.8 percent versus 2.2 percent), in line with the revenue recorded during the first two months of the year. On the expenditure side, the projected real growth of the non-financial expenditure has also been adjusted from 4.3 to 1.5 percent, taking into account that extraordinary operations were carried out in 2015 and these operations would not be repeated in a similar magnitude this year. These operations include defense expenditure, transfers to Caja de Pensiones Militar Policial and to the Fuel Price Stabilization Fund, as well as other capital expenditure allocated for the Family Housing Bonus, the construction of the Lima Convention Center, the future construction of the new Museum of Pachacamac, among other transfers.

Table 25         NON-FINANCIAL PUBLIC SECTOR         (% GDP)							
	2044	2014 2015	2016*		2017*		
	2014		IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16	
1. General government current revenues <sup>1/</sup> Real % change	<b>22.2</b> 2.4	<b>20.0</b> -7.5	<b>19.8</b> 2.2	<b>19.5</b> 0.8	<b>19.6</b> 4.2	<b>19.5</b> 4.4	
2. General government non-financial expenditure Real % change Of which:	<sup>2/</sup> <b>21.5</b> 7.3	<b>21.3</b> 1.4	<b>21.3</b> 4.3	<b>20.8</b> 1.5	<b>21.0</b> 3.6	<b>20.6</b> <i>3.0</i>	
Current expenditure Real % change	15.5 <i>10</i> .6	15.8 <i>4.5</i>	16.0 <i>4.0</i>	15.7 <i>2.4</i>	15.7 <i>2</i> .6	15.3 <i>2.2</i>	
Gross capital formation Real % change	5.5 - <i>0.2</i>	4.7 -12.5	4.7 5.9	4.7 3.2	4.8 <i>7.3</i>	4.7 5.8	
3. Other	0.1	0.2	0.0	0.0	0.0	0.0	
4. Primary balance (1-2+3)	0.7	-1.1	-1.6	-1.3	-1.4	-1.0	
5. Interests	1.1	1.0	1.3	1.2	1.3	1.3	
6. Overall Balance	-0.3	-2.1	-2.9	-2.6	-2.7	-2.3	

1/ The central government includes the ministries, national universities, public agencies and regional governments. The general government has a wider coverage that includes the central government, social security, regulators and supervisors, government charity organizations and local governments.

2/ Includes accrued payments by Net payments of the Fuel Price Stabilization Fund.

\* Forecast.

IR: Inflation Report.



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52. The **structural economic balance** is an indicator that differs from the conventional economic balance in that it is calculated isolating the effects of the business cycle and the effects of the prices of the commodities relevant to our economy. In 2015, the structural economic balance showed a deficit of 1.8 percent of GDP. Moreover, a structural deficit of 2.0 percent is projected for 2016, while a structural deficit of 1.9 percent is foreseen for 2017.





53. The fiscal impulse can be broken down into its expenditure and revenue components, which in turn can be weighted by their multiplier effect on economic activity. The table below shows that fiscal policy had a contractionary impact of 0.4 percent of GDP in 2015 due to lower capital spending and that rather an expansionary impact is expected for 2016.



	Table 26 FISCAL IMPULSE			
	2014	2015	2016*	2017*
Fiscal impulse	0.8	0.5	0.3	-0.3
By revenues	0.2	0.9	0.2	0.0
By expenditures	0.6	-0.4	0.1	-0.3
Weighted impulse	0.4	-0.4	0.1	-0.3
* Forecast				

\* Forecast.

#### **Tax Revenues**

54. The current revenues of the general government in **2015** amounted to 20.0 percent of GDP, which represents a decline of 7.5 percent in real terms. Tax revenues fell 8.2 percent in real terms, while non-tax dropped by 5.3 percent in real terms. The decline recorded in revenues is explained in part by a base effect, since exceptional revenues were collected in 2014 from the income tax of non-domiciled agents (S/ 3.463 billion) from the sale of assets. Excluding this effect, revenues would have fallen 5.1 percent in real terms.



55. Current revenues will increase at 0.8 percent in real terms in **2016** and reach a ratio of 19.5 percent of GDP. The forecast of the Report of December is revised by 0.3 percent of GDP in this report since the income tax forecast has been adjusted to 5.5 percent of GDP taking into account that revenue from this tax in the first two months of this year has decreased by 4.9 percent. Similarly, the forecast of the revenue on the side of the excise tax has been revised slightly, from 8.5 percent of GDP to 8.4 percent of GDP, because revenue from this tax has declined 2.2 percent in real terms in the first two months of 2016.

RR

	2014	2045	20	016*	20	17*
	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
TAX REVENUES	17.0	15.2	15.0	14.8	14.9	14.8
Income tax	7.0	5.7	5.6	5.5	5.5	5.3
Value added tax	8.7	8.4	8.5	8.4	8.5	8.5
Excise tax	0.9	0.9	0.9	0.9	0.9	0.9
Import duties	0.3	0.3	0.3	0.3	0.3	0.3
Other tax revenues	1.9	1.8	1.7	1.8	1.7	1.8
Tax returns	-1.9	-1.9	-2.0	-2.1	-2.0	-2.0
NON-TAX REVENUES	5.2	4.8	4.7	4.7	4.7	4.7
TOTAL	22.2	20.0	19.8	19.5	19.6	19.5

IR: Inflation Report.



56. In **2017**, the current revenue of the general government would amount to 19.5 percent of GDP. Revenues would fall by 0.1 percentage point of GDP from the amount estimated in the Inflation Report of December, taking into account the slower growth of economic activity foreseen for that year. It should be pointed out that this projection already considers the gradual reduction of the rate of the income tax, from 28 to 26 percent, as from the year 2017.

#### **Evolution of Public Spending**

57. In 2015, the non-financial spending of the general government increased 1.4 percent as a result of higher current expenditure (up 4.5 percent) and lower capital spending (down 6.8 percent).





NON-FINAI	NCIAL EXPENI	Table 2 DITURE OF (% GDF	8 THE GENERA <sup>D)</sup>	L GOVERNM	IENT		
			20	16*	201	2017*	
	2014	2015	IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16	
Current expenditure National Government Regional Governments Local Governments	<b>15.5</b> 10.7 3.0 1.8	<b>15.8</b> 11.1 3.0 1.7 <b>5.4</b>	<b>16.0</b> 11.2 3.1 1.7	<b>15.7</b> 10.9 3.1 1.7 <b>5.2</b>	<b>15.7</b> 10.9 3.1 1.7 <b>5.4</b>	<b>15.3</b> 10.6 3.0 1.7	
Gross capital formation National Government Regional Governments Local Governments Other	<b>5.5</b> 2.0 1.1 2.4 <b>0.5</b>	<b>4.7</b> 2.0 0.9 1.8 <b>0.7</b>	<b>4.7</b> 2.0 0.9 1.7 <b>0.6</b>	<b>4.7</b> 1.9 0.9 1.9 <b>0.5</b>	<b>4.8</b> 2.0 0.9 1.8 <b>0.6</b>	<b>4.7</b> 1.9 0.9 1.9 <b>0.5</b>	
<b>TOTAL</b> National Government Regional Governments Local Governments	<b>21.5</b> 13.1 4.1 4.3	<u>21.3</u> 13.8 3.9 3.5	21.3 13.8 4.0 3.5	<b>20.8</b> 13.3 4.0 3.6	<b>21.0</b> 13.5 4.0 3.6	<b>20.6</b> 13.0 4.0 3.6	

- IR: Inflation Report.
- 58. In **2016** non-financial government spending would grow by a real 1.5 percent, taking into account that extraordinary operations were carried out in 2015 and that these operations would not be repeated in a similar magnitude this year. This forecast also takes into account that capital spending slows down temporarily in a year of general elections because new authorities take office. However, the forecast assumes a recovery in spending at the level of sub-national governments. Because of these factors, non-financial spending is expected to represent 20.8 percent of GDP this year.

The projection of non-financial government spending for **2017** shows that this aggregate would amount to 20.6 percent of GDP, less than projected in the previous report (21.0 percent of GDP). This revision would be explained by lower expected

current spending and by lower gross capital formation towards the end of the forecast horizon.



## **Public Debt**

59. In 2015 the gross public debt represented 23.3 percent of GDP, while the net public debt amounted to 6.6 percent of GDP, a considerably lower amount than the public debt of other Latin American countries which reflects the country's sound fiscal stance and the sustainability of public debt in the long term.



60. The economic balance foreseen for **2016** (a deficit of 2.6 percent of GDP) implies financial requirements for a total of S/ 23.5 billion, which is equivalent to 3.6 percent of GDP. Taking into account the 2016 deficit, the public debt is expected to increase by 24.7 percent of GDP, while the net public debt would be equal to 8.6 percent of GDP.



		Table 29				
FINANCIAL REQUIREMENT	S OF THE NO	N-FINANCI	AL PUBLIC S	ECTOR AND	ITS FUNDI	NG
	2014	2015	20	16*	2017*	
	2014 201		IR Dec.15	IR Mar.16	IR Dec.15	IR Mar.16
I. USES	11,061	20 961	24,681	23,469	28,356	25,182
1. Amortization	9,059	7,963	6,147	6,540	9,129	8,801
a. External	4,207	3,859	3,490	3,885	3,071	3,092
b. Domestic	4,160	3,437	2,026	2,024	5,349	4,999
Of which:						
Recognition bonds	692	666	631	631	709	709
2. Overall balance	2,002	12,998	18,534	16,930	19,227	16,382
(Negative sign indicates surplus)						
II. SOURCES	11,061	20 961	24,681	23,469	28,356	25,182
1. External	2,654	4,110	6,056	5,565	7,250	7,294
2. Bonds <sup>1/</sup>	13,002	17,068	17,497	18,878	7,310	7,313
3. Internal <sup>2/</sup>	-4,595	-217	1,128	-974	13,795	10 575
Memo:						
% GDP						
Gross debt balance	20.1	23.3	24.8	24.7	24.2	24.0
Net debt balance <sup>3/</sup>	3.9	6.6	9.4	8.6	11.7	10.1

1/ Includes domestic and external bonds.

2/ A positive sign indicates a withdrawal or overdraft and a negative sign indicates higher deposit. 3/ Defined as the difference between gross public debt and NFPS deposits. \* Forecast.

IR: Inflation Report.



In accordance with the provisions of Supreme Decree No. 027-2016-EF dated February 22, 2016, on February 23 the Peruvian Government issued the new Global Bond 2030 for a total of  $\leq 1$  billion at a yield rate of 3.77 percent in euros and with a coupon rate of 3.75 percent. Revenue as a result of this bond placement amounts to US\$ 1.086 billion, which will used to pre-finance the requirements of FY 2017.

The gross debt of the non-financial public sector would be equivalent to 24.0 percent of GDP at the end of the forecast horizon, while the net debt would increase to 10.1 percent of GDP by **2017**.









