



# **INFLATION REPORT**

*March 2017*

**Recent trends  
and macroeconomic  
forecasts  
2017-2018**

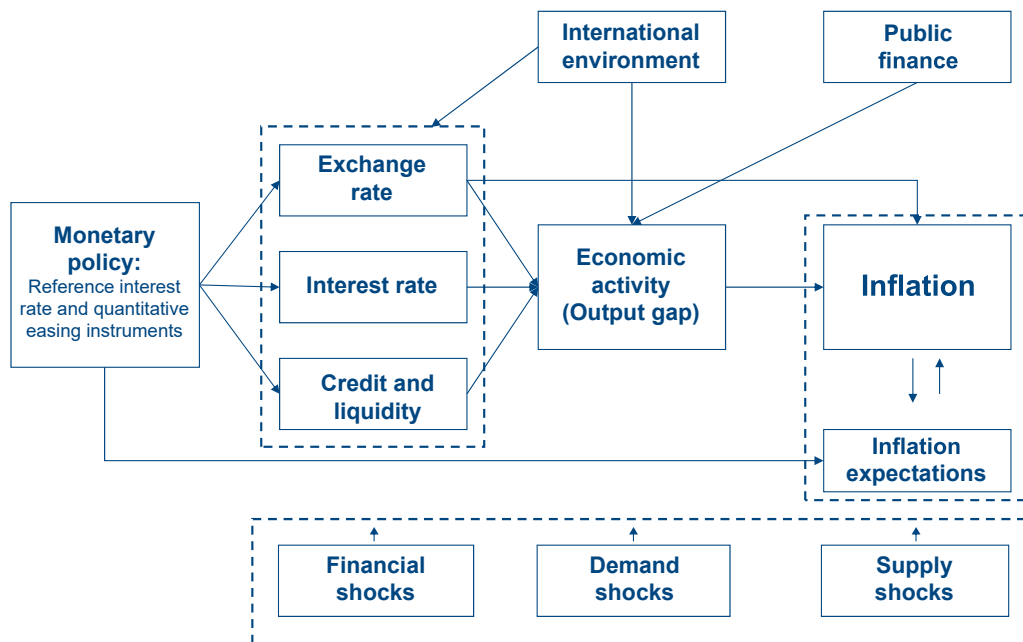


**CENTRAL RESERVE BANK OF PERU**

# INFLATION REPORT

## Recent Trends and Macroeconomic Forecasts 2017 - 2018

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# INFLATION REPORT:

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This **Inflation Report** was prepared using data on the Balance of Payments and the Gross Domestic Product as of the fourth quarter of 2016, and data on Monetary Accounts, the operations of the Non-Financial Public Sector, Inflation, Financial Markets, and the Exchange Rate as of February 2017. In addition to this, data on the events associated with El Niño available at the time when the report was prepared are also included.



## 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 benchmark rate for the interbank lending market. Since this interest rate, which is the monetary operational target, affects the rate of inflation through several channels with time lags, this rate is set on the basis of inflation forecasts and forecasts of inflation determinants.
- Inflation may transitorily deviate from the target range due to shocks that may temporarily affect the supply of goods and services, such as fluctuations in the prices of imported products or domestic climate factors. It should also be pointed out that the effectiveness of monetary policy is also assessed in terms of the success in returning and maintaining inflation expectations within the target range.
- 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 and composition of 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 an analysis of the risk factors that can modify such forecasts.
- This Inflation Report was approved by the Board of Directors of BCRP on March 16, 2017.





## Summary

*The projections contained in this Inflation Report have been developed using preliminary information of the impacts of the climatic events associated with El Niño.*

- i. The world economy has continued recovering in the fourth quarter of 2016 and in the first months of 2017, as a result of which **global growth** would increase from 3.0 percent in 2016 to 3.4 percent in 2017 and to 3.5 percent in 2018, as forecast in the Inflation Report of December.

Commodity prices have maintained their upward trend, favored in part by supply constraints. Because of this, the **terms of trade** are expected to increase 5.4 percent in 2017, a higher rate than that estimated in the Inflation Report of December (3.9 percent).

- ii. The deficit in the **current account of the balance of payments** fell from 4.9 percent of GDP in 2015 to 2.8 percent of GDP in 2016, mainly as a result of higher exports of copper. The current account deficit is projected at 2.6 percent of GDP in 2017 and at 2.4 percent of GDP in 2018 due to the increase of mining exports and to the recovery of export prices. It is estimated that long term financing from private sources will continue exceeding the current account gap and that foreign direct investment will continue to be the main component.

The **trade balance** moved from a deficit of US\$ 3.2 billion in 2015 to a surplus of US\$ 1.7 billion in 2016. In the next two years, the trade surplus would continue increasing and show yearly balances around US\$ 4 billion as a result of the growth of exports, both in terms of volumes and prices.

- iii. In 2016, **GDP grew 3.9 percent**, driven mainly by the dynamism of traditional exports in a context marked by falling private investment (down 6.1 percent) and government spending (down 0.5 percent). The decline of private investment was associated with the contraction of mining investment after the completion of large investment projects that started their production phase and with the problems associated with the implementation of infrastructure projects. Government expenditure was influenced by the fiscal consolidation policy.

Lower growth rates are expected this year due to the delays registered in different infrastructure investment mega-projects due mainly to the investigation of corruption cases that are still under way. In addition to this, growth in the sectors of agriculture, fishing, primary manufacturing, and services would be negatively affected by the impacts of El Niño event. The recent measures taken by the government to boost public investment, which include the reconstruction works following the recent







natural disasters, would in part offset the anticipated lower growth of private spending. Thus, considering a lower recovery of private investment than that estimated in the December report, GDP would grow 3.5 percent this year.

A greater dynamism is expected in domestic demand in 2018, which implies the recovery of private investment. Thus, in 2018 GDP would grow 4.1 percent, slightly less than projected in the previous report, and this rate would be accompanied by lower dispersion among the growth rates of the different economic sectors.

- iv. The **fiscal deficit** in 2016 decreased to 2.6 percent as a result of the fiscal consolidation measures taken, which implied a significant adjustment of expenditure, particularly in the last quarter of the year. The deficit projected in the following two years has been revised up from 2.5 to 2.8 percent of GDP in 2017 and from 2.3 to 2.6 percent of GDP in 2018. This path is consistent with the tax measures adopted through the legislative powers granted by Congress (considered in our previous report) and with the recent fiscal stimulus program aimed at accelerating growth, particularly through a greater investment spending. Part of the latter would be used in the reconstruction of the areas affected by the El Niño event.
- v. **Credit to the private sector** grew at a year-on-year rate of 5.9 percent in February, a slightly higher rate than that recorded at end 2016 (5.6 percent), but lower than the one registered in 2015 (8.0 percent). This evolution of credit is associated with the slowdown of domestic demand, particularly the slowdown of private investment, which has reflected in a lower growth of credit to the corporate segment and the segment of large enterprises and, to a lesser extent, in the lower growth of personal loans. Credit to micro and small businesses (which is almost totally in domestic currency) showed a significant recovery last year. In the 2017-2018 forecast horizon, credit to the private sector is expected to grow in accordance with the pace of growth of the nominal growth rate of the output, with credit in domestic currency showing greater dynamism.
- vi. Reflecting the rises observed in the prices of some perishable food products, **inflation** has shown rates above the inflation target range since September 2016, although expectations of twelve-month inflation remain within the target range. In this context, the Board of BCRP has maintained its **policy interest rate** at 4.25 percent and reiterated that the Central Bank oversees inflation forecasts and inflation determinants to evaluate the convenience of making adjustments in the monetary policy rate.
- vii. Given the transitory nature of restrictions affecting the food supply, **inflation** is projected to show rates around the upper band of the target range during the first half of the year and then to converge to the target range in the second half of 2017 and to 2 percent early in 2018. The forecast considers higher food prices due to the water deficit registered in the last months of 2016 and due to the adverse

climatic factors associated with El Niño (excessive rainfall and floods) that have been affecting several parts of the country during the first quarter of 2017.

The risk factors considered in this report (supply shocks, demand shocks, greater volatility in international financial markets, and a decline in the terms of trade) have a **neutral balance** on the inflation forecast, so the impact of factors that could increase inflation is equal to the impact of factors that imply a fall in prices.





**SUMMARY OF INFLATION REPORT FORECAST**

	2015	2016	2017 <sup>1/</sup>		2018 <sup>1/</sup>	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>Real % change</b>						
1. Gross Domestic Product	3.3	3.9	4.3	3.5	4.2	4.1
2. Domestic demand	3.1	0.9	4.0	3.3	4.0	3.7
a. Private consumption	3.4	3.4	3.5	3.1	4.0	3.4
b. Public consumption	9.8	-0.5	4.2	3.2	2.2	2.2
c. Fixed private investment	-4.4	-6.1	5.0	2.5	5.0	5.3
d. Public investment	-7.3	-0.4	7.4	11.0	4.5	5.0
3. Exports (good and services)	3.5	9.7	4.7	4.2	4.6	5.0
4. Imports (good and services)	2.5	-2.3	3.6	3.2	3.7	3.4
5. Economic growth in main trading partners	3.2	2.8	3.1	3.2	3.2	3.3
<b>Memo:</b>						
Output gap <sup>2/</sup> (%)	-1.5 ; -0.5	-1.5 ; 0.0	-1.0 ; 0.0	-1.5 ; 0.0	-0.5 ; 0.0	-1.0 ; 0.0
<b>% change</b>						
6. Inflation	4.4	3.2	2.0 - 2.5	2.0 - 2.5	2.0 - 2.2	2.0 - 2.2
7. Expected inflation <sup>3/</sup>	-	-	2.9	3.0	2.8	2.9
8. Expected depreciation <sup>3/</sup>	-	-	1.6	-1.5	1.4	1.7
9. Terms of trade <sup>4/</sup>	-6.3	-0.8	3.9	5.4	-1.6	-1.6
a. Export prices	-14.9	-3.8	7.3	10.0	-0.1	-0.2
b. Import prices	-9.2	-3.0	3.2	4.4	1.6	1.5
<b>Nominal % change</b>						
10. Currency in circulation	3.8	6.5	5.5	5.0	6.0	5.9
11. Credit to the private sector <sup>5/</sup>	8.0	5.6	6.5	5.5	6.5	6.2
<b>% GDP</b>						
12. Gross fixed investment	24.3	22.5	23.0	22.2	23.3	22.5
13. Current account of the balance of payments	-4.9	-2.8	-2.8	-2.6	-2.8	-2.4
14. Trade balance	-1.6	0.9	1.2	1.9	1.0	1.9
15. Long-term external financing of the private sector <sup>6/</sup>	5.8	4.6	4.6	4.0	4.5	4.3
16. Current revenue of the general government	20.0	18.5	19.0	18.9	18.7	18.6
17. Non-financial expenditure of the general government	21.2	20.0	20.3	20.5	19.7	20.1
18. Overall balance of the non-financial public sector	-2.1	-2.6	-2.5	-2.8	-2.3	-2.6
19. Balance of total public debt	23.3	23.8	24.9	24.5	26.2	25.4
20. Balance of net public debt	6.6	7.9	11.6	9.9	13.6	12.0

1/ Forecast.

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

3/ Survey on expectations to the economic agents.

4/ Average.

5/ Includes loans made by banks' branches abroad.

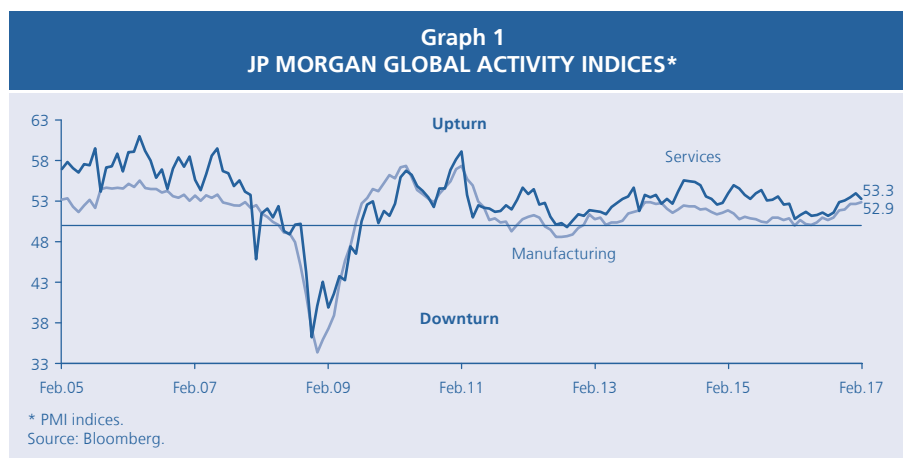
6/ Includes net direct investment, portfolio investment and private sector's long term disbursement.

IR: Inflation Report.

# I. International Environment

## World Economy

1. According to growth indicators in the fourth quarter of 2016 and to global activity indices released this year, the global economy has continued to grow at moderate rates. Both the PMI and the services indices remain in the expansion area, and the PMI index shows higher levels than in December 2016, which has reduced the gap between this index and the services index.



**Table 1  
JP MORGAN GLOBAL ACTIVITY INDICES**

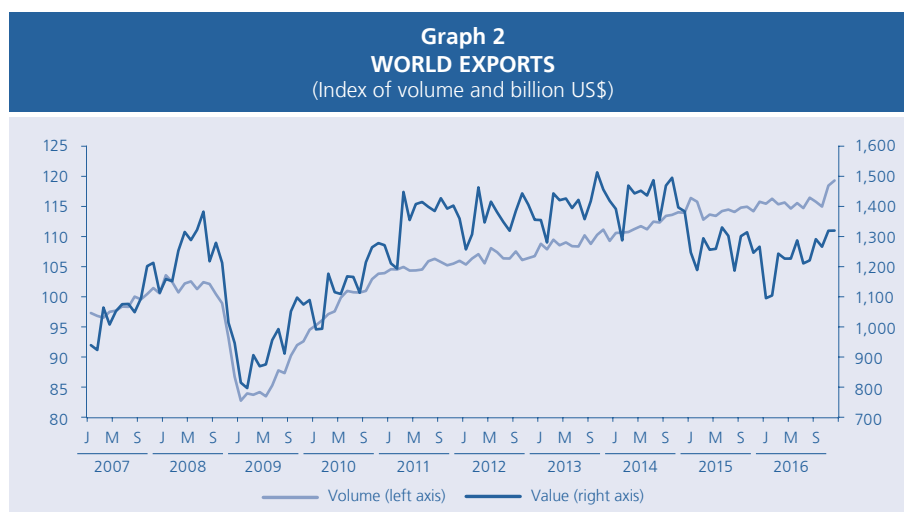
<b>Services</b>							
	<b>Dec.15</b>	<b>Mar.16</b>	<b>Jun.16</b>	<b>Sep.16</b>	<b>Dec.16</b>	<b>Jan.17</b>	<b>Feb.17</b>
<b>Global</b>	<b>52.6</b>	<b>51.3</b>	<b>51.3</b>	<b>51.6</b>	<b>53.5</b>	<b>54.0</b>	<b>53.3</b>
USA	54.3	51.3	51.4	52.3	53.9	55.6	53.8
China	50.2	52.2	52.7	52.0	53.4	53.1	52.6
Eurozone	54.2	53.1	52.8	52.2	53.7	53.7	55.5
Japan	51.5	50.0	49.4	48.2	52.3	51.9	51.3
<b>Manufacturing</b>							
	<b>Dec.15</b>	<b>Mar.16</b>	<b>Jun.16</b>	<b>Sep.16</b>	<b>Dec.16</b>	<b>Jan.17</b>	<b>Feb.17</b>
<b>Global</b>	<b>50.7</b>	<b>50.7</b>	<b>50.4</b>	<b>51.0</b>	<b>52.7</b>	<b>52.7</b>	<b>52.9</b>
USA	51.2	51.5	51.3	51.5	54.3	55.0	54.2
China	48.2	49.7	48.6	50.1	51.9	51.0	51.7
Eurozone	53.2	51.6	52.8	52.6	54.9	55.2	55.4
Japan	52.6	49.1	48.1	50.4	52.4	52.7	53.3

Source: Bloomberg and JP Morgan.