#### BOX 4 NEW METHODOLOGY FOR CALCULATING THE STRUCTURAL ACCOUNTS AND EX-ANTE GUIDELINE FOR THE STRUCTURAL BALANCE

On January 31, 2016, the Ministry of Economy and Finance (MEF) approved a new Methodology for Calculating the Structural Fiscal Accounts (R.M. 024-2016-EF15) that includes several criteria used by the BCRP and the IMF to calculate the structural accounts. The previous calculation methodology generated, in the current economic context, an overestimation of the structural deficit.

The following are the main changes made in the new methodology:

• The impact of the prices of natural resources on the government income is broken down into two components: the one associated with mining resources and the one associated with hydrocarbons. The previous methodology made no distinction and considered a single aggregate of mining and hydrocarbon prices. This change has been made because of evidence showing that the dynamics of the prices of mining and hydrocarbon products has not been the same.

A chained nominal Laspeyres index<sup>14</sup>, with reference to 2007, is used to construct the indices of exports prices of minerals and hydrocarbons. The former index considers the prices of exports of gold, copper, tin, zinc, iron, lead, silver, and molybdenum, while the latter considers the export prices of oil and natural gas. Previously, a chained Fisher index was used for the price series of both types of exports.

- A moving average of 15 years of the nominal rate of the export price based on past (prices 11 years back), current (price projections for this year), and future information (price projections 3 years ahead) is used to determine the prices of minerals and hydrocarbons in the long term (reference price). The previous method used a HP filter of the real price index of commodities based on the assumption of a 30-year cycle, with its peak in 2011 and its plain extending to 2033, which is when prices would register the minimum value observed in the period of 1980-2013 in real terms. The BCRP methodology uses the moving average of the past 15 years.
- GDP is cyclically adjusted to the total of the General Government current revenue (excluding extraordinary revenue), like in the BCRP methodology. Previously, GDP was only adjusted to the cycle of income not linked to natural resources and according to the cycle of the non-primary output.
- Like in the BCRP methodology, the new method explicitly excludes from the calculation of structural revenue the extraordinary income not explained by the output cycle or by the cycle of commodity prices (income tax for the indirect sale of assets such as revenues resulting from the sale of Las Bambas or Petrobras).
- The structural economic balance and the ex ante guidelines derived from the proposal shall be expressed as a percentage of potential GDP (in nominal terms) and not as a percentage of nominal GDP.
- Following the methodology used by the IMF, the new method will use elasticities of commodity prices equal to 1, even when the re-estimated values were higher (3.18 for mining prices and 2.63 for hydrocarbons prices) given that such estimates proved to be unstable over time. The elasticity in terms of the output cycle was re-estimated at 1.36 (previously, 1.13). The BCRP uses a weighted elasticity of 1.24 in terms of the GDP cycle, as well as an elasticity of 1.53 for the impact of mining prices and an elasticity of 1.45 for the impact of hydrocarbon prices.<sup>15</sup>

<sup>14</sup> A chained price index allows to adjust the weight of the basket of goods considered in the index in each period.

<sup>15</sup> The latter elasticities are associated with the impact of international prices on the income tax.



This methodological change provides more consistency to the MEF estimates of the structural balance. For example, in FY 2015,<sup>16</sup> the previous methodology would show a structural deficit of 2.5 percent. Having a higher structural deficit than the one observed is not consistent with the evidence showing an economic slowdown in a year in which the output grew less than the potential output. With the new methodology, the structural balance in 2015 is estimated at 1.5 percent of GDP, a lower balance than the deficit observed.

After the MEF revised its methodology, the differences between the MEF estimate of the structural balance and the BCRP estimate have decreased, although some differences are still observed because the gaps in international prices (crude oil and metals) and the output gaps these entities use are different. This is also the case of the elasticities they use to measure the impact on the revenue from international prices and GDP. The differences in the gaps of international prices are explained by the fact that the BCRP uses a real average of international prices in the last 15 years as the long-term price, while the MEF uses a nominal average that includes the previous 11 years, the current year, and projections for the next 3 years. Finally, the BCRP excludes some non-recurring operations from the structural income.

#### Revised Projection for 2016

The ex-ante guidelines of the structural deficit for FY 2016 was set at 3.0 percent of GDP (approved by D.U 003-2015 in August 2015). This guide, used to determine the spending target for this year, was consistent with a projected conventional deficit of 3.0 percent of GDP for 2016 (Revised Multiannual Macroeconomic Framework 2016-2018).

Moreover, D. U. 003-2015 also stated that the Government should establish, through a bill submitted to Congress, the ex-ante guideline for the structural balance of the years following FY 2016 within a period of 180 days, and that the guideline should be consistent with the gradual return (of at least 0.5 percent of GDP per year) to the deficit limit of 1 percent of GDP set forth in the Fiscal Responsibility and Transparency Act (Law 30099).

Both the reduction of the conventional deficit projected for 2016 from 3.0 to 2.5 percent of GDP and the revision of the methodology used to calculate the structural balance have reduced the MEF estimate of the structural deficit in 2016 from 3.0 to 2.0 percent of GDP. As a result of this, returning to a deficit limit of 1 percent of GDP as established in the Fiscal Responsibility and Transparency Act implies limits of 1.5 and 1.0 percent for the structural balances of 2017 and 2018, which has been approved by Congress.



<sup>16</sup> Data from the Multiannual Macroeconomic Framework 2016-2018.

# V. Monetary Policy and Financial Markets

#### **Monetary Policy Actions**

61. The upside risks to the inflation forecast have continued to materialize since our previous Inflation Report was published in December. The inflationary effect of the depreciation of the PEN has been higher than expected and inflation expectations have risen above the upper band of the target range. In addition, supply shocks, associated with El Niño, have temporarily affected inflation during the last quarter.

In this context, in order to favor the convergence of inflation expectations to the target range and offset second round effects on price formation in the economy, the Board of the Central Bank decided to raise the benchmark interest rate by 25 basis points in January and February, to 4.25 percent. The Board also reiterated that the Central Bank oversees the inflation forecasts and inflation determinants and stands ready, should it be necessary, to make additional adjustments in its monetary policy rate to lead inflation to the target range.

Moreover, the BCRP also raised as from March the minimum current account requirement used to calculate reserve requirements in the general regime of required reserves in domestic currency by 25 basis points to complement efforts to sterilize banks' excess liquidity. It should be pointed out that this measure does not change the monetary policy position and that, on the contrary, it seeks to facilitate the sterilization of excess liquidity.

62. The monetary policy stance takes into account the effect of a negative output gap, which should be closing during 2016 and 2017, as well as the impact of the pass-

through effect of the foreign exchange rate and the supply shocks on the inflation forecast.

In this regard, the recent reversal of depreciation pressures on the emerging economies and on the region as a result of better outlooks for commodity prices has opened a waiting period to see if this reversal of supply shocks is temporary or permanent.



#### **Interest Rates**

63. The money market rates were influenced by the Central Bank's increase of the benchmark rate by 50 basis points between December 2015 and 2016 February. The interbank overnight rate rose by 71 basis points, banks' liquidity pressures accounting for the deviation of this rate from the benchmark rate. The lending interest rates rose in most segments, the increase in the rates of loans to micro-businesses (36 basis points) standing out. On the other hand, the segments of consumer loans and corporate loans showed lower interest rates (down by 124 and 19 basis points, respectively).

Moreover, the interest rates on deposits in domestic currency also increased in all the maturity terms. Thus, the rates for deposits for less than 30 days, 31-to-180 day deposits, and 181-to-360 day deposits increased by 10, 13, and 28 basis points, respectively.



Table 30 INTEREST RATE BY TYPE OF LOANS IN DOMESTIC CURRENCY 1/ (%)										
	Interbank	Corporate	Large companies	Medium-sized enterprises	Small businesses	Microbusinesses	Consumer	Mortgage		
Dec.14	3.80	5.6	6.8	9.5	20.6	33.0	43.3	9.0		
Mar.15	3.47	5.2	6.6	9.8	21.2	34.4	40.6	8.5		
Jun.15	3.42	5.1	6.6	9.7	20.8	34.6	43.8	8.4		
Sep.15	3.67	5.9	7.2	10.2	20.4	33.5	42.4	8.6		
Oct.15	3.51	5.8	7.2	10.7	20.6	34.3	42.7	8.8		
Nov.15	3.52	5.8	7.4	10.3	20.7	34.4	42.9	9.1		
Dec.15	3.76	6.2	7.1	10.2	20.5	34.9	44.0	9.0		
Jan.16	3.95	6.2	7.2	10.5	20.5	35.0	44.4	9.0		
Feb.16	4.47	6.0	7.4	10.5	20.7	35.3	42.8	9.1		
			Accumu	lated change	(bps)					
Feb.16 -Dec.15	71	-19	26	23	28	36	-124	13		
Feb.16-Dec.14	67	38	58	101	16	229	-52	12		
Feb.16- Dec.13	31	58	33	32	-30	215	53	5		

1/ Annual active interest rates on the operations carried out in the last 30 working days. Source: SBS and BCRP.

	Table 31 INTEREST RATES IN 9 (%)	SOLES	
	Deposits up to 30-day	On 31 to 180-day term deposits	On 181 to 360-day term deposits
Dec 14	2.0	2.0	4.2
Dec.14	3.8	3.8	4.3
IVIdI.15	3.5	3.8	4.4
Juli 15	3.4	4.0	4.4
Sep.15	4.1	4.4	4.4
Oct.15	4.0	4.5	4.5
Nov.15	4.0	4.6	4.6
Dec.15	4.0	4.7	4.7
Jan.16	4.1	4.8	5.0
Feb.16	4.1	4.8	5.0
	Accumulated change	(bps)	
Feb 16-Dec 15	10	13	28
Feb 16-Dec 14	31	103	72
Feb.16-Dec.13	35	128	116
Source: BCRP.			

64. On the other hand, most of the interest rates on operations in dollars (both lending and deposit rates) showed declines in the last three months, with the exception of the lending rates in the segments of loans to small business and consumer loans, which increased by 149 and 30 basis points, respectively. The interbank overnight rate in dollars rose 18 basis points in a context in which the opportunity cost of loanable funds in dollars increased as a result of the Federal Reserve rise of its policy rate last December.

INTEREST RATE BY TYPE OF LOANS IN FOREIGN CURRENCY 1/ (%)									
	Interbank	Corporate	Large companies	Medium-sized enterprises	Small businesses	Consumer	Mortgage		
Dec.14	0.15	2.5	5.1	8.3	12.3	27.3	7.6		
Mar.15	0.15	2.6	4.9	8.2	13.5	30.9	7.4		
Jun.15	0.15	2.2	4.6	8.3	11.7	31.4	7.3		
Sep.15	0.15	1.9	5.6	8.5	12.8	32.4	6.8		
Oct.15	0.15	1.9	5.6	8.5	10.9	32.2	6.8		
Nov.15	0.15	2.2	5.0	8.4	12.5	31.9	7.0		
Dec.15	0.20	2.3	5.5	8.1	11.3	32.1	6.7		
Jan.16	0.35	2.8	5.6	7.9	10.9	32.0	6.7		
Feb.16	0.38	2.1	5.2	7.8	12.8	32.4	6.6		
		Accumul	ated chang	e (bps)					
Feb. 16 -Dec.15	18	-19	-33	-29	149	30	-8		
Feb.16-Dec.14	23	-33	14	-51	46	511	-93		
Feb.16- Dec.13	23	-24	-26	-50	-45	632	-183		

. . . . . .