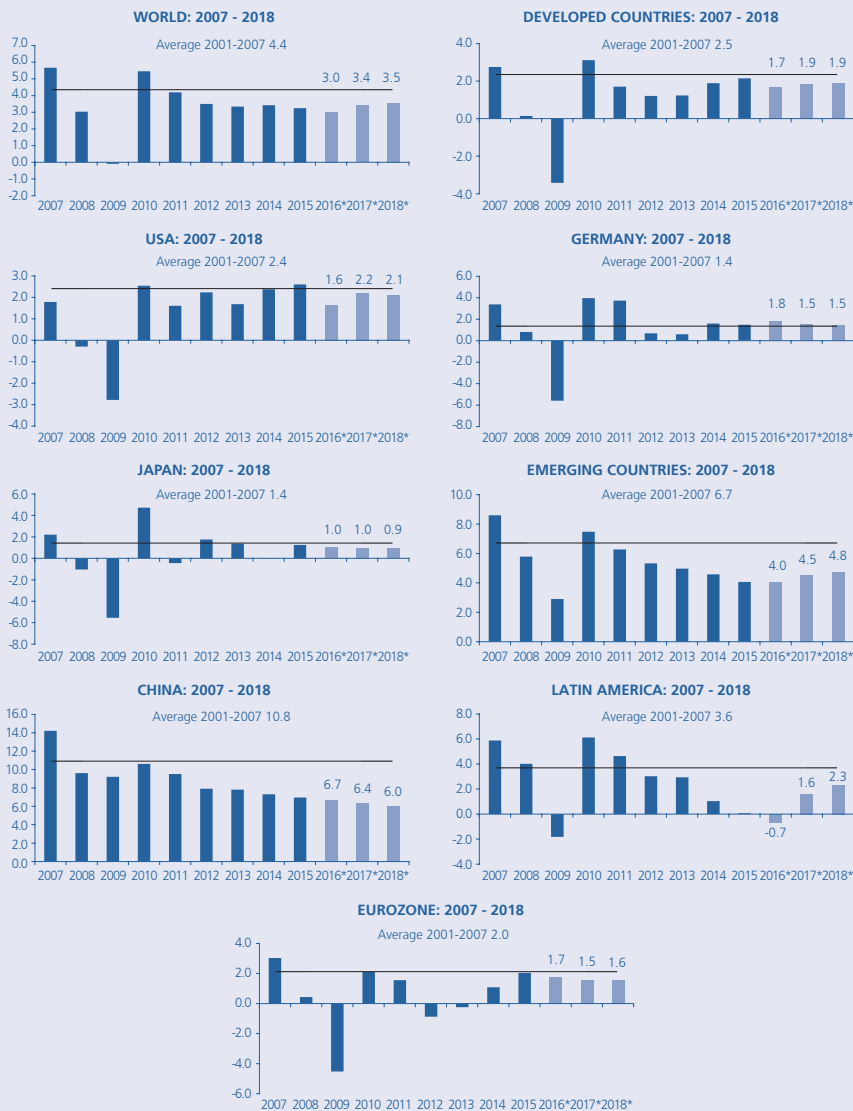
Moreover, global exports and the World Trade Outlook Indicator (WTOI) show that world trade has remained moderately positive both in terms of volumes and values. The prices of the major commodities have also shown an upward trend in the first two months of the year.



2. This suggests that some shocks –such as the Brexit and the electoral outcome in the United States (USA)– would not have had such a significant impact on growth in the short term. As estimated in our previous Inflation Report, the global output is expected to grow at rates of 3.4 and 3.5 percent in 2017 and 2018, respectively.

At the country level, the growth rate projected for some developed economies (Spain, Japan, and the United Kingdom) in 2017 has been revised up, whereas the growth rate of some emerging economies (India, Mexico, and Chile) has been revised down. Another aspect worth pointing out is that the recession affecting large emerging economies such as Brazil and Russia is foreseen to come to an end in 2017.

**Graph 3  
GDP WORLD**  
(Annual % change)



\* Forecast.  
Source: BCRP, IMF, and Consensus Forecast.





**Table 2**  
**WORLD GDP GROWTH**  
(Annual % change)

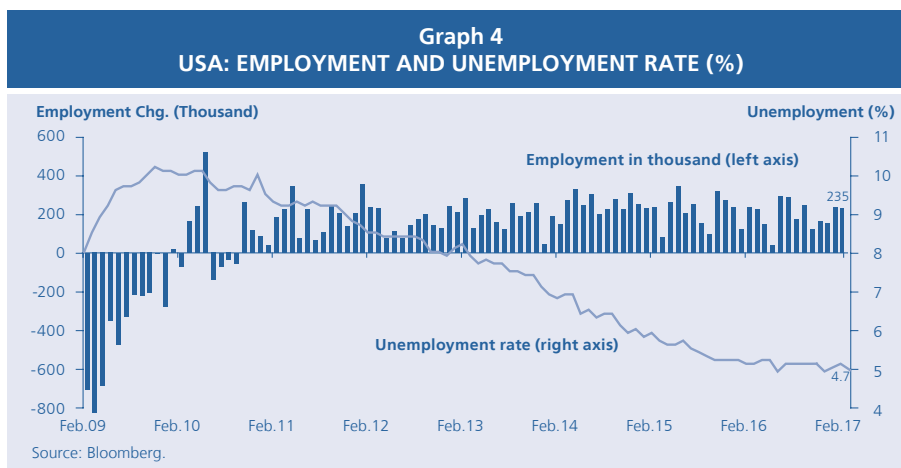
	% participation		2015	2016*		2017*		2018*	
	GDP-PPP <sup>1/</sup>	Trading Peru		IR Dec.	IR Mar.	IR Dec.	IR Mar.	IR Dec.	IR Mar.
<b>Advanced economies</b>	<b>42.4</b>	<b>47.4</b>	<b>2.1</b>	<b>1.6</b>	<b>1.7</b>	<b>1.8</b>	<b>1.9</b>	<b>1.9</b>	<b>1.9</b>
<i>Of which:</i>									
1. United States of America	15.8	17.5	2.6	1.6	1.6	2.2	2.2	2.0	2.1
2. Eurozone	11.9	11.0	2.0	1.7	1.7	1.5	1.5	1.5	1.6
Germany	3.4	2.8	1.5	1.7	1.8	1.5	1.5	1.5	1.5
France	2.3	0.9	1.3	1.3	1.1	1.2	1.2	1.5	1.5
Italy	1.9	1.7	0.7	0.8	1.0	0.9	0.8	1.0	0.9
Spain	1.4	2.5	3.2	3.1	3.2	1.9	2.2	1.9	2.1
3. Japan	4.3	3.0	1.2	0.6	1.0	0.8	1.0	0.9	0.9
4. United Kingdom	2.4	1.1	2.2	2.1	1.8	1.1	1.5	1.7	1.4
5. Canada	1.4	4.4	0.9	1.3	1.4	2.0	2.0	2.0	2.0
<b>Emerging market and developing economies</b>	<b>57.6</b>	<b>52.6</b>	<b>4.1</b>	<b>4.1</b>	<b>4.0</b>	<b>4.6</b>	<b>4.5</b>	<b>4.8</b>	<b>4.8</b>
<i>Of which:</i>									
1. Developing Asia	30.6	26.9	6.7	6.5	6.4	6.3	6.4	6.3	6.3
China	17.1	22.2	6.9	6.7	6.7	6.2	6.4	6.0	6.0
India	7.0	2.2	7.6	7.5	7.1	7.6	7.4	7.6	7.6
2. Commonwealth of Independent States	4.6	0.7	-2.8	-0.2	-0.1	1.5	1.5	2.0	2.0
Russia	3.3	0.5	-3.7	-0.6	-0.5	1.2	1.2	1.5	1.6
3. Latin America and the Caribbean	8.3	23.2	0.1	-0.7	-0.7	1.8	1.6	2.4	2.3
Brazil	2.8	4.1	-3.8	-3.4	-3.4	0.6	0.6	1.2	1.5
Chile	0.4	3.2	2.3	1.7	1.7	2.2	2.0	2.7	2.7
Colombia	0.6	3.0	3.1	2.1	1.6	2.7	2.7	3.7	3.7
Mexico	2.0	3.4	2.6	2.1	2.4	2.1	1.5	2.7	2.3
Peru	0.3	-	3.3	4.0	3.9	4.3	3.5	4.2	4.1
<b>World Economy</b>	<b>100.0</b>	<b>100.0</b>	<b>3.2</b>	<b>3.0</b>	<b>3.0</b>	<b>3.4</b>	<b>3.4</b>	<b>3.5</b>	<b>3.5</b>
Memo:									
Peru's trading partners <sup>2/</sup>	65.7		3.2	2.8	2.8	3.1	3.2	3.2	3.3
* Forecasts.									
1/ Purchasing Power Parity 2015									
2/ Basket of Peru's 20 main trading partners.									
Source: Bloomberg, IMF, and Consensus Forecast.									

3. The forecast for growth in the **United States** in 2017 remains at 2.2 percent, while the growth forecast for 2018 has been revised up from 2.0 to 2.1 percent. Growth in 2017 is expected to be supported by a continuous recovery of private investment after the increase it registered in the third and fourth quarters of 2016, as well as by a sustained growth of consumption. It is estimated that the impact of the fiscal stimulus of the new Administration will be fully reflected by 2018, although there is still no specific information about it yet.

Table 3 USA: GDP (Annual % change)							
	2014	2015	2016				Year
			Q1	Q2	Q3	Q4	
Personal consumption	2.9	3.2	1.6	4.3	3.0	3.0	2.7
Gross fixed investment	4.5	5.0	-3.3	-7.9	3.0	9.2	-1.6
Change on inventories *	-0.1	0.2	-0.4	-1.2	0.5	0.9	-0.4
Exports	4.3	0.1	-0.7	1.8	10.0	-4.0	0.4
Imports	4.4	4.6	-0.6	0.2	2.2	8.5	1.1
Government expenditure	-0.9	1.8	1.6	-1.7	0.8	0.4	0.8
<b>GDP</b>	<b>2.4</b>	<b>2.6</b>	<b>0.8</b>	<b>1.4</b>	<b>3.5</b>	<b>1.9</b>	<b>1.6</b>

\* Contribution to growth.  
Source: BEA.

The growth of consumption would be supported by better prospects for employment during 2017. The recent employment report of February shows that non-farm jobs increased by 235 thousand jobs, driven by increased enrolling in the sectors of construction and professional services. Indicating greater confidence in the labor market, the participation rate rose to 63.0 percent, while the unemployment rate fell to 4.7 percent (a similar rate to the long-term rate estimated by the Fed projections).



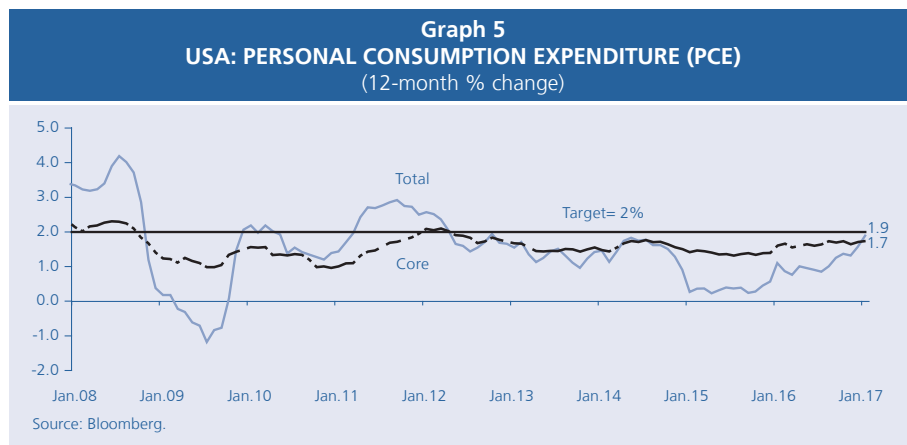
This gradual improvement in economic activity has been accompanied by a rise in inflation. In February, total CPI inflation reached 2.7 percent per annum, while core inflation registered 2.2 percent. Moreover, the personal consumption expenditure



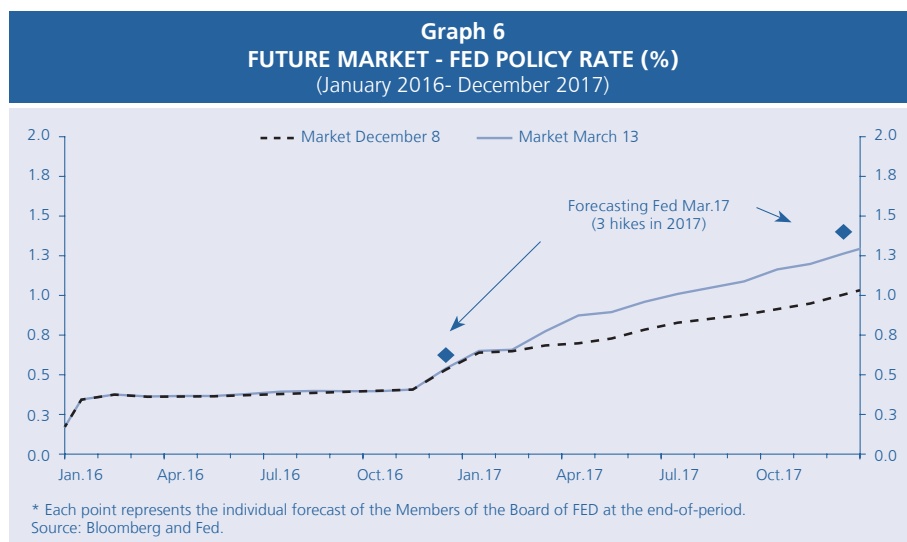




price index (PCE) also showed an upward trend recording 1.9 percent per annum in January, while the core indicator remained at 1.7 percent, both still below the Fed inflation target.



4. In this context, several voting members of the Federal Open Market Committee (FOMC) of the Fed have stated that the US economy would be close to reaching its dual mandate objectives of inflation and employment, and warned about the risks of removing stimulus too late. In line with this, the Fed raised its range of interest rates by 25 basis points to 0.75-1.00 percent at its meeting of March 15 and estimated that there will be two additional increases in the rest of the year (according to the median of projections carried out by the members of this Committee).



**Table 4**  
**FED: FORECASTING\***

	2017		2018		2019		Long-term	
	Dec.16	Mar.17	Dec.16	Mar.17	Dec.16	Mar.17	Dec.16	Mar.17
<b>Growth</b>	2.1	2.1	2.0	2.1	1.9	1.9	1.8	1.8
<b>Unemployment rate</b>	4.5	4.5	4.5	4.5	4.5	4.5	4.8	4.7
<b>Inflation (PCE)</b>	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0
<b>Core Inflation (PCE Core)</b>	1.8	1.9	2.0	2.0	2.0	2.0	-	-
Memo: Core PCE excludes food and energy								
<b>Interest rate (%)</b>	1.4	1.4	2.1	2.1	2.9	3.0	3.0	3.0

\* It adds data from 17 individual projections of the members of the Fed at end-of-period.  
 Source: Fed.

5. In **China**, the economy grew 6.7 percent in 2016, supported mostly during the year by public investment in infrastructure and by increased credit. The growth projection for 2017 has been revised from 6.2 to 6.4 percent, considering the indicators of activity recorded in the first months of the year: the PMI indices remain sound in the expansion area and industrial production and retail sales have shown significant dynamism. However, the growth rate estimated for 2017 implies a slowdown with respect to the rates registered in the previous years, in line with the Government's explicit aim of gradually reducing real estate investment and private indebtedness. In 2018, China is expected to grow 6.0 percent.

**Table 5**  
**CHINA'S ECONOMIC INDICATORS**

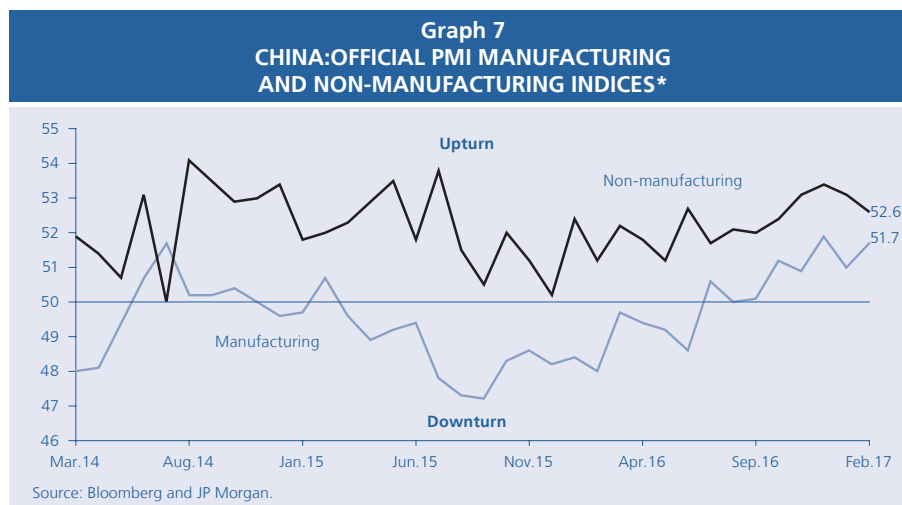
Indicators	2015				2016				2017	
	Mar.	Jun.	Sep.	Dec.	Mar.	Jun.	Sep.	Dec.	Jan.	Feb.
Annual GDP (Annual % change-last quarter)	7.0	7.0	6.9	6.8	6.7	6.7	6.7	6.8	-	-
Industrial Production (12 month % change) <sup>1/</sup>	5.6	6.8	5.7	5.9	6.8	6.2	6.1	6.0	6.3	6.3
Investment in fixed assets (Accum. annual % change) <sup>1/</sup>	13.5	11.4	10.3	10.0	10.7	9.0	8.2	8.1	8.9	8.9
Retail sales (12 month % change) <sup>1/</sup>	10.2	10.6	10.9	11.1	10.5	10.6	10.7	10.9	9.5	9.5
Copper imports <sup>2/</sup> (Accum. annual % change volume)	14.6	12.7	10.0	12.3	18.0	23.2	28.5	27.6	6.9	-1.0
Total new financing (Annual % change)	12.8	11.7	12.1	11.7	13.4	12.2	12.5	12.7	12.6	15.0
Consumer Price Index (12-month % change)	1.4	1.4	1.6	1.6	2.3	1.9	1.9	2.1	2.5	0.8

<sup>1/</sup> Data from January and February 2017 corresponds to first bimonthly.

<sup>2/</sup> Concentrated.

Source: Bloomberg and FMI.





- The growth rate projected for the **Eurozone** in 2017 remains unchanged from that estimated in our previous report. After growing 1.7 percent in 2016, the output would grow 1.5 percent in 2017 and 1.6 percent in 2018. The forecast considers that the momentum observed in the first months of the year, associated with higher domestic demand, will continue during the forecast horizon. The increase in demand is supported by favorable credit conditions and by the enhancement of the labor market.

These factors are expected to promote growth and to offset the uncertainty arising from elections, the weakness of banks (Italy and Portugal), and external factors (U.S. trade policy and the Brexit negotiations).

Furthermore, in recent months inflation has continued showing an upward trend, reducing significantly the risk that economic recovery may be affected by a deflationary process. Total inflation went from 1.1 percent in December 2016 to 2.0 percent in February 2017 (although core inflation remained at 0.9 percent in the same period). In this context of moderate growth and rising inflation, the European Central Bank has maintained its monetary stimulus programs.

- Showing greater economic dynamism in the fourth quarter of 2016, **Japan** registered a growth rate of 1.0 percent in 2016, external demand being the main drive of the economy over the year. Taking into account this recent dynamism and the fact that the authorities have maintained an accommodative monetary policy stance –inflation has been showing positive rates for four consecutive months, although below the 2.0 percent target. In January the rate of inflation was 0.4 percent–, the growth projection for 2017 has been revised up from 0.8 to 1.0 percent. The 0.9 percent growth projection is maintained for 2018.
- The main **Latin American countries** with inflation targeting schemes showed lower dynamism in economic activity during the last quarter of 2016.

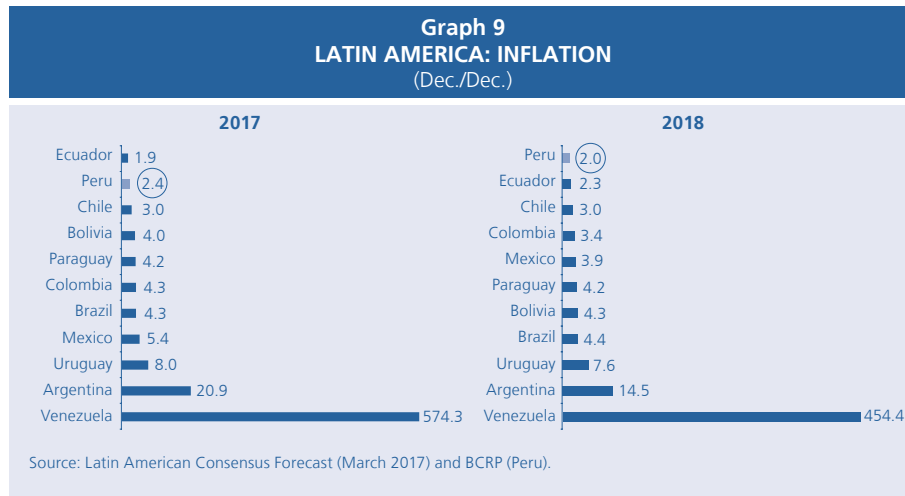
In **Brazil**, production and investment continue decreasing and payroll cuts have intensified unemployment. In addition, the Government is in the process of implementing fiscal reforms, which translates into less spending and lower expectations of a stimulus program. Notwithstanding, the latest data of activity indicate that the economy is close to a turning point. In **Chile**, investment and mining production have continued declining, while the labor market has deteriorated, especially in the mining sector. In **Colombia**, the contraction of investment in 2016 was associated with the lower prices of crude oil during most part of the year. In addition, consumption slowed down due to lower consumer confidence and to the fast pace of inflation. In **Mexico**, growth was driven by agriculture and by the sector of services. The low prices of oil have had a negative impact on extractive activities and constrained the growth of the industrial sector. Moreover, the sentiment of consumers and entrepreneurs has weakened as a result of the commercial risks generated after the elections in the United States. The current context observed in Latin American countries would lead to an economic slowdown due to lower trade and lower foreign direct investment.

It is estimated that the region's output has decreased 0.7 percent in 2016. On the other hand, a recovery of 1.6 percent is estimated for 2017, assuming a scenario with some stabilization in commodity prices and with lower rates of inflation. The main risks for the region are associated with the international environment.



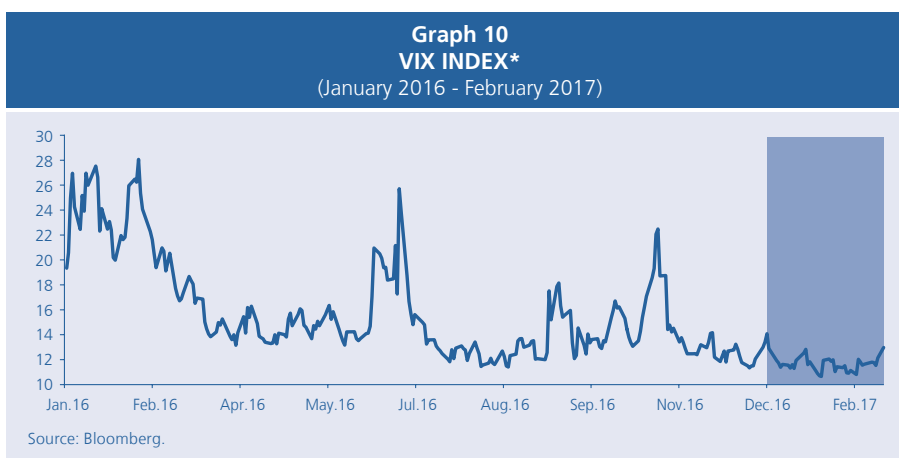
Inflation did not have a homogeneous conduct in the region. It showed a downward trend in Brazil and Colombia, but rose in Mexico (and remained outside the target range) while it remained stable (and within the target range) in Chile. This different evolution of inflation must have determined the different monetary policy decisions taken in Mexico, Brazil, Colombia, and Chile: while the Bank of Mexico increased the interest rate by 50 basis points, Brazil, Colombia, and Chile reduced it by 150, 25, and 50 basis points, respectively.



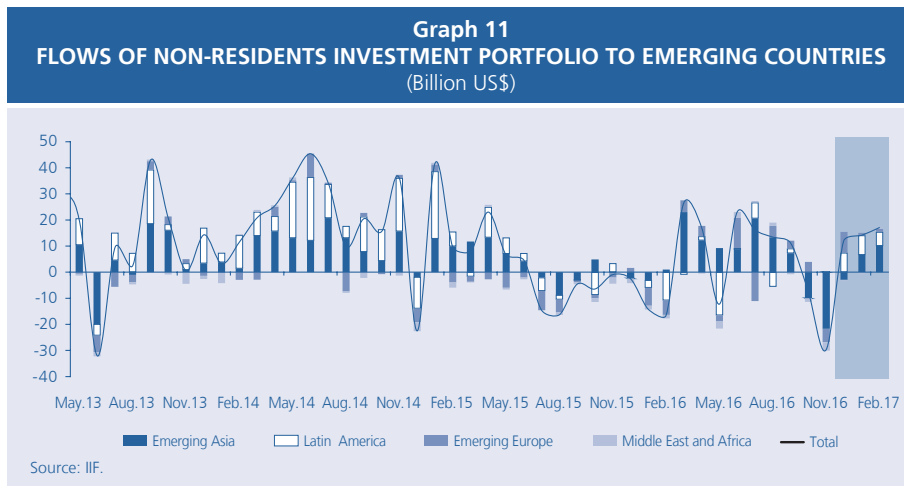


### Financial Markets

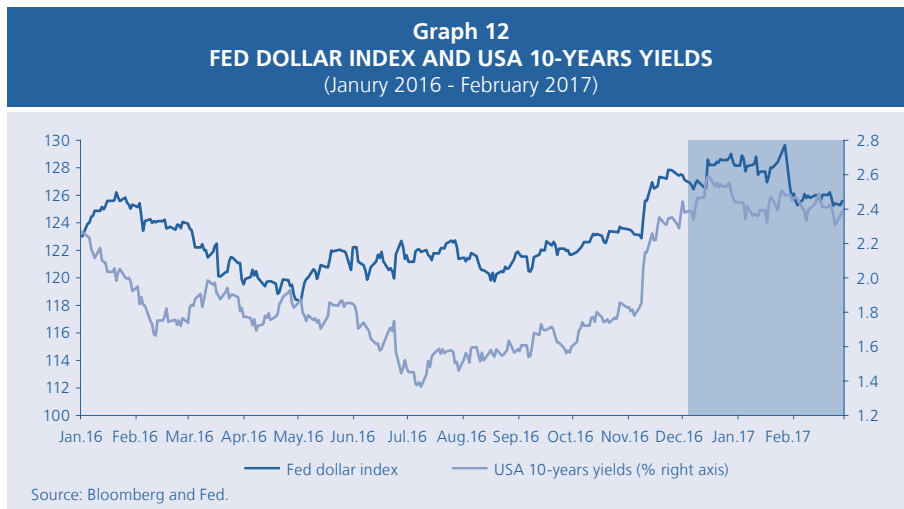
9. In January and February, international financial markets were influenced by positive data of global economic activity, uncertainty about the fiscal and monetary policies that will be implemented in the United States, and the increase in commodity prices –especially in the price of oil–, all of which reflected mainly in a depreciation of the dollar against most currencies and in a recovery of stock markets.
10. In contrast with periods discussed in previous Inflation Reports in which markets registered sudden changes associated with unforeseen events (the Brexit and the U.S. election results), risk aversion remained at moderate levels supported by positive data of economic activity, particularly in the USA, China, and the Eurozone. This low risk aversion was reflected in the VIX index, which recorded its lowest level in three years on January 27.



Investors' greater risk appetite was reflected in an increased demand for risky assets. In the USA, stock markets reached new all-time highs, while capital flows returned towards emerging countries. Latin America and Asian emerging countries were the regions favored the most by purchases of debt securities.



11. Between December and February, the dollar depreciated against most other currencies due to uncertainty about economic policies in the United States. The lack of definition on fiscal policy –absence of details about the stimulus programs and the difficulty of implementing the tax reform in the short term– temporarily reduced expectations that the Fed would implement an aggressive policy of rising rates. According to the dollar-Fed index<sup>1</sup>, the dollar depreciated 2.3 percent in this period.