 $1\prime$  Annual active interest rates on the operations carried out in the last 30 working days. Source: SBS and BCRP.

Table 33 INTEREST RATES IN US DOLLAR (%)							
	Deposits up to 30-day	On 31 to 180-day term deposits	On 181 to 360-day term deposits				
Dec 14	0.2	0.5	0.8				
Mar 15	0.2	0.5	0.8				
lun 15	0.1	0.4	0.0				
Jul.15	0.1	0.3	0.7				
Aug.15	0.1	0.3	0.6				
Sep.15	0.1	0.3	0.6				
Oct.15	0.3	0.4	0.6				
Nov.15	0.3	0.4	0.6				
Dec.15	0.2	0.5	0.6				
Jan.16	0.2	0.4	0.6				
Feb.16	0.2	0.4	0.6				
	Accumulated change	(bps)					
Feb.16-Dec.15	0	-3	0				
Feb.16-Dec.14	5	-4	-24				
Feb.16-Dec.13	7	-33	-72				
Source: BCRP							

#### **Monetary Operations**

65. The monetary operations of the Central Bank were mainly oriented to maintaining adequate levels of liquidity in domestic currency in a context marked by banks' strong demand for foreign currency and expectations of a depreciation. The injection of liquidity resulting from the public sector's decumulation of deposits at the BCRP (by



S/ 3.45 billion) due to the decline of the Treasury and Banco de la Nacion deposits in national currency also stands out in this period.

Table 34           MONETARY ACCOUNTS (END-OF-PERIOD)           (Million S/)							
	Fle	Flows					
	Dec.14	Dec.15	Feb.16	2015	2016	-	
I. NET INTERNATIONAL RESERVES (Million US\$)	185,678 62,308	209,663 61,485	211,897 60,198	-2,337 -823	-4,099 -1,287		
II. LONG -TERM NET EXTERNAL ASSETS (Million US\$)	58 20	67 20	67 20	0 0	0 0		
III. NET DOMESTIC ASSETS (1+2+3)	-146,564	-169,078	-172,740	3,817	2,671		
<ul> <li>a. Reverse repos</li> <li>b. Foreign exchange swaps</li> <li>c. Securities issued</li> <li>d. Reserve requirement in domestic currency</li> <li>e. Other deposits in domestic currency</li> <li>f. Deposits in domestic currency (Million US\$)</li> </ul> 2. Net assets on the public sector	1,300 8,600 -13,478 -14,692 -1,016 -46,202 -15,504 -75,165	2,500 27,605 -18,873 -10 639 -1,115 -76,648 -22,477 -78,455	1,980 26,705 -21,452 -8,926 -933 -77,327 -21,968 -76,445	1,200 19,005 -5,396 4,053 -99 -19,798 -6,974 <b>1,886</b>	-520 -900 -2,579 1,713 183 1,623 510 <b>3,450</b>		
<ul> <li>a. Banco de la Nación <ol> <li>Domestic currency</li> <li>Foreign currency (Million US\$)</li> </ol> </li> <li>b. Central Government <ol> <li>Domestic currency</li> <li>Foreign currency (Million US\$)</li> <li>Cother (Includes COFIDE)</li> <li>Securities owned by the Public Sector</li> </ol> </li> <li>3. Other Net Accounts</li> </ul>	-8,051 -7,621 -145 -62,234 -28,616 -11,281 -156 -4,725 <b>-5,910</b>	-7,205 -6,926 -82 -67,257 -22,835 -13,027 -77 -3,917 -13,451	-6,079 -5,305 -220 -65,731 -20 392 -12,880 -15 -4,621 <b>-16,342</b>	873 695 63 127 2,789 -938 78 808 <b>2,965</b>	1,181 1,621 -138 2,910 2,443 146 63 -704 - <b>299</b>		
IV. CURRENCY (I+II+III)	39,173	40,653	39,224	1,480	-1,428		

66. Between December 2015 and February 2016, the ratio of the public sector deposits in the Central Bank's net assets declined from 32.8 percent to 30.5 percent due to the increased spending of the Treasury in this period. This lower fiscal sterilization was offset by an increase in the ratio of the BCRP sterilization operations. BCRP-CD operations increased from 7.2 to 7.3 percent of net assets while CDR-BCRP operations increased from 3.0 to 3.3 percent of the net assets.

	Table 35         SIMPLIFIED BALANCE SHEET OF THE BCRP         (As a % of Net Assets)									
			Dec.12	Dec.15	Feb.16					
Ι.	Ne	t assets	100.0%	100.0%	100.0%					
	Ne	t International Reserves	100.0%	87.4%	88.0%					
			(US\$ 67,016 mills)	(US\$ 61,485 mills)	(US\$ 60,198 mills)					
	Cu	rrency repos	0.0%	11.5%	11.2%					
	Rej	005	0.0%	1.0%	0.8%					
п.	Ne	t liabilities	100.0%	100.0%	100.0%					
	1.	Total public sector deposits	37.3%	32.1%	31.0%					
		In domestic currency	24.5%	12.8%	11.2%					
		In foreign currency	12.8%	19.3%	19.9%					
	2.	Total financial system deposits	28.3%	36.5%	36.5%					
		In domestic currency	12.6%	4.4%	3.7%					
		In foreign currency	15.7%	32.1%	32.8%					
	3.	BCRP instruments	18.7%	9.8%	11.2%					
		CD BCRP	12.7%	6.4%	7.4%					
		CDR BCRP	0.0%	2.9%	3.4%					
		Term deposits	5.7%	0.4%	0.3%					
		Overnight deposits	0.3%	0.1%	0.1%					
	4.	Currency and others	19.8%	17.0%	16.5%					
	5.	Others	-4.1%	4.6%	4.8%					

67. The BCRP continued injecting liquidity in local currency carrying out liquidity injection operations mainly through currency repos and auctions of public deposit funds. Thus, between December 2015 and February 2016, the BCRP placed currency repos for a total of S/ 3.85 billion and auctioned Treasury deposits for a total of S/ 1.30 billion.



Table 36         AUCTION OF PUBLIC DEPOSIT OPERATIONS         (Million S/)							
Date	Operation	Term	Amount	Average rate			
16 Dec.15	Treasury	6-month	300	5.64%			
18 Dec.15	Treasury	6-month	500	5.77%			
4 Jan.16	Treasury	6-month	500	5.84%			
TOTAL			1,300	5.77%			



68. The BCRP also continued with its regular auctions of 6-month, 12-month, and 18-month BCRP-CDs three times a week, placing S/ 30 million each time in order to increase the volume of these certificates and provide more liquidity to the secondary market of BCRP-CDs to contribute to the development of the short-term yield curve in soles. Between December and February, the Central Bank placed BCRP-CDs for a total of S/ 9.722 billion and maturities amounted to S/ 9.76 billion, as a result of which the balance of BCRP-CDs decreased by S/ 34 million to S/ 17.75 billion.



The yield curve of BCRP-CDs rose 50 basis points on average between December 2015 and February 2016, in line with the increase of 50 basis points implemented in the BCRP policy rate in the last two monetary policy meetings.

#### **Liquidity and Credit**

69. Currency in circulation grew 5.7 percent in January 2016 in the last twelve months, a higher rate than the one recorded at end-2015 (3.8 percent) and in Q3-2015 (4.6 percent). This would be reflecting a gradual recovery in the level of economic activity and therefore, this pace of annual growth is expected to continue over the year.



Deposits in domestic currency grew at an annual rate of 2.3 percent in January 2016, showing a similar growth rate than that observed at the end of 2015. Thus, the ratio of dollarization of non-financial private agents' deposits declined from 44.7 percent in September 2015 to 43.1 percent in January 2016.

A gradual recovery is expected in the growth pace of deposits in soles in 2016 as public spending resumes a faster pace of growth and the Treasury withdraws part of its deposits at the BCRP, and as depreciation expectations subside.

Table 37           MONETARY ACCOUNTS (END-OF-PERIOD)           (12-month % change)								
Dec.14 Mar.15 Jun.15 Sep.15 Dec.15 Jan.16								
Currency	11.5	8.4	8.7	4.6	3.8	5.7		
Deposits in domestic currency	9.6	6.6	4.0	0.9	2.3	2.3		
Broad money in domestic currency	10.6	7.2	5.8	2.3	3.0	3.6		
Total broad money <sup>1/</sup>	7.3	5.4	5.5	7.7	6.4	7.5		
Credit to the private sector in domestic currency	17.7	19.5	24.8	30.0	28.4	27.8		
Credit to the private sector	10.1	9.6	8.5	10.9	9.6	9.5		
1/ Includes foreign currency.								



70. Showing a similar growth rate than that recorded in Q4-2015 (9.6 percent), credit to the private sector grew 9.5 percent in annual terms in January 2016. By currencies, credit in domestic currency continued showing a greater dynamism, with an annual growth rate of 27.8 percent, while credit in foreign currency continued declining (20.7 percent in January 2016, a rate reflecting the process of de-dollarization of credit supported by the measures taken by the BCRP at end-2014 and the strengthening of the dollar). At end-2016, total credit to the private sector is expected to show growth rates around 8 percent, in line with the recovery of economic activity foreseen for this year.



71. By types of credit, personal loans continued growing at a steady pace of around 11.4 percent, showing a similar rate to that observed at the end of 2015 (11.8 percent). The more dynamic segment within this type of credit was consumer loans, which grew 13.7 percent in the last 12 months in January 2016, a lower rate than the one recorded in December 2015 (14.3 percent). On the other hand, mortgage loans grew 8.4 percent, showing a similar growth level that in Q4-2015.

Table 38           CREDIT TO THE PRIVATE SECTOR           (12-month % change)							
	Dec.14	Mar.15	Jun.15	Sep.15	Dec.15	Jan.16	
Businesses	9.2	8.2	6.6	10.0	8.4	8.4	
Corporate and large companies	10.5	16.0	15.5	19.7	16.3	17.0	
Medium-sized enterprises	13.7	1.1	-3.2	0.5	-0.8	-1.6	
Small business and Microbusinesses	1.6	1.5	0.3	1.0	2.4	2.3	
Individuals	11.8	12.1	12.0	12.5	11.8	11.4	
Consumer	11.4	12.6	13.8	14.8	14.3	13.7	
Car loans	6.7	2.8	0.5	-0.7	-5.0	-4.6	
Credit cards	15.0	18.2	21.8	23.5	23.9	23.4	
Mortgage	12.4	11.4	9.6	9.5	8.5	8.4	
Total	10.1	9.6	8.5	10.9	9.6	9.5	

On the side of business loans, the segment of corporate loans and loans to large enterprises grew at an annual rate of 17.0 percent in January, while the segment of loans to small- and micro businesses grew 2.3 percent and the segment of loans to medium-sized companies decreased 1.6 percent.