<sup>1</sup> Nominal Broad Dollar Index





Within the emerging currencies, currencies in the LatAm region appreciated against the dollar due to the recovery of most commodity prices and, in addition, the Mexican peso also recorded an appreciation associated with the Central Bank's introduction of dollar auctions in foreign-exchange hedges. On the other hand, the Turkish lira registered a significant depreciation associated with the persistence of external imbalances and the maintenance of interest rates in this country despite inflationary pressures.

- In the developed countries, **stock markets** were driven by indications of recovery in the developed economies and by positive corporate results, as well as by the increase in the prices of metals and crude oil, and by positive data of economic activity in China.

Table 6 STOCK MARKETS						
		Nov.16	Dec.16	Feb.17	% change	
					Feb./Dec.	Feb./Nov.
VIX*	S&P 500	14.04	13.33	12.92	-0.4	-1.1
USA	Dow Jones	19,763	19,124	20,812	8.8	5.3
Brazil	Bovespa	60,227	61,906	66,662	7.7	10.7
Argentina	Merval	16,918	17,442	19,117	9.6	13.0
Mexico	IPC	45,643	45,316	46,857	3.4	2.7
Chile	IGP	20,734	21,020	21,811	3.8	5.2
Colombia	IGBC	10,106	9,572	9,889	3.3	-2.2
Peru	General index	15,567	15,415	15,766	2.3	1.3
United Kingdom	FTSE 100	7,143	6,784	7,263	7.1	1.7
Germany	DAX	11,481	10,640	11,834	11.2	3.1
France	CAC 40	4,862	4,578	4,859	6.1	-0.1
Spain	IBEX 35	9,352	8,688	9,556	10.0	2.2
Italy	FTSE MIB	19,235	16,930	18,913	11.7	-1.7
Greece	ASE	644	629	646	2.7	0.3
Switzerland	SMI	8,220	7,875	8,546	8.5	4.0
Russia	RTSI\$	1,152	1,029	1,099	6.8	-4.6
Turkey	XU100	78,139	73,995	87,478	18.2	12.0
South Africa	JSE	50,654	50,209	51,146	1.9	1.0
Nigeria	NSEAS	26,875	25,242	25,329	0.3	-5.8
Japan	Nikkei 225	19,114	18,308	19,119	4.4	0.0
Indonesia	JCI	5,297	5,149	5,387	4.6	1.7
India	S&P CNX Nifty	8,186	8,225	8,880	8.0	8.5
Hong Kong	HSI	22,001	22,790	23,741	4.2	7.9
China	Shanghai C.	3,104	3,250	3,242	-0.3	4.4

\* Change in units.  
Source: Bloomberg

- Returns from fixed income assets in the United States showed a downward path due to uncertainty about the cycle of interest rate hikes and the lack of definition regarding fiscal policy. In the Eurozone, yields recorded an upward trend due to the perception of political risk associated with the elections in France and the Netherlands, as well as due to the increase in inflation in the block.

**Table 7**  
**YIELDS ON 10-YEAR TREASURY BONDS**

	Dec.16	Nov.16	Feb.17	Change (bps.)	
				Feb./Nov.	Feb./Dec.
United States of America	2.45	2.38	2.39	1	-5
Germany	0.20	0.27	0.21	-7	0
France	0.68	0.75	0.89	14	21
Italy	1.81	1.99	2.08	9	27
Spain	1.38	1.55	1.64	9	26
Greece	7.02	6.52	7.06	54	4
United Kingdom	1.24	1.42	1.15	-27	-9
Japan	0.04	0.02	0.05	3	1
Brazil	11.40	11.83	10.24	-160	-117
Colombia	7.11	7.29	7.01	-29	-10
Chile	4.28	4.58	4.14	-44	-14
Mexico	7.42	7.25	7.37	11	-5
<b>Peru</b>	<b>6.36</b>	<b>6.30</b>	<b>6.14</b>	<b>-16</b>	<b>-22</b>
South Africa	8.91	9.02	8.79	-23	-12
Israel	2.06	2.17	2.36	19	30
Turkey	11.08	10.82	10.61	-22	-48
China	3.06	2.95	3.32	37	26
South Korea	2.07	2.15	2.16	1	8
Indonesia	7.91	8.09	7.50	-58	-41
Thailand	2.65	2.69	2.67	-2	2
Malaysia	4.19	4.35	4.05	-29	-14
Philippines	4.63	4.52	4.37	-15	-26

Source: Bloomberg.

### Terms of trade

14. In the first two months of 2017, most commodity prices continued showing the upward trend discussed in our previous report. In most cases (basic metals and food), the rising trend in prices was favored by supply constraints in a context in which global demand showed few significant changes.

This evolution is consistent with a revision on the upside in the forecast about the terms of trade (from 3.9 to 5.4 percent) in 2017. The prices of exports would increase 10.0 percent and the prices of imports would increase 4.4 percent. On the other hand, a drop of 1.6 percent is estimated in the terms of trade for 2018.

**Graph 13**  
**TERMS OF TRADE: 2001 - 2018**  
(Annual average % change)







**Table 8**  
**TERMS OF TRADE: 2014 - 2018**  
(Annual average data)

	Execution			2017*		2018*	
	2014	2015	2016	IR Dec.	IR Mar.	IR Dec.	IR Mar.
<b>Terms of Trade (% chg.)</b>	<b>-5.4</b>	<b>-6.3</b>	<b>-0.8</b>	<b>3.9</b>	<b>5.4</b>	<b>-1.6</b>	<b>-1.6</b>
<b>Price of exports (% chg.)</b>	<b>-6.9</b>	<b>-14.9</b>	<b>-3.8</b>	<b>7.3</b>	<b>10.0</b>	<b>-0.1</b>	<b>-0.2</b>
<i>Copper (US\$ cents per pound)</i>	311	250	221	244	264	235	264
<i>Zinc (US\$ cents per pound)</i>	98	88	95	120	126	120	122
<i>Lead (US\$ cents per pound)</i>	95	81	85	100	103	100	100
<i>Gold (US\$ per ounce)</i>	1,266	1,160	1,248	1,191	1217	1,200	1,210
<b>Price of imports (% chg.)</b>	<b>-1.5</b>	<b>-9.2</b>	<b>-3.0</b>	<b>3.2</b>	<b>4.4</b>	<b>1.6</b>	<b>1.5</b>
<i>Oil (US\$ per barrel)</i>	93	49	43	49	52	49	53
<i>Wheat (US\$ per ton)</i>	243	186	143	151	171	170	192
<i>Maize (US\$ per ton)</i>	155	141	135	140	148	145	158
<i>Soybean oil (US\$ per ton)</i>	812	667	696	775	728	770	744
<i>Whole milk (US\$ per ton)</i>	3,471	2,396	2,471	3432	3,310	3,418	3,252

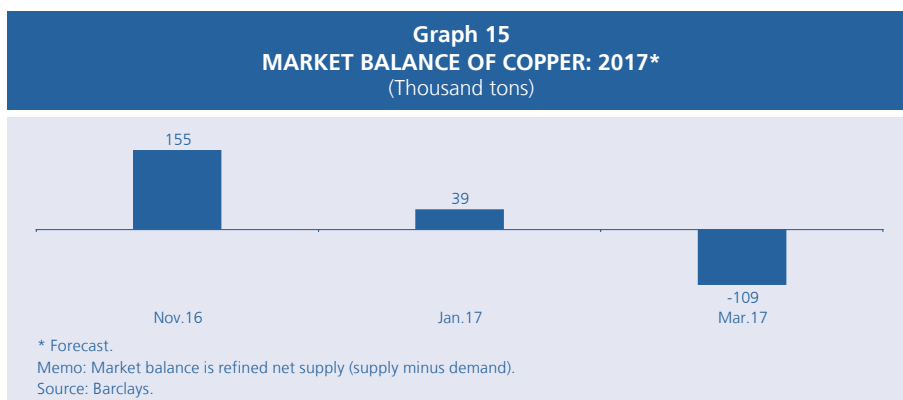
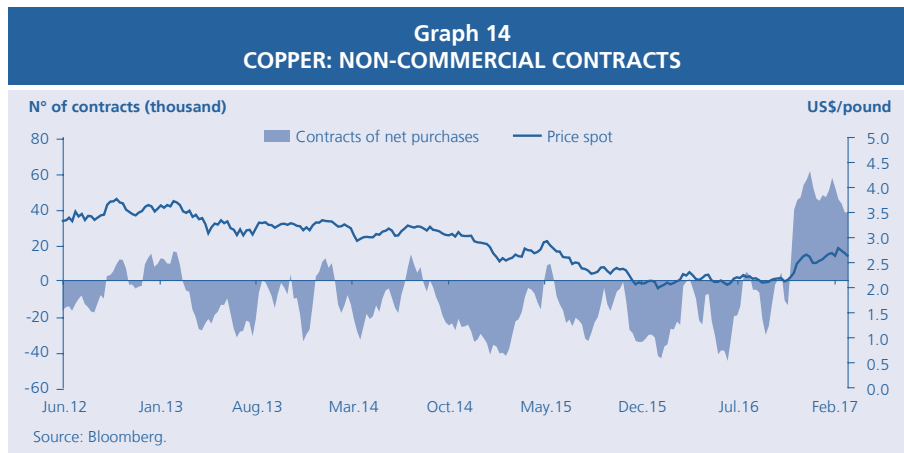
\* Forecast.  
Source: BCRP.

## Copper

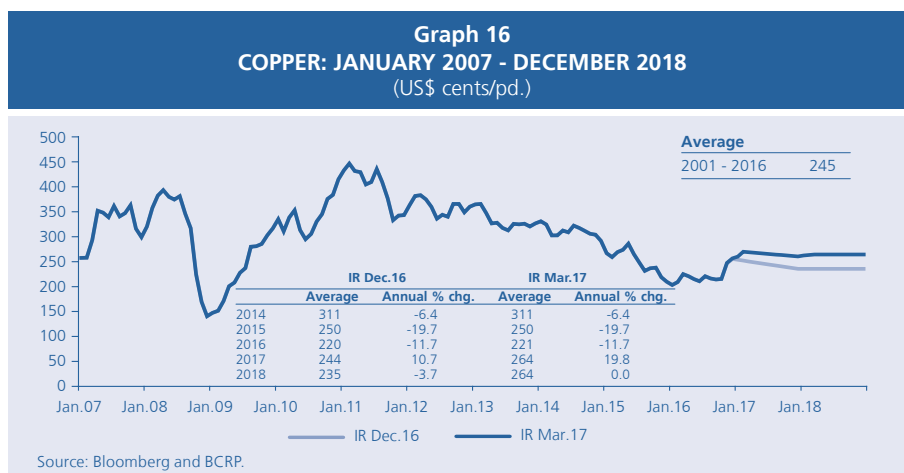
- a. In February, the copper reached an average monthly price of US\$ 2.70 a pound, which represented an increase of 5 percent compared to December 2016. Thus, the price of copper accumulated an increase of 22.0 percent between December 2015 and December 2016.

The rise in the price of copper so far this year is explained by an anticipated lower growth of the copper supply in 2017. This situation, foreseen in the previous Inflation Report, was reinforced by unplanned production cuts in two of the world's largest mines: La Escondida in Chile and Grasberg in Indonesia (according to the International Copper Study Group, the production capacity of these two mines represents 8 percent of the world capacity).

Pressures on the side of supply are observed in a context in which the global demand for copper remains high, particularly in the case of China. Moreover, net non-commercial positions, which remained at high levels –slightly below the highs recorded in December 2016 when net purchases of copper recorded a level not observed since 2003– have also increased.



With these developments, the estimated average prices of copper in 2017 and 2018 have been revised on the upside, considering that the lower growth of supply will be accompanied by a stable demand. China's demand is foreseen to remain high (government investment in infrastructure and real estate investment) and an increase in demand would be seen in 2018 due to increased spending in infrastructure that year.





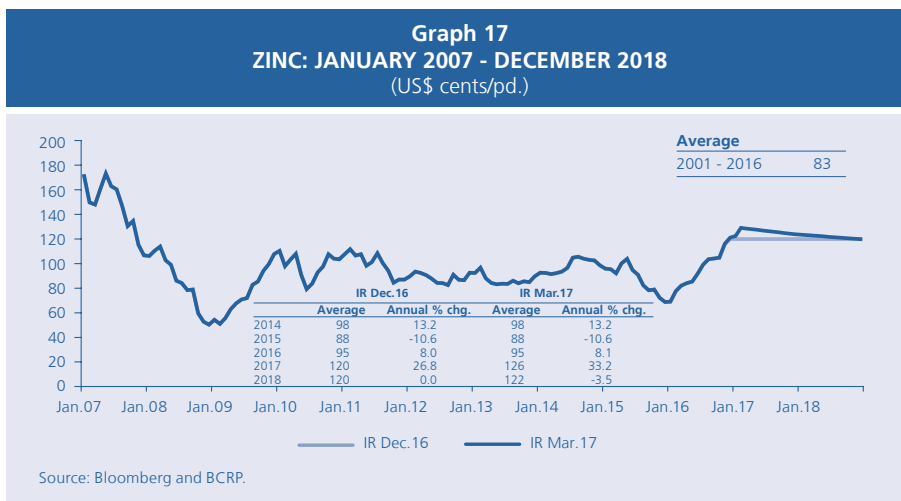
### Zinc

- b. After increasing 76 percent between December 2015 and December 2016, the price of **zinc** rose 6 percent in the first two months of the year, reaching a monthly average price of US\$ 1.29 per pound in February.

The price increase was supported by expectations of a market deficit of zinc until 2019. The supply shortage of concentrates foreseen for 2017 and 2018 has already been affecting refining operations and causing projects of new refineries to be postponed. This shortage of concentrates is associated with the final closing of some mines (Vedanta’s Lisheen and MMG’s Century mine) and with the production cuts announced by several producers that face negative margins. Another factor contributing to this has been the environmental inspections of zinc and lead smelters carried out by the Government of China since the end of October 2016.

As in the case of copper, the demand has continued to show sound growth rates, supported by the growth of demand in the construction and car manufacturing sectors. It is worth pointing out that Asia’s demand shows the greatest growth with a strong demand that comes not only from China, but also from India, South Korea, and Japan.

In this context, the price of zinc estimated for the forecast horizon has been revised up. However, the projections of a supply-demand balance are subject to a high uncertainty that introduces a risk on the downside. The latest balance of the global supply and demand of zinc<sup>2</sup> for December 2016 showed an unexpectedly balanced market. Furthermore, inventories not recorded on the exchange markets have recently entered the market and there is the possibility that several mines may restart operations, encouraged by the high prices of this metal.

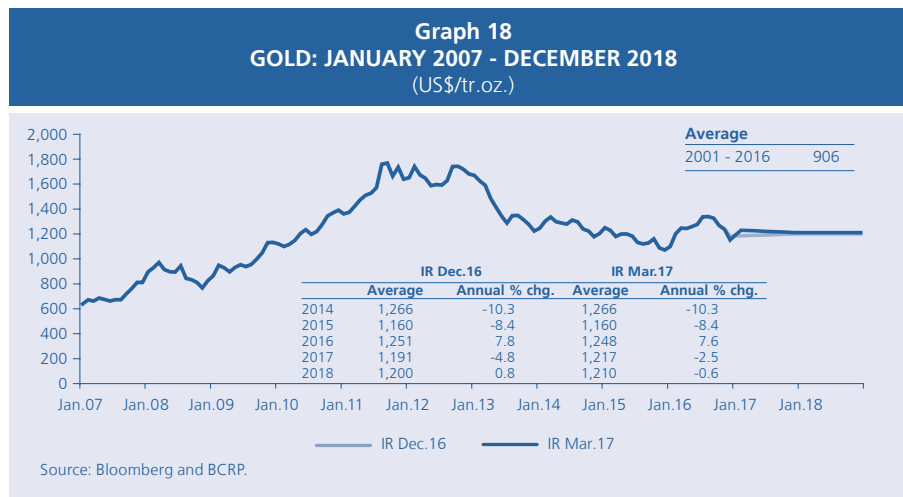


2 Report published by the International Zinc and Lead Study Group.

## Gold

- c. The price of **gold** increased 7 percent in the first two months of 2017 and reached an average monthly level of US\$ 1,234 per troy ounce in February. The increase in the price of gold is explained by higher risk aversion (elections in some European countries and uncertainty about U.S. trade policy), by the depreciation of the dollar, and by higher rates of inflation in the developed countries. The decline in the physical demand for gold (affected in 2016 by a drop in India’s demand) offset upward pressures on the dollar.

The price of gold in the forecast horizon has been revised slightly up since there are greater inflationary pressures today than those estimated in our previous report.



## Crude oil

- d. After accumulating an increase of 40 percent in 2016, the price of **WTI oil** rose 3 percent in the first two months of 2017 and closed with a monthly average price of US\$ 53 per barrel in February.

The price of oil increased in the first two months of this year, supported mainly by the firmly respected production cuts agreed by the OPEC member countries and the non-OPEC major producing countries after the agreement they reached in November. It should be pointed out that low oil prices have resulted in a reduction of 40 percent in capital spending in industry, especially in producing countries with higher production costs, such as China. The International Energy Agency (IEA) estimated that the overall



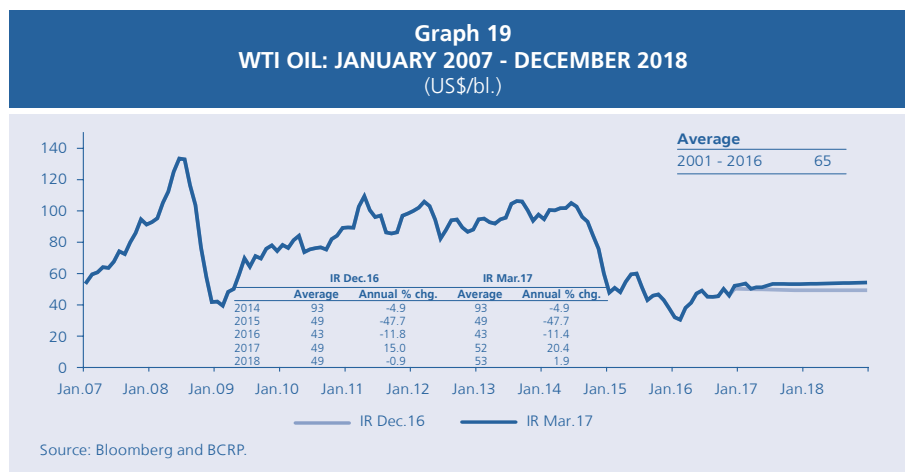


supply surplus declined sharply in the last quarter of 2016, mainly as a result of a strong growth in global demand.

The rise in the price of oil was offset by the increase of U.S. inventories of crude oil in recent months as well as by the increase in the U.S. production of crude, which exceeded 9 million b/d since mid-February –its highest level since April 2016–, in line with the increased number of oil rigs operating since October 2015. The recovery of crude production in the U.S. suggests that producers are taking advantage of gains in productivity and of the recovery of the price of WTI oil last year.

The price of WTI oil estimated in the forecast horizon has been revised on the upside, especially after the OPEC countries showed strict compliance with the production cuts agreed. However, a moderate price increase is projected because there is uncertainty about the response of the U.S production of crude to the higher prices of WTI oil. In addition to this, there is the possibility that OPEC member countries will continue to increase their production of crude oil (especially in the case of countries not included in the agreement, such as Libya, Nigeria, and Iran).

This projection shows a high degree of uncertainty. On the side of supply, prices could fall if the production cuts agreement of the OPEC and other countries, such as Russia, is not renewed. The agreement comes to an end in June and is expected to find a balanced market as a result of the production cuts. There is also uncertainty about the evolution of the production of shale oil, which represents approximately 50 percent of the U.S. production.

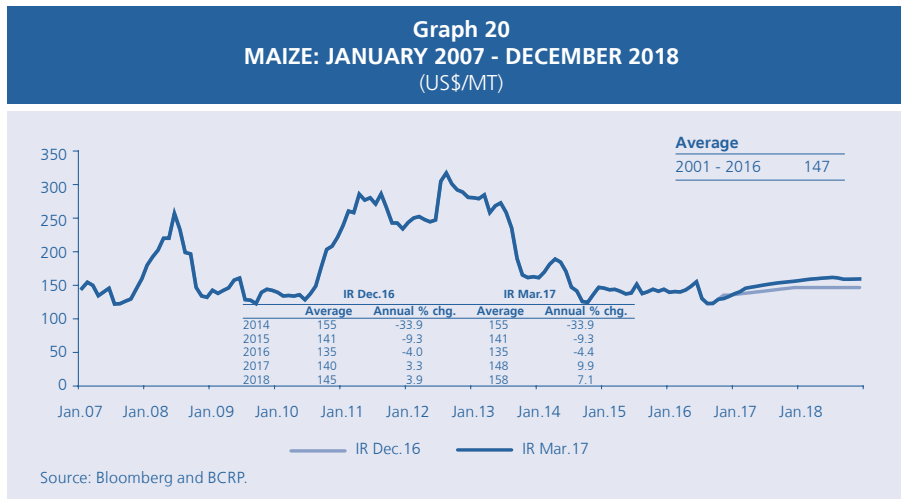


**Maize**

- e. In February, the average international price of **maize** registered US\$ 138 per metric ton, which represents an increase of 5 percent compared to December 2016.

The prices of maize have increased so far this year, influenced by concerns that the adverse climate conditions experienced in South America early this year may have had a negative impact on maize crops, in a context in which global consumption is expected to reach historical record levels in the current 2016-17 crop year. Moreover, the strong growth observed in the demand for ethanol and the increased demand for corn as food in the United States are also factors worth pointing out.

In line with these recent developments, the average price of maize is expected to increase in 2017. It is estimated that global maize production will drop in the following 2017/18 crop year due mainly to the fact that a smaller crop is anticipated in the U.S. This drop would be in part offset by increased production in the southern hemisphere, particularly in Brazil and Argentina. However, the main risk is uncertainty about the new policy that the U.S. will adopt in terms of biofuels.

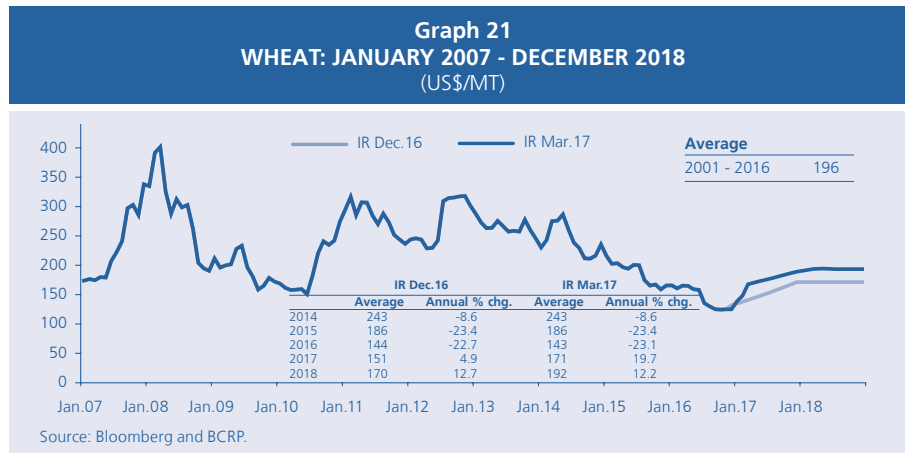


**Wheat**

- f. In February, the international price of wheat recorded an increase of 20 percent compared to December 2016 and closed at an average price of US\$ 147 per ton, thus reverting in part the drop of 25.0 percent accumulated during 2016.

The rise in the price of wheat was associated with fears of a lower production in the U.S. –the area dedicated to planting wheat in the winter was the smallest area in more than 100 years– and with the anticipated impact that climate conditions will have on the quality of crops in other countries (European Union, Canada, India, and Kazakhstan).



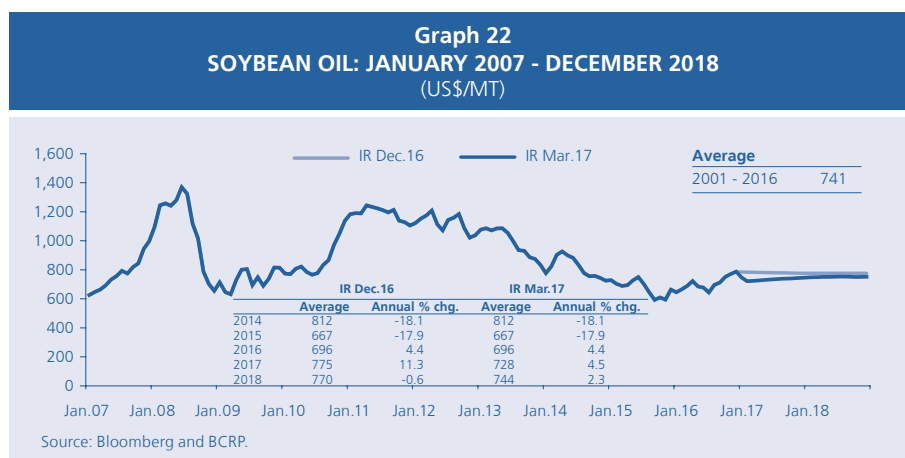


### Soybean Oil

- g. In February, the average price of soybean oil was US\$ 706 a ton, 10 percent lower than the average price level in December 2016. As a result of this decline, the average price of soybean oil reverses part of the 19 percent increase it accumulated during 2016.

The drop in the price of soybean oil is explained mainly by the evolution of palm oil, whose price registered a correction in the market after its supply normalized. This, in turn, reduced the demand for soybean oil as a substitute. Another factor that also contributed to this decline in the price of soybean oil has been the better outlook for soybean crops in Brazil and Argentina.

Based on the reasons discussed above, the price of soybean oil in the forecast horizon is expected to be lower than that estimated in our previous report. The main risk that could affect this forecast is the effect of the measures that the U.S. will adopt in terms of biofuels.

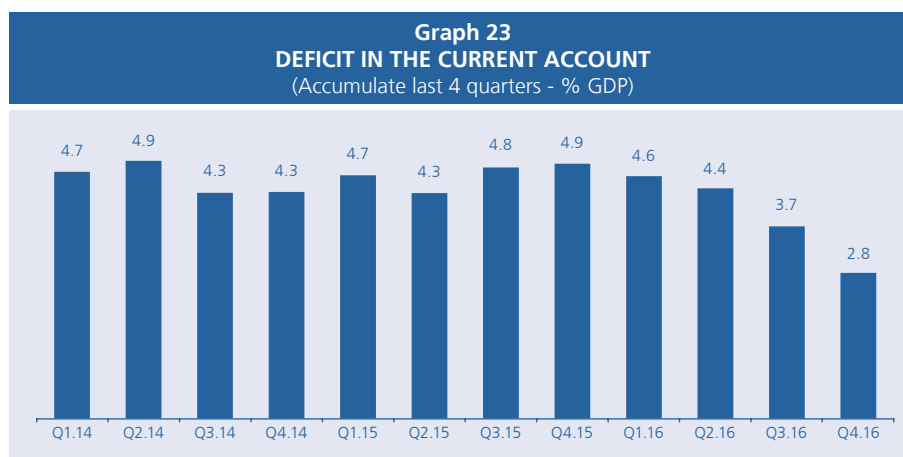


## II. Balance of Payments

### Current Account

15. The deficit in the current account of the balance of payments decreased during 2016 reflecting, on the one hand, the impact of lower private investment in a context marked by the completion of the implementation of very large mining projects that initiated their production stages, and, on the other hand, the slowdown observed in the pace of growth of consumption.

Thus, the current account deficit decreased from 4.9 percent in 2015 to 2.8 percent of GDP in 2016 (its lowest level since the third quarter of 2012).



This reduction in the current account deficit of the balance of payments reflected mainly in the components of the trade balance. On the one hand, imports dropped 6.1 percent during 2016—especially imports of inputs and capital goods—and, on the other hand, exports grew 7.6 percent. It is worth pointing out that the volume of exports grew 11.8 percent, driven by the higher sales of traditional exports, especially coffee, copper, and gold.

The current account deficit is projected to decline from 2.8 percent of GDP in 2016 to 2.6 percent in 2017 and to 2.4 percent in 2018, which takes into account the expected increase in mining exports and the recovery of export prices. It is also expected that the main source of financing of the balance of payments in 2017 and 2018 will continue to be long-term financing from private sources (4.0 and 4.3 percent of GDP,







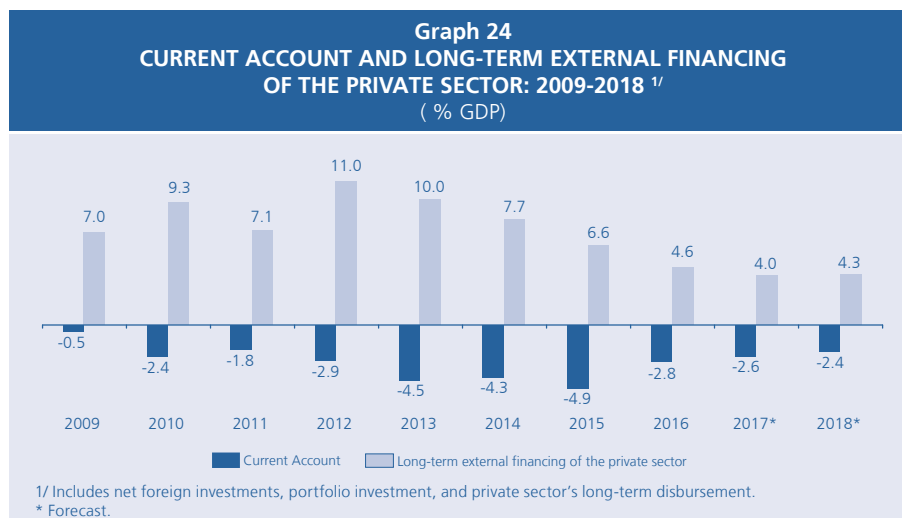
respectively). This level of financing is lower than that observed in recent years, which is explained by the end of a cycle of large mining investment. However, this funding will continue to exceed the current account gap, the main component being foreign direct investment.