72. At December 2015, the flow of credit to the private sector in domestic currency (S/ 39.52 billion) was 88.6 percent higher than the flow of credit to the private sector in 2014 (S/ 20.95 billion). This demand for credit has mainly been funded through BCRP monetary instruments and by reducing the exchange position of financial institutions. Net placements of currency repos amounted to S/ 19.00 billion, of which S/ 7.90 billion was credit substitution repos, S/ 6.30 billion was regular repos, and S/ 4.81 billion was credit substitution repos. The exchange position of depository corporations contributed with S/ 6.43 billion to meet the demand for credit, while auctions of Treasury deposits provided S/ 2.55 billion. Private deposits grew by S/. 3.02 billion, less than in 2014, as a result of the global strengthening of the dollar.



73. In 2016, credit is expected to grow 8.0 percent, considering a growth rate of 12.8 percent in credit in soles, which is consistent with an increased preference for credit in soles and with the effect of the BCRP actions taken to promote the dedollarization of credit. Private sector deposits in domestic currency are projected to grow 4.3 percent in the year. Thus, the ratio of credit-to-GDP is foreseen to continue increasing during 2016 to 43 percent. The BCRP would continue injecting long term liquidity through currency repos and through auctions of Treasury



deposits and Banco de la Nacion deposits, contributing in this way to support the process of de-dollarization of credit.



#### Progress in the De-dollarization of Credit

74. At the end of 2014, the BCRP established the Credit De-dollarization Program with the aim of reducing economic agents' risks associated with the high levels of dollarization of credit observed in the country. The program established additional reserve requirements in foreign currency with the aim of increasing the cost of funding in this currency. Particularly, the program sought to reduce banks' balance of loans in dollars in terms of total loans and their balances of car loans and mortgage loans: (i) in the case of total loans<sup>17</sup>, in December 2015 banks had to show a balance of loans in FC equal to 90 percent of such balance at September 2013. Moreover, for end-2016, this requirement has been adjusted to 80 percent of the balance of September 2013; and (ii) in the case of car loans and mortgage loans, the balance of these loans in February 2013, while the balance required for end-2016 was adjusted to 70 percent of the balance recorded in February 2013.

As a result of these measures and of a greater depreciation, the balance of credits in dollars declined, this credit being replaced by credit in soles. The balance of total loans fell from a balance of US\$ 23.85 billion in December 2014 to US\$ 16.37 billion in January 2016 (a reduction of US\$ 7.40 billion). Such balance is equal to 69 percent

<sup>17</sup> Excluding loans for foreign trade operations and loans of over US\$ 10 million and for terms of over 3 years established as from January 1, 2015.



of the credit balance that banks had in September 2013 (which means that the requirements set for both December 2015 and 2016 have been met).

75. The evolution of loans on the side of car loans and mortgage loans has been similar. Between December 2014 and January 2016, the balance of these loans has shrunk by US\$ 1.16 billion to a balance of US\$ 3.186 billion (equivalent to 66.7 percent of the balance these loans showed in February 2013).



76. As a result of these credit measures, the ratio of the dollarization of credit has dropped from 38.3 percent in December 2014 to 27.4 percent in January 2016.





77. By type of credit, lower ratios of dollarization of credit are now observed in all the segments of credit. In mortgage loans, the ratio of dollarization declined from 33.9 in December 2014 to 23.7 percent in January 2016, while the de-dollarization of car loans was 30 percentage points in the same period. On the side of business loans, the dollarization ratio of loans to corporate enterprises and large companies dropped by 17 percentage points, followed by loans to medium-sized companies, which declined by 15 percentage points.

Table 39 DOLLARIZATION RATIO OF CREDIT TO THE PRIVATE SECTOR								
	Dec.13	Dec.14	Sep.15	Dec.15	Jan.16			
Business Corporate and large companies Medium-sized enterprises Small business and Microbusiness Individuals Consumer	<b>52.7</b> 67.1 63.7 13.0 <b>23.1</b> 10.5	<b>48.4</b> 59.8 59.3 11.5 <b>20.0</b> 9.5	38.0 45.8 47.0 8.2 15.3 7.5	<b>35.4</b> 42.7 44.2 7.6 <b>14.1</b> 6.9	<b>35.2</b> 42.4 43.9 7.3 <b>13.8</b> 6.8			
Car loans Credit cards Mortgage	75.9 7.2 40.0 <b>42.2</b>	68.9 6.6 33.9 <b>38.2</b>	48.4 5.8 25.9 <b>29.8</b>	41.3 5.6 24.2 <b>27.6</b>	39.4 5.6 23.7 <b>27.4,</b>			

These lower levels of dollarization of credit increase the financial system's robustness face external shocks that generate high volatility in the exchange rate and also reduce the negative effects of foreign exchange volatility on the balance sheets of companies and households.

78. Moreover, the dollarization ratio of private sector deposits has declined slightly compared to the end of Q3-2015, although the ratio of dollarization observed in personal deposits is still lower than the ratios observed in the deposits of companies and institutional investors. The ratio of dollarization of companies' deposits fell by 3.1 percentage points compared to Q3 –the decline being particularly noteworthy

in term deposits and savings–, while the ratio of dollarization of the deposits of pension funds remained at 94 percent and the ratio of dollarization of the deposits of mutual funds decreased 9 percentage points to 47 percent. In the case of deposits of individuals, the dollarization ratio fell slightly (by 6 basis points), the contraction in the ratios of dollarization of demand deposits and savings deposits standing out (down by 2.6 percentage points and 60 basis points, respectively).

Table 40 DOLLARIZATION RATIO OF DEPOSITS								
	Dec.13	Dec.14	Mar.15	Jun.15	Sep.15	Dec.15	Jan.16	
Business	<b>53.8</b>	<b>50.8</b>	<b>53.6</b>	<b>53.6</b>	<b>57.0</b>	<b>52.5</b>	<b>53.9</b>	
Demand deposits	48.4	47.1	49.2	50.1	52.0	47.3	49.5	
Savings deposits	44.9	63.6	62.1	62.2	75.6	66.9	57.2	
Term deposits	67.8	61.8	69.1	64.6	71.2	69.6	67.7	
Individuals	<b>35.3</b>	<b>33.7</b>	<b>35.2</b>	<b>36.4</b>	<b>38.0</b>	<b>37.0</b>	<b>37.4</b>	
Demand deposits	48.7	48.2	49.7	50.3	52.1	47.3	49.5	
Savings deposits	35.6	35.2	36.6	38.2	38.8	37.6	38.2	
Term deposits	33.3	30.8	32.3	33.1	35.6	35.1	35.2	
Pension funds	83.8	88.6	82.3	85.5	94.2	92.3	94.4	
Mutual funds	59.6	54.6	57.3	53.0	56.0	48.7	47.0	
Total	46.0	42.4	44.2	44.8	47.9	45.5	45.8	

79. In January 2016, the ratio of banks' loans-to-deposits showed was 103 percent, a lower level than the one observed at the end of Q3 (104 percent) and slightly higher than that observed in December 2014. This ratio would be reflecting the recent recovery of private sector deposits –S/ 6.54 billion between September 2015 and January 2016– as well as the auction of public sector deposits by the BCRP (S/ 3.5 billion).



80. In January, the rate of default of credit to business was 2.99 percent, higher than in September (2.95 percent), but lower than in June (3.06 percent). By credit



segments, the default rate of credit to small and micro businesses rose by 41 and 16 basis points, respectively, compared to Q4-2015, while the default rate of credit to medium-sized companies increased by 30 basis points in the same period. As for credit to individuals, the default rate in this segment of credit rose 12 basis points compared to December 2015 (2.65 percent), reflecting an increase in the rate of default in car loans and credit cards, which rose by 15 basis points and 23 basis points, respectively, in the same period.

Table 41           CREDITS DELINQUENCY INDEX OF THE DEPOSITORY CORPORATIONS							
	Dec.13	Dec.14	Dec.15	Jan.16			
Business	2.70	3.14	2.98	3.09			
Corporate	0.00	0.00	0.02	0.02			
Large companies	0.38	0.68	1.00	1.08			
Medium-sized enterprises	3.72	4.79	5.28	5.58			
Small business	7.56	8.72	8.51	8.93			
Microbusiness	5.08	5.39	4.66	4.83			
Individuals	2.32	2.46	2.65	2.77			
Consumption	3.39	3.34	3.32	3.48			
Car loans	3.37	4.25	4.41	4.57			
Credit cards	4.71	4.23	4.10	4.33			
Mortgage	1.04	1.44	1.84	1.93			
Average delinquency	2.57	2.91	2.87	2.99			

By currency, the default rate in domestic currency has remained around 3 percent, a rate similar to that observed in loans in dollars, although the latter has risen by 1.5 percentage points since December 2013.

Table 42 CREDITS DELINQUENCY INDEX OF THE DEPOSITORY CORPORATIONS IN DOMESTIC CURRENCY							
	Dec.13	Dec.14	Dec.15	Jan.16			
Business	3.93	4.03	3.10	3.21			
Corporate	0.00	0.00	0.03	0.03			
Large companies	0.24	0.47	0.48	0.51			
Medium-sized enterprises	4.88	5.63	5.04	5.37			
Small business	7.66	8.55	7.83	8.19			
Microbusiness	5.12	5.44	4.61	4.77			
Individuals	2.57	2.57	2.53	2.64			
Consumption	3.47	3.33	3.23	3.38			
Car loans	6.07	4.61	1.91	1.92			
Credit cards	4.82	4.31	4.20	4.43			
Mortgage	0.98	1.33	1.46	1.52			
Average delinquency	3.33	3.40	2.87	2.98			



Table 43 CREDITS DELINQUENCY INDEX OF THE DEPOSITORY CORPORATIONS IN FOREIGN CURRENCY								
	Dec.13	Dec.14	Dec.15	Jan.16				
Business Corporate Large companies Medium-sized enterprises Small business Microbusiness	<b>1.48</b> 0.00 0.45 3.02 6.99 3.84	<b>2.14</b> 0.00 0.81 4.22 9.90 4.01	<b>2.78</b> 0.01 1.52 5.55 16.33 7.91	<b>2.89</b> 0.00 1.68 5.82 17.78 8.07				
Individuals Consumption Car loans Credit cards Mortgage	<b>1.47</b> 2.62 2.46 3.16 1.12	<b>2.06</b> 3.42 4.09 3.07 1.64	<b>3.28</b> 4.58 7.52 2.62 2.88	<b>3.47</b> 4.88 8.06 2.86 3.04				
Average delinquency	1.48	2.13	2.87	3.00				

#### Exchange Rate and Interventions in the Foreign Exchange Market

81. Between December 2015 and February 2016, the dollar/PEN exchange rate maintained its upward trend due to uncertainty about the economic slowdown in China and the drop of commodity prices, which generated greater risk aversion and affected higher-risk assets worldwide while the currencies of several emerging market economies experienced a significant depreciation until the end of February. In the first week of March, in response to signals of further stimulus by the ECB and to the recovery of commodity prices, there was a reversal in the depreciation observed in the first two months of this year. Thus, the dollar/PEN exchange rate went from S/ 3.377 per dollar at the end of November 2015 to S/ 3.523 at the end of February 2016 –which reflected a depreciation of 4.3 percent– and then to S/ 3.38 on March 16, which represented an appreciation of the PEN of 1.0 percent in the year.