**Table 9**  
**BALANCE OF PAYMENTS**  
(Million US\$)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>I. CURRENT ACCOUNT BALANCE</b>	<b>-9,402</b>	<b>-5,461</b>	<b>-5,850</b>	<b>-5,565</b>	<b>-6,185</b>	<b>-5,447</b>
% GDP	-4.9	-2.8	-2.8	-2.6	-2.8	-2.4
1. Trade Balance	-3,150	1,730	2,454	3,961	2,252	4,268
a. Exports	34,236	36,838	40,252	41,807	41,986	43,930
b. Imports	-37,385	-35,107	-37,798	-37,846	-39,734	-39,662
2. Services	-2,040	-1,974	-1,320	-1,928	-1,376	-2,124
3. Investment income	-7,544	-9,184	-10,623	-11,196	-10,758	-11,264
4. Current transfers	3,331	3,967	3,639	3,598	3,697	3,672
Of which: Remittances	2,725	2,884	3,022	2,981	3,048	3,024
<b>II. FINANCIAL ACCOUNT</b>	<b>9,475</b>	<b>5,630</b>	<b>7,350</b>	<b>6,865</b>	<b>7,685</b>	<b>7,147</b>
Of which:						
1. Private Sector	6,365	2,973	5,086	3,040	5,576	5,038
a. Long-term	8,792	3,709	5,086	3,040	5,576	5,038
b. Short-term	-2,427	-736	0	0	0	0
2. Public Sector	3,110	2,657	2,264	3,825	2,109	2,109
<b>III. BALANCE OF PAYMENTS (=I+II)</b>	<b>73</b>	<b>168</b>	<b>1,500</b>	<b>1,300</b>	<b>1,500</b>	<b>1,700</b>
Memo:						
Long-term external financing of the private sector (% GDP)	6.6	4.6	4.6	4.0	4.5	4.3

IR: Inflation Report.  
\* Forecast.

**Graph 24**  
**CURRENT ACCOUNT AND LONG-TERM EXTERNAL FINANCING OF THE PRIVATE SECTOR: 2009-2018<sup>1/</sup>**  
(% GDP)



## Trade Balance

16. After recording an accumulated deficit of US\$ 3.2 billion in 2015, the trade balance showed a deficit of US\$ 1.7 billion in 2016. This reduction of the deficit is explained mostly by higher exports, and to a lesser extent, by lower imports.

The positive evolution of the trade balance in recent quarters and the greater recovery of prices observed in comparison to that estimated in the previous report has led us to revise up the projected growth of the trade balance. In 2017, the trade balance is expected to show an improvement of about US\$ 1.5 billion, while in 2018 it is estimated to show a surplus higher by nearly US\$ 2.0 billion than the one considered in the report of December.

Table 10 TRADE BALANCE (Million US\$)						
	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>EXPORTS</b>	<b>34,236</b>	<b>36,838</b>	<b>40,252</b>	<b>41,807</b>	<b>41,986</b>	<b>43,930</b>
<i>Of which:</i>						
Traditional products	23,291	26,004	29,265	30,657	30,200	32,086
Non-traditional products	10,857	10,733	10,902	11,043	11,695	11,731
<b>IMPORTS</b>	<b>37,385</b>	<b>35,107</b>	<b>37,798</b>	<b>37,846</b>	<b>39,734</b>	<b>39,662</b>
<i>Of which:</i>						
Consumer goods	8,791	8,612	8,897	9,039	9,233	9,199
Inputs	15,923	15,115	16,350	16,454	17,143	17,330
Capital goods	12,007	11,116	12,269	12,068	13,061	12,835
<b>TRADE BALANCE</b>	<b>-3,150</b>	<b>1,730</b>	<b>2,454</b>	<b>3,961</b>	<b>2,252</b>	<b>4,268</b>

IR: Inflation Report.  
\* Forecast.

The new projection considers that, in the case of exports, the sales of mining exports would be favored in the forecast horizon by the rise observed in the international prices of some minerals since the end of 2016 and that this rise would slow down gradually in 2017, prices dropping slightly thereafter in 2018.

In the case of imports, the projection is that, in 2017 and 2018, imports would show a recovery consistent with the estimated growth of domestic demand.





**Table 11**  
**TRADE BALANCE**  
(% change)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>1. VALUE</b>						
Exports	-13.4	7.6	11.6	13.5	4.3	5.1
Traditional products	-15.9	11.6	15.3	17.9	3.2	4.7
Non-traditional products	-7.0	-1.1	2.9	2.9	7.3	6.2
Imports	-8.9	-6.1	6.8	7.8	5.1	4.8
<b>2. VOLUME</b>						
Exports	1.8	11.8	4.0	3.2	4.4	5.2
Traditional products	5.7	17.1	4.1	3.3	4.8	5.7
Non-traditional products	-5.3	0.8	2.9	2.9	4.3	4.3
Imports	0.3	-3.2	3.3	3.1	3.5	3.3
<b>3. PRICE</b>						
Exports	-14.9	-3.8	7.3	10.0	-0.1	-0.2
Traditional products	-20.4	-4.7	10.8	14.2	-1.5	-1.1
Non-traditional products	-1.8	-1.9	-0.1	0.0	2.9	1.8
Imports	-9.2	-3.0	3.2	4.4	1.6	1.5

\* Forecast.  
IR: Inflation Report.

## External Financing

17. In 2016, the net flow of private capital amounted to US\$ 2.97 billion, a sum US\$ 3.39 billion lower than that recorded in 2015, which reflected the lower financing obtained through long term loans and through foreign direct investment after the completion of mining projects, such as Cerro Verde and Las Bambas.

The flow of foreign direct investment decreased from US\$ 8.27 billion in 2015 to US\$ 6.86 billion in 2016. According to information of the Ministry of Energy and Mines, mining investments in 2016 totaled US\$ 4.25 billion, which represents a decline of 46 percent compared to the previous year. The main reason explaining this lower rate of investment was the culmination of some mining megaprojects, specifically Cerro Verde (-90.4 percent), Las Bambas (-80.1 percent), and Toromocho (-63.2 percent).

Therefore, based on the data on private investment registered in 2016 and on the growth rate estimated for this variable, the flow of foreign direct investment projected for 2017 has been revised down to US\$ 5.2 billion, while the flow of foreign direct investment projected for 2018 has been revised down to US\$ 5.7 billion.

**Table 12**  
**FINANCIAL ACCOUNT OF THE PRIVATE SECTOR**  
(Million US\$)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>PRIVATE SECTOR (A+B)</b>	<b>6,365</b>	<b>2,973</b>	<b>5,086</b>	<b>3,040</b>	<b>5,576</b>	<b>5,038</b>
% GDP	3.3	1.5	2.5	1.4	2.6	2.2
<b>A. LONG-TERM</b>	<b>8,792</b>	<b>3,709</b>	<b>5,086</b>	<b>3,040</b>	<b>5,576</b>	<b>5,038</b>
<b>1. ASSETS</b>	<b>-247</b>	<b>-966</b>	<b>-1,760</b>	<b>-1,760</b>	<b>-1,783</b>	<b>-1,783</b>
<b>2. LIABILITIES</b>	<b>9,039</b>	<b>4,675</b>	<b>6,846</b>	<b>4,800</b>	<b>7,359</b>	<b>6,822</b>
Foreign direct investment in the country	8,272	6,863	5,593	5,204	5,723	5,723
Non-financial sector	1,895	-417	1,488	846	1,824	1,824
Long-term loans	2,491	5	467	235	648	648
Portfolio investment	-596	-423	1,021	610	1,176	1,176
Financial sector	-1,127	-1,771	-235	-1,250	-188	-726
Long-term loans	-1,127	-1,698	-296	-1,311	-238	-776
Portfolio investment	0	-73	61	61	50	50
<b>B. SHORT-TERM <sup>1/</sup></b>	<b>-2,427</b>	<b>-736</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

\* Forecast.

<sup>1/</sup> Includes net errors and omissions.

IR: Inflation Report.

Long term loans to the private sector will serve to finance the investment projects of companies in different economic sectors. These flows would recover in 2017 in comparison to 2016, in line with the projected evolution of private investment in a context of higher terms of trade, the recovery of business confidence, and Government efforts to “unlock” and expedite the implementation of projects. Based on the information of announcements of private investment projects, private investment would be concentrated in the sectors of mining (30 percent of the sample), hydrocarbons (11 percent), and infrastructure (16 percent), all of which have an important component of external funding. Most of the funding would come from foreign direct investment and would be supplemented with flows of loans and issuances of bonds in international markets.

**Mining projects** expected to continue include Southern’s expansion of Toquepala, with an investment of US\$ 1.2 billion, which involves the implementation of a new high-tech concentrator that will increase the annual production of copper from 100 to 217 thousand tons in 2018 and to 260 thousand tons in 2019, and also increase the annual production of molybdenum by 3.1 thousand tons. At December 2016, the company had invested US\$ 550 million in this project, which already has a 53-percent implementation and is estimated to be completed in the second quarter of 2018. The company is also developing additional projects that are expected to be finished in 2017: the implementation of a high-pressure roller grinding system in Toquepala, optimizing the management of heavy mineral in Cuajone, implementing thickeners of mine tailings in the concentrator of Cuajone, among other projects.





**Table 13  
MAIN INVESTMENTS PROJECTS: 2017-2018**

SECTOR	COMPANIES	PROJECT
MINING	Southern Perú Copper Corp.	Expansion of Toquepala
	Chinalco	Expansion of Toromocho
	Shougang Corporation	Expansion of Marcona
	Angloamerican	Quellaveco
	Jinzhao Mining	Pampa del Pongo
	Marcobre	Mine Justa
HYDROCARBONS	China National Petroleum Corporation, Repsol YPF S.A.	Lot 57: Kinteroni
	China National Petroleum Corporation	Exploration: Lot 58
	Calidda Gas Natural del Perú	Massive use of gas
	Karoon Gas Natural	Exploration: Lot Z - 38
ELECTRICITY	Isolux	Transmission line: Moyobamba-Iquitos
	Corsán-Corvian	Hydroelectric Power Plant of Molloco
	Luz del Sur	Thermal power plant of South Pacific
	Generación Eléctrica Las Salinas	Eolic Park Samaca
	Termochilca	Thermal power plant of Domingo Olleros - Combined cycle
INDUSTRY	Corporación Lindley	Storages and infrastructures
	Repsol YPF	Expansion of La Pampilla plant
	CMPC Tissue	Plant of Tissue
	Gripo Celepsa	Expansion plant in Pisco
	Precor	Plant in Chilca
INFRASTRUCTURE	Consorcio Nuevo Metro de Lima	Line 2 Network Metro Lima (Electric Train)
	Grupo Volcan	Port Terminal Project: Chancay
	Consorcio Consierra II	Longitudinal de la Sierra road project, Section 2
	Lima Airport Partners	Expansion of international airport (Jorge Chávez)
	Covisol	Trujillo-Sullana: Sol Highway
	Covi Perú	Road network No 6 Pucusana-Ica
	APM Terminals	Modernization Muelle Norte
	Consorcio Paracas	Port Terminal San Martín
OTHER SECTORS	Grupo Telefónica	Expansion and facilities of net LTE-4G
	Entel	Development of services 4G
	America Movil	Expansion of net 4G
	Grupo Falabella	Expansion and new shopping centers
	Besalco S. A.	Real Estate projects
	Grupo Interbank	Expansion and New shopping centers
	Grupo Breca	Expansion and new hotels, medical centers and shopping malls.
	Cencosud	Shopping centers

Source: Information of companies and media press.

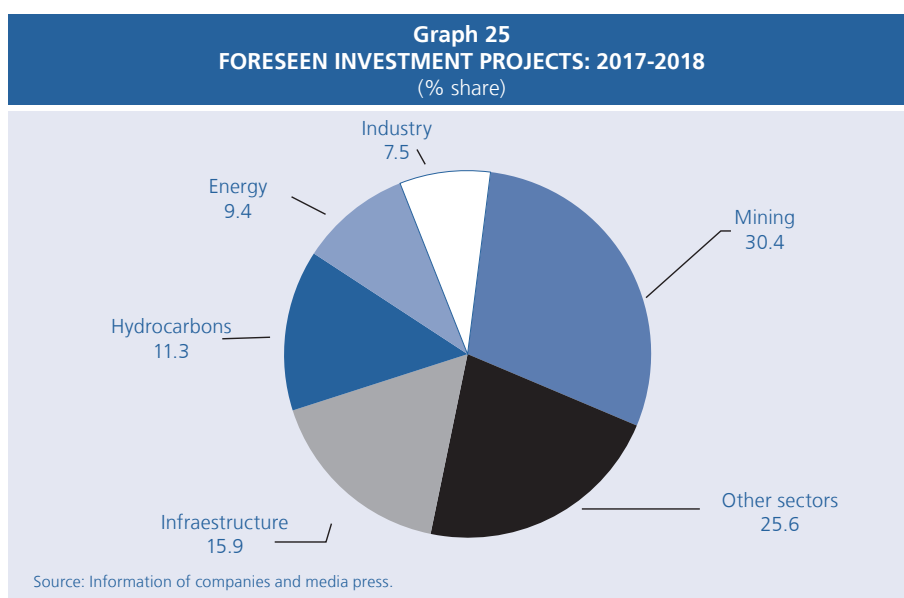
In the **hydrocarbons sector**, projects would include Gasoducto Sur Peruano, which should be tendered again in 2017 and would resume works in the second half of 2018.

Ongoing projects in the **energy sector** include the development of the power plant of Santo Domingo de Olleros (steam turbine – combined cycle), while the implementation of the 200 Kv. Moyobamba-Iquitos transmission line is currently interrupted due to social conflicts with some local communities. At end-2016, the implementation of these projects already had an advance of 54 and 17 percent, respectively. It should be

pointed out that, according to Osinergmin, projects initiated in 2016 include projects Cerro del Águila, Nodo Energético del Sur, and Central Eólica Tres Hermanas, which together accounted for a total investment of US\$ 1.8 billion.

In the **infrastructure sector**, the implementation of projects such as Vías Nuevas de Lima (which was part of the concession contract with Rutas de Lima), Vía Expresa Sur, IIRSA Norte Stretch Paita-Yurimaguas, and Red Vial 5 (Ancón-Huacho-Pativilca) is delayed due to the recent corruption scandals which are currently under investigation. The implementation of these projects is expected to resume in 2018.

**Construction projects** in the sectors of real estate, hotels, education, and health, including the expansion and remodeling of projects as well as new projects continue to be announced both in Lima and in the provinces, in line with the greater dynamism expected in domestic demand in the forecast horizon.

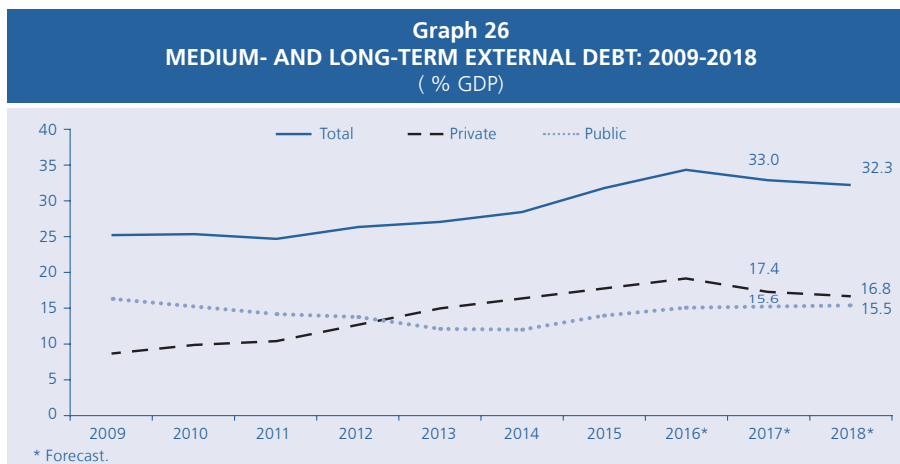


- The positive flow expected in the **financial account of the public sector** in the following 2 years reflects significant disbursements oriented to finance several investment projects, such as the expansion of the refinery of Talara and the development of Lima Metro's Line 2, as well as the Treasury's financing requirements.

Total borrowing from external sources has recently been reflecting the evolution of the private component, which rose to 19.4 percent of GDP at end 2016, while the public component was equivalent to 15.2 percent of GDP.

Indebtedness from private sources is expected to show a declining trend in the forecast horizon and remain at over 16 percent of GDP.



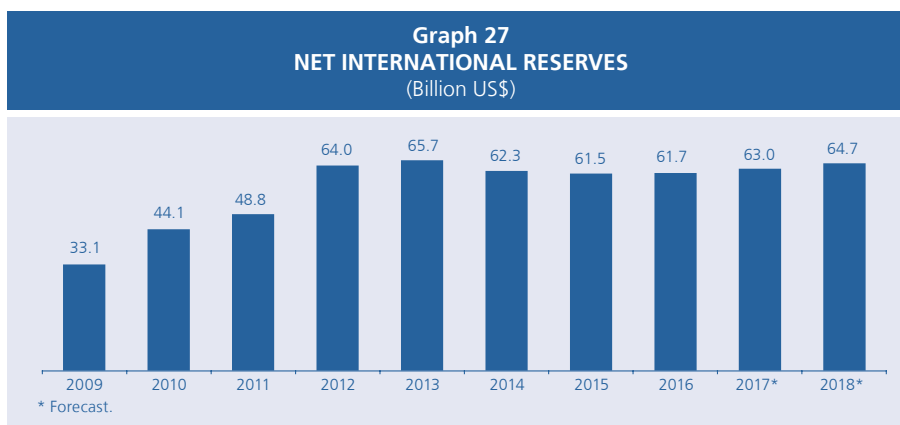


19. The soundness of the balance of payments to face negative events in the global economy is reflected in the position of Peru’s international reserves relative to the balance of its short term external liabilities or comparing the total of these liabilities with the country’s current account deficit. The high-levels the Peruvian economy shows in the region in terms of these indicators was pre-emptively achieved during a period of years characterized by capital inflows and high commodity prices.

**Table 14**  
**NIR INDICATORS**

	2006	2011	2016
<b>NIR as a % of:</b>			
a. GDP	19.6	28.6	31.6
b. Short-term external debt <sup>1/</sup>	166	471	505
c. Short-term external debt plus Current account deficit	230	360	349
<b>Medium- and long-term external debt (as a % GDP)</b>	<b>28.7</b>	<b>24.4</b>	<b>34.5</b>
a. Private	4.1	10.2	19.4
b. Public	24.6	14.2	15.2

<sup>1/</sup> Includes short-term debt balance plus redemption (1-year) of private and public sector.



### III. Economic Activity

#### Sector GDP

20. During 2016, GDP grew 3.9 percent, driven by the growth of the primary sectors (9.8 percent), especially metal mining. The sector of metal mining grew 21.2 percent –which represents a contribution of 1.8 points to the growth of the output–, driven mainly by the increased production of copper in mines such as Las Bambas and Cerro Verde. On the other hand, still affected by weak domestic demand, the non-primary sectors grew 2.3 percent. This was also reflected in the negative rates of growth recorded by sectors such as construction and non-primary manufacturing, as well as in the slowdown observed in the sectors of trade and services.
21. The scenario foreseen for 2017 considers two types of events that would produce a negative impact on the country's economic growth this year. On the one hand, the current projection takes into account the delay registered in the implementation of some major infrastructure projects. On the other hand, it also considers the negative effects caused so far by El Niño in the sectors of agriculture, fishing, primary manufacturing, and services, mainly, at the time this report was being prepared.

**Table 15**  
**GDP BY PRODUCTION SECTOR**  
(Real % change)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>Agriculture and livestock</b>	<b>3.2</b>	<b>1.8</b>	<b>2.8</b>	<b>2.5</b>	<b>5.0</b>	<b>4.9</b>
Agriculture	2.0	0.6	2.3	1.7	5.5	5.4
Livestock	5.2	3.6	3.6	3.7	4.2	4.2
<b>Fishing</b>	<b>15.9</b>	<b>-10.1</b>	<b>34.7</b>	<b>13.6</b>	<b>5.7</b>	<b>20.4</b>
<b>Mining and hydrocarbons</b>	<b>9.5</b>	<b>16.3</b>	<b>7.4</b>	<b>6.9</b>	<b>5.1</b>	<b>5.9</b>
Metallic mining	15.7	21.2	7.5	6.9	5.0	5.9
Hydrocarbons	-11.5	-5.1	7.1	6.8	6.6	6.4
<b>Manufacturing</b>	<b>-1.5</b>	<b>-1.6</b>	<b>3.5</b>	<b>2.2</b>	<b>4.0</b>	<b>3.8</b>
Based on raw materials	1.8	-0.5	10.0	6.8	4.1	6.7
Non-primary industries	-2.6	-2.0	1.7	0.8	4.0	3.0
<b>Electricity and water</b>	<b>5.9</b>	<b>7.3</b>	<b>5.5</b>	<b>4.6</b>	<b>5.0</b>	<b>4.5</b>
<b>Construction</b>	<b>-5.8</b>	<b>-3.1</b>	<b>3.6</b>	<b>1.8</b>	<b>5.5</b>	<b>6.0</b>
<b>Commerce</b>	<b>3.9</b>	<b>1.8</b>	<b>3.3</b>	<b>2.4</b>	<b>3.8</b>	<b>3.3</b>
<b>Services</b>	<b>4.2</b>	<b>3.9</b>	<b>3.9</b>	<b>3.4</b>	<b>3.8</b>	<b>3.5</b>
<b>GDP</b>	<b>3.3</b>	<b>3.9</b>	<b>4.3</b>	<b>3.5</b>	<b>4.2</b>	<b>4.1</b>
Memo:						
<b>Primary GDP</b>	<b>6.8</b>	<b>9.8</b>	<b>7.1</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>
<b>Non-Primary GDP</b>	<b>2.4</b>	<b>2.3</b>	<b>3.5</b>	<b>2.9</b>	<b>4.0</b>	<b>3.6</b>

IR: Inflation Report.  
\* Forecast.







In addition to these temporary events, the forecast for 2017 - 2018 also shows a recomposition of growth in the different production sectors. After the extraordinary growth rates observed in the mining sector in the last two years, a lower contribution is projected from this sector in the forecast horizon, together with a gradual increase in the growth rates of the sectors linked to the domestic market and to non-traditional exports. In such context, the output is projected to grow 3.5 percent in 2017 and 4.1 percent in 2018.

- a) Growth in the **agriculture sector** slowed down from a rate of 3.2 percent in 2015 to 1.8 percent in 2016, due mainly to the contraction of farming activity as a result of the water deficit that affected the production of Andean crops such as potatoes, amilaceous maize, and wheat.

So far in 2017, the mudslides and river overflows caused by El Niño have damaged thousands of hectares of crops, access roads, and agricultural infrastructure. Rice and banana crops are lost due to floods in the North of the country, lemon blooms have been affected by climatic conditions, and the floods make it difficult to harvest any crops left. Taking this information into account, the projected growth rate of the agriculture sector in 2017 has been revised down from 2.8 to 2.5 percent.

The rate of growth of the agriculture sector projected for 2018 has been revised slightly downwards from the projection of the December report. Given that current adverse weather conditions are expected to dissipate next year, the sector would grow 4.9 percent in 2018.

- b) In 2016, output in the **fishing sector** dropped 10.1 percent due to the lower catch of anchovy. The lower extraction of this species during the year was associated with sea salinity anomalies that affected the availability of anchovy and caused the premature closure of the first fishing season given that anchovy spawning started earlier.

The growth rate projected for the sector in 2017 has been revised down because considering the current climatic and sea factors, and considering that this situation is expected to continue in the following quarter. The new forecast considers a lower quota of fish catch in the first and in the second fishing season in the north central areas. Since this lower anchovy catch during 2017 would ensure a larger biomass in 2018, the growth rate projected for this sector in 2018 is revised on the upside.

- c) The sector of **metal mining** grew 21.2 percent in 2016, driven by the greater copper production of Las Bambas and the expansion of Cerro Verde. The contribution of copper to the growth of the sector is expected to moderate in the following years given that the major mining projects would be reaching their optimum production levels.

**Copper production** would grow 10.5 percent in 2017, an output of 2.5 million tons being estimated for this year. The latest available data of production and the recent announcements made by mining companies account for the difference between this production estimate and that projected in the December report. Moreover, the expansion of Toquepala, carried out by Southern Peru, is expected to come into operations towards the second half of 2018 and to raise the production of copper by 5.9 percent in that year.

<b>Table 16</b>			
<b>COPPER PRODUCTION</b>			
(Thousand MTF)			
	<b>2016</b>	<b>2017*</b>	<b>2018*</b>
Antamina	444	431	440
Southern	288	311	366
Cerro Verde	473	537	538
Antapaccay	221	226	230
Toromocho	168	201	220
Constancia	133	115	130
Las Bambas	329	460	500
Rest	223	236	242
<b>TOTAL</b>	<b>2,280</b>	<b>2,519</b>	<b>2,667</b>

\* Forecast.

**Gold production** grew 4.6 percent in 2016 as a result of the inclusion of artisanal production of gold in Puno, Arequipa and Piura since February, and of the inclusion of the more informal production of Madre de Dios and mine Inmaculada. Gold production in 2017 is expected to be boosted by new gold mining projects, such as Tambomayo, Invicta, and Shahuindo. Buenaventura's project of San Gabriel is also expected to start its production phase in the second quarter of 2018.

<b>Table 17</b>			
<b>GOLD PRODUCTION</b>			
(Thousand troy ounce)			
	<b>2016</b>	<b>2017*</b>	<b>2018*</b>
Yanacocha	668	598	500
Barrick Misquichilca	547	513	463
Madre de Dios <sup>1/</sup>	549	509	540
Buenaventura	190	198	208
Inmaculada	163	163	147
Anama	87	87	89
Shahuindo	48	79	85
Invicta	0	42	118
Tambomayo	0	115	130
Rest	2,672	2,698	2,747
<b>TOTAL</b>	<b>4,924</b>	<b>5,002</b>	<b>5,026</b>

\* Forecast.  
1/ Corresponds informal production estimated by MINEM.





The **production of zinc** fell 5.9 percent during 2016 due to the lower production of Los Quenuales, associated with the closing of mining unit Iscaycruz, as well as due to the lower production of Antamina resulting from the lower grades of mineral ores. However, given that Antamina is expected to recover its grades of ores in 2017, this would reflect in a higher production of zinc this year.

Table 18 MINING PRODUCTION (% change)			
	2016	2017*	2018*
Copper	40.1	10.5	5.9
Gold	4.6	1.6	0.5
Zinc	-5.9	6.8	1.6

\* Forecast.

- d) The output in the **subsector of hydrocarbons** dropped 5.1 percent in 2016 due to the lower production of crude oil. The reasons explaining this drop include, on the one hand, the rupture of the Nor-Peruano pipeline which forced a shutdown of operations in two lots (Lot 192 operated by Pacific Stratus and Lot 67, operated by Perenco) and, on the other hand, the suspension of exploitation operations at Pluspetrol's Lot 8 due to the protests of the communities living in the area.

The lower production of oil in the year was offset in part by a greater production of natural gas in the lots of Camisea, operated by Pluspetrol, and in lot 57, operated by Repsol. This increased production is associated both with the onset of operations of the compressor used for gas transportation and with a base effect given that maintenance works were carried out in the pipeline in the third quarter of 2015.

Although the production of crude oil in 2017 would continue to show levels below those observed in recent years, it is expected to recover by 2018 considering that the pipeline is expected to be fully repaired at the end of 2017.

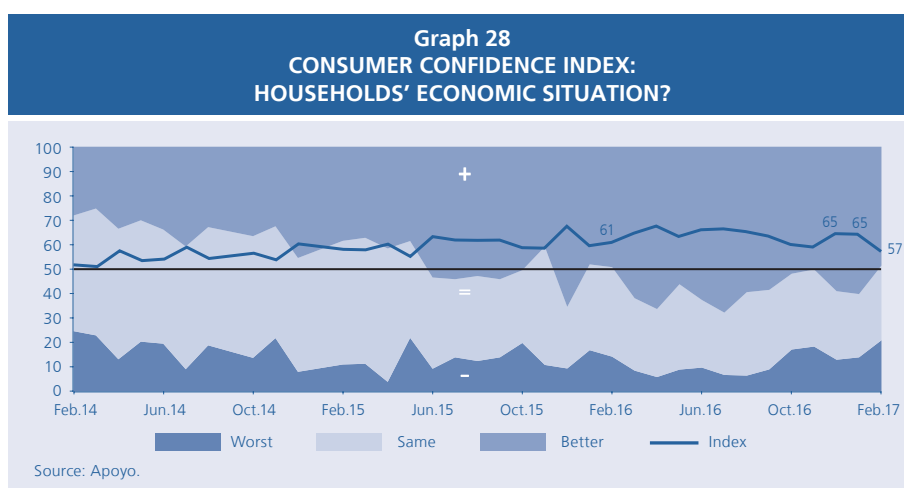
- e) Output in **non-primary manufacturing** fell 2.0 percent during 2016 due to the decline recorded in the branches oriented to investment, exports, and inputs. In 2017 and 2018, the sector would show a gradual recovery, in line with the expected growth of investment and non-traditional exports.

## Expenditure-side GDP

22. GDP growth during 2016 (3.9 percent) was driven mostly by the positive evolution of net exports, which contributed with 2.8 percentage points to increased growth in the year. Domestic demand grew 0.9 percent in a context of declines in both private investment (6.1 percent) and public spending (0.5 percent). The fall in private investment was associated with the contraction of mining investment after the completion of large projects that started their production phases as well as with the problems associated with the implementation of infrastructure projects, and the evolution of public spending was in line with the fiscal consolidation policy.