- 82. The net demand for dollars observed between December 2015 and February 2016 amounted to US\$ 2.57 billion and originated mainly in the non-financial private sector (US\$ 2.87 billion in the period). On the other hand, the supply of the mining sector (US\$ 1.19 billion) reduced the net demand for FC. The net supply was provided by the BCRP interventions in the foreign exchange market, mainly through the net sale of dollars in the spot market (US\$ 1.44 billion).
- 83. The BCRP intervened in the foreign exchange market not only selling dollars in the spot market, but also through its interventions in the forward market through the placement of FX swaps. In this period, net placements of FX swaps by the Central Bank amounted to US\$ 1.10 billion, which were accompanied by net placements of CDRs amounting to an equivalent of US\$ 85 million. It is worth pointing out that the BCRP sale of US\$ 8.064 billion in the spot market met a similar demand for dollars from the private sector associated with the de-dollarization of credit and the dollarization of deposits, which are one-time portfolio movements that reduce the private sector's vulnerability to unexpected changes in the exchange rate.

Table 44         FOREIGN EXCHANGE FLOWS         (Million US\$)							
Net demand in FC <sup>1/</sup>	2015	2016 Jan-Feb					
1. Reduction on credits in FC	5,968	496					
2. increase on deposits in FC	3,853	807					
3. Non-residents	388	695					
4. AFPs	2,304	305					
5. Financial sector	1,594	-2					
6. Non-financial sector	-952	-816					
BCRP Intervention <sup>2/</sup>	2015	2016 Jan-Feb					
1. Net sale spot	8,064	332					
2. Net placement of FX-Swaps	2,320	1,027					
3. Net placement of CDR BCRP	1,241	126					
4. Sale for substitution repo	1,529	0					
TOTAL	13,154	1,485					
1/ Negative sign means supply of US\$.							

2/ Positive sign means supply of US\$.

84. The multilateral real exchange rate index (RER) increased by 3.37 percent compared to the same period in 2015, which reflects a multilateral nominal depreciation of 6.08 percent, a domestic inflation of 4.47 percent, and an estimated external inflation of 1.80 percent (YoY change).



## **Capital Market**

85. Securities issued in the local capital market by Peruvian non-financial companies have increased in the last three months. Between December 2015 and February 2016 non-financial companies have issued securities for a total of S/ 512 million (versus S/ 386 million in the previous quarter). On the other hand, financial companies have issued securities for a total of S/ 146 million (versus S/ 164 million in the previous quarter).

In terms of access to financing in dollars in the capital market, 2015 was the best year of the past five years for non-financial companies. Securities for a total of S/ 3.09 billion were issued in the year, which represents a growth rate of 113 percent compared to 2014. By currencies, 90 percent of the total securities issued in this year was issued in soles.





As for the rest of 2016, issuers are expected to continue to prefer securities in the local currency in the current context of high volatility of the sol and expectations of future rises in the Federal Reserve interest rate. It is worth mentioning that securities pending registration in Registro Público del Mercado de Valores – the registry of the stock market– in January 2016 amount to US\$ 626 million (S/ 70 million and US\$ 604 million).

	Table 45 BONDS ISSUED BY NON-FINAN (Millions)	ICIAL FIRMS	
Month	US\$	S/	Total S/
Dec.13 Jan.14	111.0 1.0	90.0	400.8 2.8
Feb.14 Apr.14 Jun 14	62.5	85.0 220.0 434.0	259.9 220.0 434.0
Jul.14 Sep.14	20.0 50.0	160.0	55.9 303.5
Nov.14 Dec.14 Jan.15	21.0	116.0 500.0	61.3 116.0 530.6
Feb.15 Apr.15	6.0	300.0	300.0 18.8
May.15 Jun.15 Jul 15	154.0	502.0 435.0	502.0 489.3 435.0
Sep.15 Oct.15	16.0 2.0	306.0 2.0	357.6 8.6
Nov.15 Dec.15 Jan 16	6.0 117.0	32.0 1.2	20.2 431.1 1.2
Feb.16	22.0	2.0	79.5
Average 2010 Average 2011 Average 2012 Average 2013			158.0 104.0 137.9 86.8
Average 2014 Average 2015 Average 2016			145.3 257.8 40.4





86. Peruvian businesses haven't issued bonds since August 2015. In 2015 private companies issued bonds for a total of US\$ 3.71 billion (a sum lower by US\$ 759 million than the financing amount obtained abroad in 2014). Moreover, 92 percent of the bonds issued were securities issued in dollars. The main bond issuers were companies of sector of tradable goods (54 percent), while enterprises in the nontradable sector ranked second (37 percent).

Table 46 BONDS ISSUED IN THE INTERNATIONAL MARKET								
Business	Emission date	Ammount (Million US\$)	Maturity (Years)	Rate				
YEAR 2014		5,510						
Non-financial sector		3,306						
Compañía Mining Ares	15-Jan	350	7	7.75%				
Minsur	31-Jan	450	10	6.25%				
Abengoa Transmisión Sur	08-Apr	432	29	6.88%				
Camposol	24-Apr	75	3	9.88%				
Rutas de Lima**	27-Jun	370	22	8.38%				
Rutas de Lima***	27-Jun	150	25	5.25%				
InRetail Shopping Mall	01-Jul	350	7	6.50%				
InRetail Consumer	07-Oct	300	/	5.25%				
Unión Andina de Cementos	28-Oct	625	7	5.88%				
Energia Eólica	15-Dec	204	20	6.00%				
Financial sector		2.204						
Private financial sector		1.025						
Banco de Credit	15-Jan	200	13	6.13%				
Interbank	11-Mar	300	15	6.63%				
Banco de Credit	01-Jul	225	4	2.75%				
BBVA Banco Continental	15-Sep	300	15	5.25%				
		4 4 7 9						
Public financial sector		<u>1,179</u>	_	2 2 2 4				
Fondo MiVivienda	26-Mar	300	5	3.38%				
Fondo MIVivienda*	15-IVIay	279	4	1.25%				
COFIDE	08-Jul	300	5	3.25%				
COFIDE	08-Jul	300	15	5.25%				
YEAR 2015		4,510						
Non-financial sector		3,361						
GyM Ferrovias***	03-Feb	206	25	4.75%				
Southern Copper Corporation	17-Apr	500	10	3.88%				
Southern Copper Corporation	17-Apr	1,500	30	5.88%				
Consorcio Nuevo Metro de Lima	10-Jun	1,155	19	5.88%				
Financial as store		4.440						
Financial sector		1,149						
Private Infancial Sector	02 Fab	349	10	F 000/				
Intercorp	03-Feb	250	10	7 660/				
IIICIDAIN	US-FED	22	15	7.00%				
Public financial sector		800						
COFIDE	07-Jul	200	4	3.25%				
COFIDE	07-Jul	600	10	4.75%				
* Emission in Switz Franc								

Emission in Swiss France
 Emission in Soles.
 Emission in Soles VAC.





During 2015, securities for a total of US\$ 14.53 billion were issued in Latin America, the major issuers being Chilean companies (40 percent), Peruvian companies (26 percent), and Brazilian companies (16 percent). So far this year, on the other hand, Colombian companies stand out as the unique issuers in the region, having sold bonds in dollars and in Colombian pesos for a total of US\$ 805 million.

In February the Peruvian Government issued a new bond in the international market for a total of EUR 1 billion, with a maturity term of 14 years and a coupon rate of 3.75 percent. The credit spread assigned to this bond issuance was 339 points over the equivalent German bond, which in regional terms represents a higher spread than that assigned to Mexico and Chile (316 and 143 basis points, respectively). The Ministry of Economy (MEF) announced the approval of an indebtedness program in external markets for 2016 with bonds amounting to US\$ 965 million.

# VI. Inflation

87. The rate of inflation accumulated in the last twelve months increased from 4.40 percent in December 2015 to 4.5 percent in February 2016, the latter rate being lower than that recorded in January (4.6 percent). The supply shocks that affected food prices reversed in part in February and a decline was also observed in fuel prices in this month. Moreover, after showing levels around 3.5 percent for several months, the annual rate of inflation without food and energy rose to 3.8 percent in February, reflecting mainly the impact of the higher exchange rate on consumer prices.



	Table INFLA (% ch	<b>e 47</b> TION ange)						
	Weisht 2042		2042 2042 204		2044 2045		Feb.16	
	weight	2012	012 2013		2015	Jan. 10	Month	12-month
CPI 1. CPI excluding food and energy a. Goods b. Services	<b>100.0</b> <b>56.4</b> 21.7 34.8	<b>2.65</b> <b>1.91</b> 1.60 2.10	<b>2.86</b> <b>2.97</b> 2.62 3.18	<b>3.22</b> <b>2.51</b> 2.43 2.55	<b>4.40</b> <b>3.49</b> 3.57 3.44	<b>0.37</b> - <b>0.07</b> 0.16 -0.20	<b>0.17</b> <b>0.52</b> 0.43 0.58	<b>4.47</b> <b>3.79</b> 3.56 3.93
<ul> <li>2. Food and energy <ul> <li>a. Food and beverages</li> <li>b. Fuel and electricity</li> <li>Fuel</li> <li>Electricity</li> </ul> </li> </ul>	<b>43.6</b> 37.8 5.7 2.8 2.9	<b>3.55</b> 4.06 0.22 -1.48 2.19	<b>2.73</b> 2.24 6.09 5.95 6.23	<b>4.08</b> 4.83 -0.85 -5.59 4.37	<b>5.47</b> 5.37 6.20 -6.33 18.71	<b>0.88</b> 0.84 1.19 -1.30 3.15	-0.22 -0.06 -1.34 -2.65 -0.35	<b>5.28</b> 4.75 9.07 1.08 15.81



88. In the period of January – February, the items with the higher contribution to inflation were meals outside the home, education costs (tuition and fees), electricity rates, chicken meat, and citrus fruits. On the other hand, the items with the higher negative contribution to inflation were gasoline, potatoes, corn, urban fares and domestic transportation.

Table 48 ITEM WITH THE HIGHEST WEIGHTED CONTRIBUTION TO INFLATION: JANUARY - FEBRUARY 2016							
Positive	Weight	% Chg.	Contribution	Negative	Weight	t% Chg.	Contribution
Meals outside the home	11.7	1.6	0.21	Gasoline and lubricants	1.3	-8.9	-0.11
Education costs (tuition and fees)	8.8	1.4	0.14	Potato	0.9	-3.6	-0.05
Electricity	2.9	2.8	0.09	Corn	0.1	-23.4	-0.04
Poultry meat	3.0	2.4	0.07	Urban fare	8.5	-0.5	-0.04
Citric fruits	0.5	7.8	0.05	National transportation	0.3	-10.7	-0.04
Carrots	0.1	28.1	0.04	Eggs	0.6	-6.1	-0.03
Other vegetables	0.4	5.5	0.03	Avocado	0.1	-17.0	-0.03
Toiletries	4.9	0.5	0.02	Grapes	0.1	-14.9	-0.02
Housing rents	2.4	1.1	0.02	Olluco and alike	0.1	-11.1	-0.01
Medicinal products	2.1	1.0	0.02	Fresh legumes	0.2	-3.7	-0.01
Total			0.69		Total		-0.38

#### a. Meals Outside the Home

In January-February, the prices of the category "meals outside the home" increased 1.6 percent, showing a higher increase than that recorded in the prices of food consumed in the household (0.39 percent) and higher than the increase observed in the general price index (0.55 percent). This result is similar to that observed in terms of the last twelve months, where there was an increase of 5.81 percent, higher than the inflation rate (4.47 percent) and higher than the price rise registered in total food consumed in the household (4.24 percent). The continuous increases observed in this category reflect a higher relative demand and supply restrictions that offset the opening of more food establishments.

### b. Education Costs

The category "Education: tuition and fees" showed a variation of 1.4 percent, explained mostly by the adjustment of tuition and fees in private schools in February (7.4 percent compared to 2.7 percent in February 2015) and in private universities (2.6 percent). In the last twelve months, this category increased 6.3 percent due not only to increases at the beginning of the school year, but also due to the rise of tuitions in higher education institutes during the year.

## c. Electricity Rates

In January-February, electricity rates rose 2.8 percent on average mainly as a result of the update of the concession contracts established with the electricity generation and electricity distribution companies carried out in January, as well as the adjustment of electricity transmission tolls in both the primary and secondary transmission systems. Among other variables, the adjustments were made based on the rise of the exchange rate and on the price of natural gas.

In the last twelve months electricity rates have increased 16 percent due to the successive rate adjustments approved by the regulating entity. Electricity generation and distribution costs were affected by the rise of the exchange rate, while electricity transmission tolls were also adjusted as a result of costs incurred due to the expansion of transmission lines. Other factors that affected the electricity rate were the higher price of natural gas, the prepayment of Gasoducto Sur Peruano, as well as the quarterly settlement of the compensation mechanism for regulated users associated with the contracts between distribution and generation companies.

## d. Medicines, Personal Care Items, and Rents

Other goods with a high imported content or whose prices are set according to the the evolution of the dollar recorded increases in the first two months of the year, including medicines, personal care items (up 1.0 and 0.5 percent, respectively) and house rents (1.1 percent). However, in the last twelve months the pass-through of a higher depreciation of the sol to these prices has been low, with price variations being lower than those observed in the exchange rate (14 percent). In this period the price of medicines increased 5.1 percent, while the prices of personal care items increased 3.0 percent and house rents increased 3.7 percent.

## e. Gasoline and Lubricants

Fuels were among the items that offset inflation. In January-February, prices in the category gasoline and lubricants fell 8.9 percent as a result of the decline of the price of oil in the international market. The price of WTI oil dropped from US\$ 37.2 a barrel in December to US\$ 30.4 a barrel in February (vs. US\$ 50.7 in February 2015), which reflected in lower ex-plant prices. Notwithstanding, the variation in the last twelve months was -3.7 percent –less than the price fall recorded in the WTI oil (-40.1 percent)–, price rises having been registered in the months of May and June (3.9 and 3.1 percent, respectively).





#### f. Chicken Meat

The price of poultry increased 2.4 percent on average (up 2.7 percent in January, showing thereafter a slight drop of 0.3 percent in February). The rise in January is mainly explained by the increase in the prices of substitute products, such as fish, as well as by the reduced availability of chicken in wholesale distribution centers after the December "season" when the supply increased in anticipation of a greater demand for New Year's Eve celebrations.

In the last twelve months the price of chicken varied 3.0 percent, less than the variation observed in food consumed in the household (4.2 percent), evolution influenced by the larger placement of baby chickens in the supply of this period (7.8 percent compared to the previous period). No upward pressures were observed on the side of costs. The price of imported hard yellow maize, the main input used in the production of balanced food for chicken, dropped from approximately S/ 1,065 in February 2015 to S/ 867 in February 2016.



## g. Citrus Fruits

The price of citrus increased on average 7.8 percent in January-February as a result of a lower seasonal supply of some varieties of tangerines and of the increased demand for oranges during the summer season.

In the last twelve months the prices in this category dropped 7.2 percent. This was mainly associated with the lower prices of tangerines resulting from an increased supply of this citrus in the months of March to June not only because of seasonal factors, but also because of higher yields as a result of using better agricultural techniques in the valleys of Lima.

## h. Carrots

In the January-February period, the price of carrots increased 28.1 percent. In these months, the supply of carrots comes mainly from Junín, where crops were affected by the delay of the rainy season (crops declined by 8.0 percent in the period August-December compared to the previous year). In addition to this, it is worth mentioning that this crop is susceptible to pests and diseases, whose treatment raises production costs.

In the past 12 months, the price of carrots recorded a variation of 15.6 percent, the highest price rises being observed in the months of March and April. Factors contributing to this rate included not only fewer cultivated areas in Junín, but also marketing problems associated with rains and landslides in the central Sierra region.

## i. Other Vegetables

The prices of other vegetables increased 5.5 percent on average in the period, mainly as a result of the increase in the price of lettuces in February (35.6 percent) resulting mostly from lower supply (approximately -20 percent compared to January and -26 percent compared to February 2015). This crop is cultivated mainly in the valleys of Lima where warmer conditions have affected the yield in the current crop year (in the last twelve months, this category showed an increase of 12.8 percent). In addition to this, the prices of the vegetables considered in this category were affected by increased marketing losses associated with the summer season, as well as by the increased seasonal demand.

#### j. Potatoes

The price of potatoes decreased by an average of 3.6 percent (after increasing 4.7 percent in January and dropping 8.0 percent in February). The rise in January







In the last twelve months the price of potatoes rose 29.4 percent, reflecting mainly the strong price rises recorded in the last months of the year. Higher temperatures and expectations of a severe El Niño event resulted in fewer cultivated areas in the valleys of Lima and Huánuco as well as in a decline of yields. In addition, lack of rainfall affected the crop in many areas of the central highlands.

## Impact of El Niño on Inflation

89. El Niño brings about weather anomalies such as high temperatures in the Coast and heavy frosts in the Highlands. Not only does this prevent the normal development of crops, but also gives rise to a number of pests and diseases and to the consequent fall of yields. In 2015 the most affected products were potatoes, fresh legumes, vegetables, tomatoes, and corn, all of which contributed with 0.8 percentage points to the year's inflation. In the first two months of 2016, the price correction of these products has been equal to -0.1 percentage points, but this reversal has been interrupted because of the landslides that have occurred recently. Weather conditions are foreseen to normalize as from April and prices would return to their trend levels.

#### Impact of the Exchange Rate

90. Exchange rate fluctuations have a direct effect on the prices of certain goods and services, such as vehicles, household appliances, rents, and airfare, for example. The prices of these goods showed an annual growth rate of 6.5 percent at the month of February.

In addition, exchange rate fluctuations have an indirect effect on prices through costs. This is the case of electricity rates, which increased 15.8 percent, and foodstuffs such as poultry, bread, and noodles, which use imported inputs. Inflation in this food group recorded a growth rate of 2.9 percent.


# VII. Inflation Forecast and Balance of Risks

#### Forecast

- 91. The BCRP monetary policy actions are based on inflation forecasts and on projections of inflation determinants prepared using the macroeconomic data available at the time a policy action is decided. These forecasts also include a confidence interval, which quantifies the degree of uncertainty associated with each forecast. Indicators standing out as inflation determinants include the evolution of inflation expectations, imported inflation, and demand inflationary pressures, all of which are quantified through the concept of the output gap (the difference between GDP and GDP's potential level).
- 92. Inflation is expected to converge gradually to the target range in the 2016-2017 horizon: inflation would return to be within the target towards the end of 2016 and would record a rate of 2.0 percent by the end of 2017. Inflation would decline from higher rates than those estimated in the previous Inflation Report due to deviations explained by supply factors and by the effect of the depreciation of the sol on prices, which in the case of dollarized economies affects prices not only through imported inflation, but also through other channels (See box on "The Pass-Through Effect in Dollarized Economies: Transmission Mechanisms").

The convergence of inflation in the forecast horizon is in line with: (i) a gradual reversal of inflation expectations to the BCRP target range associated with the policy actions taken by the Central Bank; (ii) the reversal of the supply shocks that affected food prices in recent months; (iii) lower rates of imported inflation due to lower expected depreciation rates (a context of lower volatility of the dollar in international markets is foreseen), and (iv) an output gap that remains negative in the forecast horizon, which indicates the absence of demand inflationary pressures.

93. The risk factors that imply higher inflation have been materializing in recent months, particularly in the case of higher food prices due to transitory supply shocks and a higher depreciation of the sol until February as well as greater exchange rate-to-



inflation pass-through. In spite of this, the central forecast considers that the reversal of these effects, the convergence of inflation expectations, together with the BCRP actions, will lead to inflation's gradual convergence to the inflation target in the monetary policy horizon.



## 94. Some aspects of the determinants of the inflation forecast are discussed below:

a) The economy would grow at the rate of the potential GDP during 2016 and at a higher rate than the potential output in 2017, without demand inflationary pressures, as indicated by the negative **output gap**. External conditions would continue to be adverse this year, but would be more moderate next year. A positive fiscal impulse and still expansionary monetary conditions in domestic currency are also expected in 2016.



The main determinants of the forecast of the output gap include the following:

- Business confidence: A faster recovery in business confidence than that estimated in our previous report is foreseen due to the recent evolution of the domestic economy.
- **External conditions**: More restrictive external conditions than those foreseen in the IR of December are now expected due to the lower rates estimated in terms of global growth and in the growth of our trading partners: weaker levels of economic activity are expected in the United States, in China, and in the Latin American countries. In spite of this, the terms of trade would show a lower deterioration than in 2015, as foreseen in our previous report.
- **Fiscal impulse**: The fiscal impulse estimated for this year would be equivalent to 0.3 percent of GDP. As from 2017 the fiscal impulse is expected to show a gradual reduction, in line with a declining path of the structural deficit.
- Monetary conditions: Monetary conditions in soles are still one of the factors that contribute to the recovery of the output gap. On the other hand, in 2016 monetary conditions in dollars would show a contraction due to the onset of a series of rises anticipated in the Fed monetary policy rate.
- 95. The growth forecast for the 2016-2017 forecast horizon (4.0 percent and 4.6 percent) is consistent with the gradual recovery of the output gap and with a potential output close to 4.0 percent.





b) **Expectations of inflation** in 2016 still remain above the inflation target range, but show a declining pattern towards the end of the forecast horizon (2016-2017). A gradual convergence of inflation expectations to the target range is expected in the following months in line with the decline estimated in the inflation rates, the lower nominal depreciation rates expected, and the policy actions of the Central Bank.

The Central Bank will continue to pay close attention to the evolution of inflation expectations in the forecast horizon and will take appropriate monetary policy measures that contribute to maintain expectations within the target range.



Table 49   SURVEY ON MACROECONOMIC EXPECTATIONS: INFLATION (% change)					
			Expectations about:		
		IR Sep.15	IR Dec.15	IR Mar.16*	
Financial entities					
	2016	3.0	3.3	3.5	
	2017	2.8	2.8	3.2	
	2018			3.0	
Economic analysts					
	2016	3.0	3.2	3.5	
	2017	2.6	3.0	3.0	
	2018			2.9	
Non-financial firms					
	2016	3.0	3.1	3.5	
	2017	3.0	3.0	3.5	
	2018			3.0	

\* Survey conducted during the second fortnight of February 2016.

c) **Imported inflation** reflects the evolution of import prices and the evolution of the exchange rate. As regards **international prices**, a partial reversal is foreseen in the prices of the main imported commodities.

As for **expectations of depreciation**, the survey on expectations about the dollar-nuevo sol exchange rate shows that economic agents expect lower levels of depreciation of the sol for this year and next year. It is worth pointing out that this survey was conducted before the correction of the exchange rate recorded over the past few weeks: the forward exchange rate recorded in December dropped recently from a peak of 3.69 soles per dollar on February 24 to 3.50 soles per dollar on March 18. In addition to this, a lower exchange rate volatility is expected in international markets, which would mean lower rates of depreciation of the domestic currency. This evolution would have a downside effect on inflation and inflation expectations.

Table 50   SURVEY ON MACROECONOMIC EXPECTATIONS: EXCHANGE RATE (Soles per US\$)			
	Expectations about:		
	IR Sep.15	IR Dec.15	IR Mar.16*
Financial entities			
2016	3.45	3.50	3.65
2017	3.45	3.50	3.70
2018			3.70
Economic analysts			
2016	3.45	3.50	3.65
2017	3.45	3.53	3.70
2018			3.75
Non-financial firms			
2016	3.40	3.50	3.60
2017	3.45	3.50	3.70
2018			3.70

\* Survey conducted during the second fortnight of February 2016.

d) Among the main supply shocks that would affect inflation, the following are worth highlighting: i) the annual revision of electricity rates, and ii) the impact of El Niño. The combination of these factors would cause an increase on the average prices of food and energy, which is estimated at 2.8 percent in 2016. Moreover, at end 2017 food and energy inflation would show a rate of 1.7 percent as a result of a partial reversal of the supply shocks observed in the agriculture sector.

## Balance of Risks in the 2016 – 2017 Horizon

96. Every forecast is subject to the occurrence of unanticipated events that may divert the forecast from the central scenario. In a context of uncertainty, the materialization





of some risks may imply a different rate of inflation than the one forecast originally.

As regards the inflation forecast, the events that could most likely divert the inflation rate from the baseline scenario include greater volatility in international financial markets, a slowdown of domestic demand, slower global growth, and the occurrence of supply shocks.

#### a. Volatility in international financial markets

This risk could materialize if the withdrawal of monetary stimulus by the U.S. Federal Reserve brought about volatility in international financial markets. Such a scenario could generate capital outflows from the emerging market countries and depreciation pressures on their currencies, which could generate higher inflation rates.

#### b. Slowdown in domestic demand

In this year of elections, economic recovery could take longer than expected if the implementation of both public and private investment projects were postponed, which would generate a more negative output gap and lower inflation in the forecast horizon.

#### c. Lower global growth

The baseline scenario considers a slower recovery in the world economy in 2016-2017 than the one estimated in our Inflation Report of December, due mainly to lower growth in the United States and in the emerging economies as well as due to uncertainty about China. However, if such recovery were to take even longer and if the terms of trade deteriorated, the resulting lower external impulse would translate into a lower output gap and into lower domestic inflation.

#### d. Supply shocks

A rise in international oil prices and other imported products significantly above the levels considered in the baseline scenario could generate inflationary pressures. Similarly, more severe effects of El Niño than those foreseen could push upwards the prices of some food products.

The balance of the above-mentioned risks remains neutral for the inflation forecast, so the probability that factors will affect inflation on the upside is equal to the probability that factors will imply a lower price increase.



# Conclusions

97. Inflation is still forecast to converge towards the inflation target range in the 2016-2017 horizon, which is consistent with an output gap that remains negative in the forecast horizon, the reversal of supply shocks, a declining trend in inflation expectations, and with lower rates of imported inflation.

The Central Bank will continue to pay careful attention to the evolution of inflation expectations and other inflation determinants. The BCRP stands ready to adjust its monetary stance, should it be necessary, to ensure inflation's convergence to the inflation target range.



#### BOX 5 EXCHANGE RATE TO INFLATION PASS-THROUGH IN DOLLARIZED ECONOMIES: TRANSMISSION MECHANISMS

In economic literature, exchange rate movements in small open economies have a direct effect on prices through imported products. Since the latter are quoted in foreign currency, their prices in domestic currency increase automatically when there is a depreciation. Even though this is a direct channel of depreciation on domestic inflation, the effect is not complete due to several frictions in prices.<sup>18</sup>

Despite the progress made in the process of de-dollarization of the economy, Peru still has a considerable high level of financial dollarization. Moreover, the dollarization of prices is still reflected in some prices, particularly the prices of imported goods or goods used as financial assets (e.g.: cars, land, housing, rents).

In the Peruvian case, the dollarization of the economy strengthens the link between the exchange rate and inflation. We found three important additional channels: (1) the prices of non-tradable goods in dollars, (2) the channel of financial costs, and (3) the channel of expectations regarding the exchange rate.

The dollarization of the prices of non-tradable goods, such as some rents and personal services, generates a price increase in response to a depreciation which is not justified in fundamental changes. Although in theory flexible prices can always find an equilibrium level in markets, in reality, because of the existence of contracts of a certain duration, prices are not always at their optimal level. For example, when the rent contract of a property has been agreed in dollars and the value of this currency rises, non-core increases are observed in the price of the rent. The demand is expected to decline, but this occurs gradually due to the existence of fixed-term contracts or to the costs associated with moving to another location. Over time, prices adjust and adapt to lower demand, thus restoring the equilibrium. In the case of commercial premises, employers pass on this higher cost to final consumers, as a result of which an increase in prices not associated with the dynamic of the sector is observed. The same happens with electricity rates which are set based on long-term concession contracts that have exchange rate indexation mechanisms.

Empirical evidence on goods and services sensitive to the exchange rate was previously offered in the Inflation Report of May 2015. In this box, we calculated the correlation between the price increases of different CPI components and exchange rate variations in periods of 24 months. The results have been updated after the depreciation of the domestic currency of last year –the highest since 1999– and are presented below. Rents, vehicles, tourist tours, airfare, and electricity rates are still the items that show a higher correlation with the exchange rate. It should be pointed out, however, that not all of these items are part of the tradable sector.

Another channel that should be analyzed is financial costs. When domestic companies borrow in dollars despite their revenue in soles, an exchange rate increase generates an increase in this financial cost. The depreciation of

<sup>18</sup> Winkelried (2011) and Pérez Forero and Vega (2015) have estimated the pass-through of depreciation to inflation in Peru. Campa and Goldberg (2005) have calculated this for the OECD countries and found that the pass-through effect declines over time due mainly to changes in the composition of imports.

the DC raises the company's payments for interests and for the principal, increasing costs and, consequently, final prices. The financial costs channel is not new in the economic literature. Through statistical methods, Eichenbaum (1992) found a positive relationship between the interest rate and inflation in the very short term for the American economy, which is known as the price paradox. Subsequent studies have associates the price paradox with working capital costs faced by businesses. In Peru, different studies such as that carried out by Castillo et al. (2011), have found that, given a positive interest rate shock, inflation initially increases and then results in negative effects consistent with the theory.<sup>19</sup>

TIEMS WITH THE HIGHEST CORRELATION ASSOCIATED TO EXCHANGE RATE				
	Weight	Maximum correaltion <sup>1/</sup>	Correlation 1995 - Jan.16	
Goods				
Electrical appliance	1.3	0.96	0.56	
Recreation and culture devices	0.9	0.93	0.18	
Jewelry	0.1	0.92	0.33	
Purchase of vehicles	1.6	0.89	0.66	
recreation equipment	0.7	0.86	0.28	
Vehicle spare parts	0.2	0.69	0.32	
Services				
House rent	2.4	0.99	0.72	
Expenses in hotels	0.1	0.74	0.31	
Tourism guide	0.0	0.72	0.37	
Airplane fare	0.4	0.71	0.28	
Electricity rates	2.9	0.49	0.13	

1/ Higher correlation taking moving windows in 24 months (from January 1995 to January 2016).

Finally, we should mention the forward-bias puzzle (Fama, 1984), which indicates that the exchange rate moves in the opposite direction to the one predicted by theory. According to uncovered interest rate parity, when an economy raises its interest rate, the currency will appreciate more and will balance the expected gain between investing in this currency or in others. However, what one sees in reality is sometimes the opposite: when the interest rate rises, the local currency loses value in the short term. This stylized fact may be associated with inefficient or biased markets, composed of individuals who do not have rational expectations,20 but have rather adaptive expectations, in which case a depreciation would also boost the depreciation expected by agents and thus enhance the effects on inflation since economic agents will anticipate higher costs and, therefore, will raise their expectations of inflation. In the Peruvian case, when we calculate simple correlations of expectation is 0.67, whereas on the other hand, the correlation with the realized depreciation in the period of the expectation drops to 0.17. Therefore, it can be inferred that depreciation expectations are guided by the depreciation observed until that period in an adaptive manner.



<sup>19</sup> Rossini and Vega (2007) offer a recount on the existing literature of Autoregressive Vector Models applied to quantify monetary policy effects in Peru.

<sup>20</sup> According to Muth (1961), "rational expectations" are the predictions made using all of the information available.



In conclusion, an increase in the exchange rate has different transmission channels resulting in higher inflation in partially dollarized economies such as the Peruvian economy (imported prices, non-tradable goods denominated in dollars, financial costs, and exchange rate expectations). In addition, the effect of this pass-through is greater when the exchange rate increase is persistent and strong.<sup>21</sup> This characteristic has been called asymmetric exchange rate pass-through to inflation in recent studies.

#### BOX 6 MARKUP INDEX AND INFLATION

Economic theory suggests that there are alternative indicators of inflationary pressures that serve to project inflation, such as, for instance, number of hours worked and the actual marginal cost relative to its equilibrium level. The latter, the marginal cost, can be approximated through the relative markup to a price level desired by enterprises. The markup is the difference between the selling price and the unit cost. Studies like those developed by Banerjee, Cockerell, and Russell (2001)<sup>22</sup> have demonstrated the existence of a stable negative long term relationship between inflation and changes in markups. Intuitively, if these markups are low –indicating inflationary pressures–, firms will want to increase their prices to re-establish the desired levels; on the other hand, if the markups are above their desired levels, this would generate competition between firms which would force them to lower their prices.

Since markups are an indicator of inflationary pressures, they have a strong theoretical and empirical relationship with the output gap, which is another indicator of inflationary pressures that is followed-up by the Central Bank. There is abundant literature documenting the counter-cyclical behavior of markups. According to Woodford (2003),<sup>23</sup>

<sup>21</sup> Pérez Forero and Vega (2015) offer an alternative methodology to calculate the pass-through effect distinguishing between appreciations and depreciations.

<sup>22</sup> Banerjee, A., Cockerell, L. and B. Rusell (2001). An I(2) Analysis of Inflation and the Markup. Journal of Applied Econometrics, Sargan Special Issue, vol. 16, pp. 221-240.

<sup>23</sup> Woodford, M. (2003). Interest and Prices: Foundations of a Theory of Monetary Policy. Princeton, N.J.: Princeton University Press.

this can be explained using the classic New Keynesian model, where price rigidity and the pro-cyclicality of marginal costs mean that expansionary demand shocks reduce the average or additional markups. This is how marginal cost variations and markups would be related, in a monotonic way, with variations in the output gap.

The inverse relationship between markups and inflation could be explained by the difference of rigidity of final prices and input prices: consumer prices are generally more rigid than wholesale prices.24 Therefore, an increase in the prices of inputs is followed in the short term by a small lower increase in final prices. Moreover, the lower movements of final prices can be streamlined in a model of firms facing uncertainty about the optimal level of prices: following changes in input prices, firms tend to change their prices in a limited way because large variations can lead to high costs of adjustment. This effect is intensified in an environment of uncertainty.

These relationships have originated several empirical studies about the so-called New-Keynesian Phillips Curve (the relationship between inflation rates and the economic cycle). For example, Gali et al. (2005)25 used the labor-to-GDP ratio as a proxy for the real marginal cost and conclude that both this indicator and inflation expectations contribute to explain the movements in inflation.

A broader concept of the actual marginal cost may be approached through the relationship between the prices of intermediate goods (inputs) and the prices of final goods, the reverse of this relationship representing the margin gain or loss relative to an equilibrium or long-term margin level. In practice, the evolution of these aggregate margins in the economy can be approximated with the following Markup Index  $\kappa_t$  in which the base is January 2001=100:

$$\kappa_t = \frac{IPC_t}{IPM_t} * 100$$

As we can see, the  $\kappa_t$  index is the ratio of the consumer price index ( $IPC_t$ ) and the wholesale price index ( $IPM_t$ ), both normalized to the base January 2001=100. After this construction, the assumption is that, at the macro level, the final prices of companies are represented by the consumer price index, while the prices of their inputs are represented by the wholesale price index.

This measure shows a contemporary negative correlation with inflation, which is still observed when we analyze the lags in the index, which means that the index is ahead of inflation. Additionally, a Granger causality test reveals that the index contributes to predict inflation.

As we can see in the table below, during 2001-2015 total inflation and the Markup Index show a negative correlation of 35 percent, a similar correlation to that observed between inflation and the first lag of the index. However, when the last three years are not considered, the negative correlation is more pronounced (64 and 68 percent). In the last three years, both the aggregate markup and inflation have been rising, which indicates that inflation during that period would not be explained by demand factors. The table also shows the relationship between the markups and the output gap. The negative correlation between the two variables shows the countercyclical nature of markups, as mentioned in previous paragraphs.

<sup>25</sup> Galí, J., Gertler, M. and D. Lopez-Salido (2005). Robustness of the Estimates of the Hybrid New Keynesian Phillips Curve. NBER Working Paper No. 11788.



<sup>24</sup> The final prices are rigid due to: (i) menu costs, (ii) imperfect competition market structure, (iii) efficiency wages, (iv) companies have imperfect information about aggregate spending and about the demand for their products.

CORRELATION TABLE				
	Period 2001-2015		Period 2001-2012	
	Total inflation (YoY) <sup>1/</sup>	Output gap <sup>2/</sup>	Total inflation (YoY) <sup>1/</sup>	Output gap <sup>2/</sup>
Index k Index k	-0.35 -0.33	-0.57 -0.56	-0.64 -0.68	-0.75 -0.62
1/ Monthly data. 2/ Quarterly data.				

The following graph shows that since 2001, the markup index presents a stable average of 100, which implies a constant markup over this period as well as a tendency to stabilize in the long term. Today, the index level is 105, which implies that, since January 2001, the  $IPC_t$  has accumulated 5 percent more than the  $IPM_t$ . This level above its historical mean suggests the absence of inflationary pressures caused by demand factors, as well as a correction of inflation towards its target value, in line with the central inflation forecast contained in this Inflation Report.



#### BOX 7 THE IMPACT OF THE INFLATION TARGET ON INFLATION

The monetary policy of BCRP is based on inflation targeting. One of the pillars of this scheme is the announcement of a numerical inflation target to guide decisions regarding monetary policy instruments. The inflation target initially established by the BCRP was an annual rate of 2.5 percent, with a tolerance range of  $\pm$  1 percent, but since 2007 the target was lowered to 2.0 percent, with a tolerance margin of  $\pm$  1 percent.

The impact of this discrete monetary policy change on inflation dynamics is analyzed below. The key premise is that inflation is affected by the long-term inflationary anchor that is set by the monetary authority.

In order to assess the policy change, a simple reduced-form inflation equation is assumed:

# $\pi_t = \alpha_0 \overline{\pi}_t + \alpha_1 \pi_{t-1} + \alpha_2 \Delta s_{t-1} + \alpha_3 \Delta y_{t-1} + \varepsilon_t \quad (1)$

Where  $\pi_t$  is the monthly CPI inflation rate of Metropolitan Lima,  $\overline{\pi}_t$  is the annual inflation target, which is 2.5 percent until December 2006 and then 2.0 percent since January 2007, $\pi_{t-1}$  is the temporary lag of inflation,  $\Delta s_{t-1}$  is the percentage variation in the exchange rate of the previous month,  $\Delta y_{t-1}$  is the lag in the growth rate of the monthly indicator of economic activity, and  $\varepsilon_t$  is a residual that captures any element not explained in the equation (1). The variable of interest in this equation is the inflation target, which works as a quasi-constant term and determines longterm inflation. The estimation of this equation provides the following results:

PARAMETERS ESTIMATES OF EQUATION (1)			
Variable	Coefficient	p-value	
$ \begin{aligned} \pi_{t-1} & \\ \Delta S_{t-1} & \\ \Delta Y_{t-1} & \\ \pi_t \end{aligned} $	0.34 0.04 0.007 0.07	0.0000*** 0.0015*** 0.5053 0.0000***	
R2: 0.12; Sample: 1999M3-2015	M12		
Memo: HAC standard errors.			

\*\*\* Represents 1 percent significance.

This simple reduced-form equation may be used to make a counterfactual prediction of inflation. In other words, the equation can be used to answer the question, What would have the inflationary process been like if the inflation target had not been changed? To answer this question, first we reconstruct the observed rates of inflation according to the estimated equation and considering all the equation components (1). Then, we make the forecasts as from January 2007, but using now the initial inflation target of 2.5 percent.

The result is illustrated in the graph below. The dashed line shows the year-on-year inflation rate that would have been observed if the inflation target had not been lowered and if the other variables had maintained their values, that is, if the exchange rate, economic activity, and the inflation supply shocks were independent of the inflation target.



The dynamics of inflation depends on the inflation target. In other words, average inflation is determined by the inflation anchor set by the Central Bank. On average, the rate of inflation observed would have been 0.6 percent higher with a target of 2.5 percent than the rate of inflation actually observed with the target of 2.0 percent.



COMPARISON BETWEEN OBSERVED INFLATION
AND CONTRAFACTUAL INFLATION

	Observed (Target = 2.0%)	Contrafactual (Target = 2.5%)
2007	3.93	4.52
2008	6.65	7.28
2009	0.25	0.84
2010	2.08	2.68
2011	4.74	5.36
2012	2.65	3.26
2013	2.86	3.47
2014	3.22	3.83
2015	4.40	5.01

Persistent supply shocks that pushed inflation above the upper limit of the target range would have been observed in both situations (3 percent versus 3.5 percent in the counterfactual case). As we can see, the average deviation of inflation from the upper band of the target range in the months of December has been 0.42 percentage points, while this deviation in the counterfactual case was 0.53 percent.

However, the inflation rates of each month are affected by several shocks and changes in relative prices. An economy with two-digit inflation rates has strong distortions in relative prices that are proportional to the magnitude of the inflation rate, but an economy with inflation rates closer to zero tends to have less distortions in relative prices (Woodford, 200326). In an economy with low and stable average inflation, the dynamics of inflation largely reflects variations in relative prices and low distortion. These changes in relative prices signal the abundance or relative scarcity of goods observed in the economy due to persistent or transitory demand or supply shocks and therefore play an important role in the allocation of resources within the economy.

Therefore, inflation rate variations outside the target range observed at monthly frequencies do not provide useful information about the effectiveness of monetary policy since the role of monetary policy is to provide a nominal long term anchor for the general level of prices.

A better indicator of the effectiveness of monetary policy is the maintenance of an average low rate of inflation (within the inflation target range) in a period beyond short-term fluctuations, which is what the graph below illustrates for the 28 countries that currently have inflation targeting schemes.



26 Woodford, M. (2003). Interest and prices: Foundations of a Theory of Monetary Policy. Princeton University Press.

A cross has been used to mark in the graph the average level of inflation each country has had since 2002 until December 2005. The lines describe the inflation target range.

An important group of countries, including Peru and Chile in Latin America, have managed to maintain average inflation in 2002-2015 within their inflation target ranges. The graph confirms the idea that the countries with lower inflation targets manage to have lower average inflation rates and that the countries with higher inflation targets have higher inflation rates. Moreover, the graph also shows that the countries with high inflation targets have tended to have even average inflation rates above their target ranges.

In conclusion, central banks' inflation targets are anchors for the average inflation rates countries register and affect the dynamics of inflation observed in each period. Corroborating this fundamental premise, this box shows that the inflation rates observed in Peru since 2007 would have been higher and even reached 7.3 percent in December 2008 if the inflation target had not been set to 2 percent.