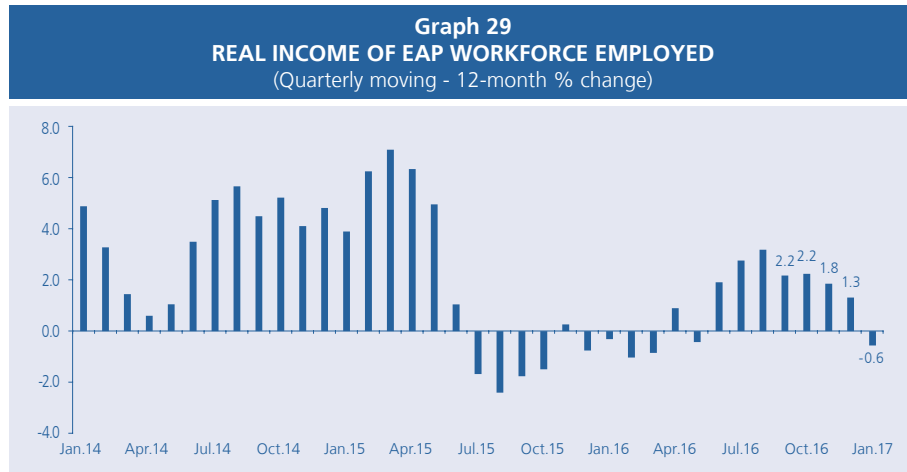
During the first two months of 2017, indicators of **private consumption** show mixed trends. On the one hand, credit to households show favorable indicators, while consumer confidence, on the other hand, registers some decline, and the levels of income and employment have decreased. Moreover, contemporary indicators of **private investment** continue showing a declining trend.

- a) The consumer confidence index recorded 57 points in February, after having registered 61 points in the fourth quarter of 2016 and 64 points in year 2016.

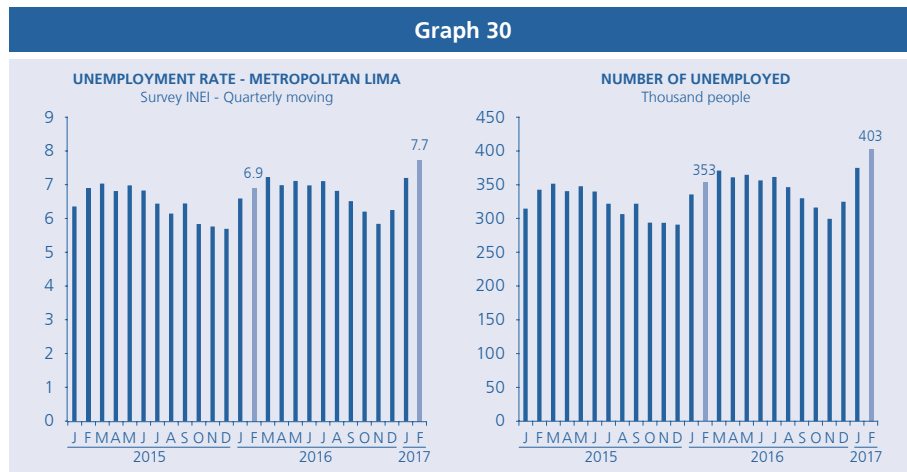


- b) The real income of the workforce employed fell 0.6 percent in January 2017 after having shown positive rates during seven consecutive months.

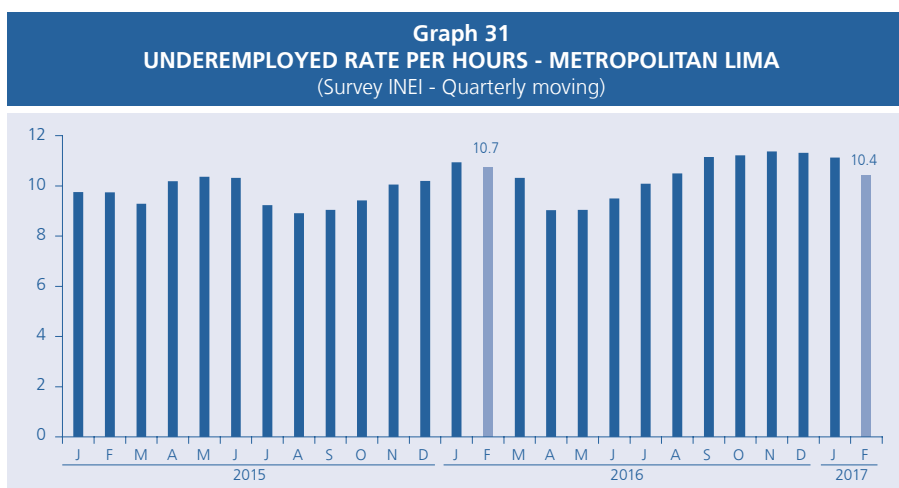




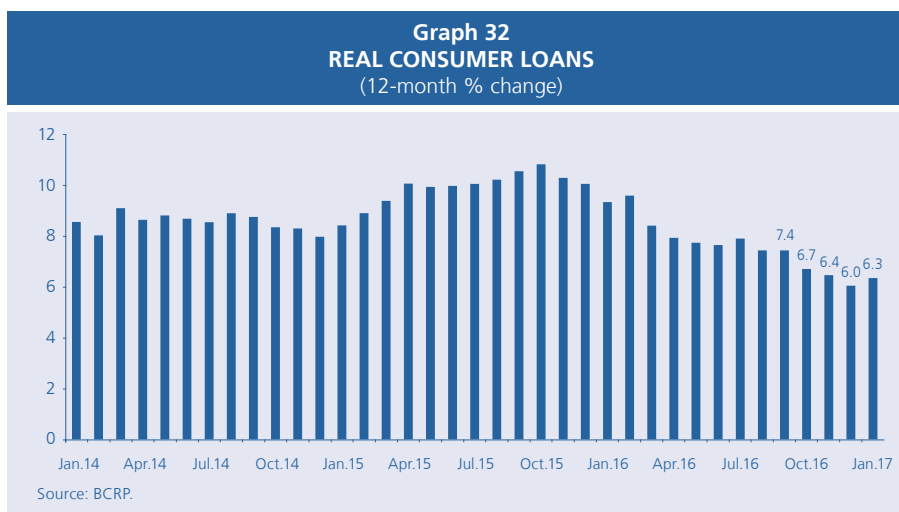
- c) Recent indicators in the labor market have been unfavorable. In February, the rate of unemployment in Metropolitan Lima was 7.7 percent, 6.9 percent higher than in February 2016. The number of unemployed workers rose from 353 thousand in February 2016 to 403 thousand in February 2017, which represents an increase of 14.2 percent.



In Metropolitan Lima, the rate of time-related underemployment, defined as the number of workforce members who are working less hours than the 20-hour period they would like to work – and are underemployed in terms of the number of hours actually worked–, has fallen to 10.4 percent from 10.7 percent in February 2016 after increasing during most of the time last year.



- d) Consumer loans continued growing at higher rates than incomes in real terms. Thus, in January 2017, consumer loans grew by a real 6.3 percent.

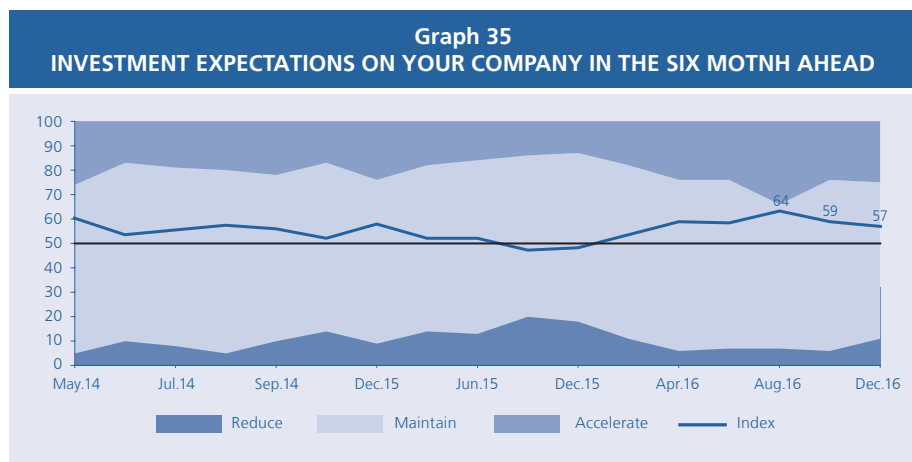
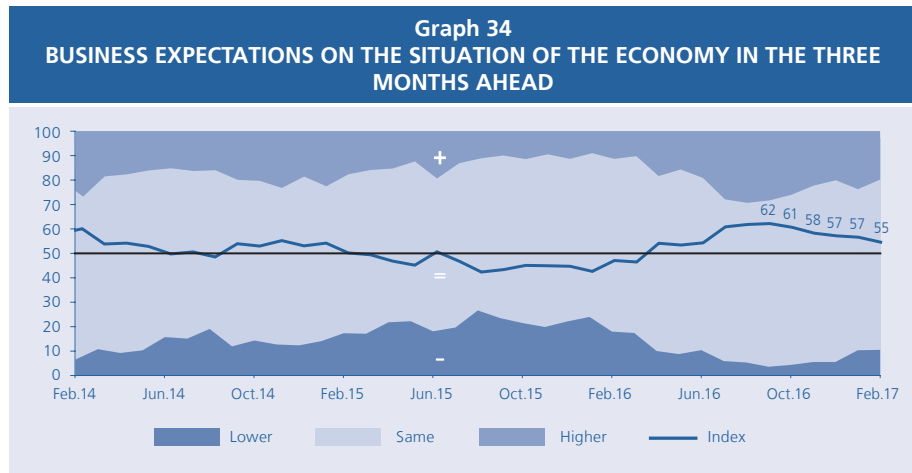
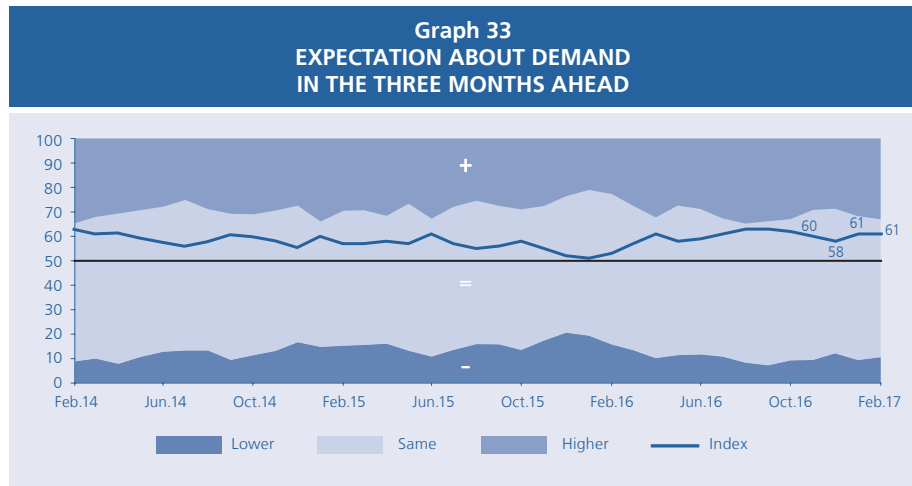


- e) Firms' expectations of demand in three months' time remain on the optimistic side and reached 61 points in February, a similar level than in January and higher than the average level recorded in 2016 (59 points). On the other hand, businessmen's expectations about the economic situation in three months' time have declined since the last quarter of 2016 and recorded 55 points in February (after reaching 62 points in September 2016). Moreover, the indicator of expected investment in six months' time shows a declining trend and

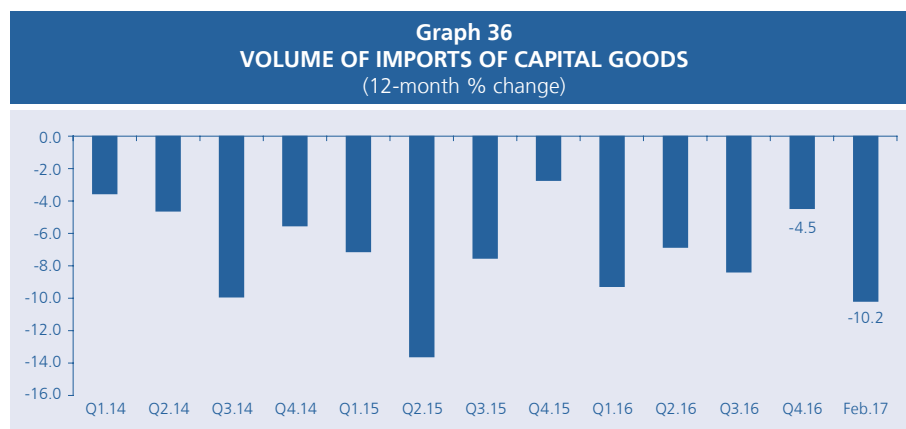




has fallen to 57 points in December (versus an average level of 58 points in 2016).



- d) The volume of imports of capital goods (excluding construction materials), indicator of the demand for investment, declined 10.2 percent in February 2017 and accumulated a drop of 11.0 percent in January - February 2017.



**Table 19**  
**GDP AND DOMESTIC DEMAND**  
(Real % change)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>I. Domestic demand</b>	<b>3.1</b>	<b>0.9</b>	<b>4.0</b>	<b>3.3</b>	<b>4.0</b>	<b>3.7</b>
<b>1. Private expenditure</b>	<b>2.8</b>	<b>1.1</b>	<b>3.8</b>	<b>2.9</b>	<b>4.2</b>	<b>3.8</b>
Consumption	3.4	3.4	3.5	3.1	4.0	3.4
Private fixed investment	-4.4	-6.1	5.0	2.5	5.0	5.3
Change on inventories <sup>1/</sup>	1.2	0.0	0.0	0.0	0.0	0.0
<b>2. Public expenditure</b>	<b>4.4</b>	<b>-0.5</b>	<b>5.1</b>	<b>5.4</b>	<b>2.8</b>	<b>3.0</b>
Consumption	9.8	-0.5	4.2	3.2	2.2	2.2
Investment	-7.3	-0.4	7.4	11.0	4.5	5.0
General government	-12.4	-3.4	12.1	15.7	4.6	5.2
Public entitites	64.7	21.6	-19.8	-16.6	3.6	3.4
<b>II. Net external demand</b>						
<b>1. Exports</b>	<b>3.5</b>	<b>9.7</b>	<b>4.7</b>	<b>4.2</b>	<b>4.6</b>	<b>5.0</b>
<b>2. Imports</b>	<b>2.5</b>	<b>-2.3</b>	<b>3.6</b>	<b>3.2</b>	<b>3.7</b>	<b>3.4</b>
<b>III. GDP</b>	<b>3.3</b>	<b>3.9</b>	<b>4.3</b>	<b>3.5</b>	<b>4.2</b>	<b>4.1</b>
<i>Memo:</i>						
Public expenditure (contribution)	0.7	-0.1	0.9	0.9	0.5	0.5

IR: Inflation Report.  
1/ Contribution.  
\* Forecast.

23. A slowdown of growth is expected in the year as a result of delays in different private and public infrastructure investment megaprojects, as well as due to the indirect impact that these events would have on the dynamics of total investment. In







response to this context marked by lower expectations of growth, the Government has announced a series of actions to boost public investment and encourage greater dynamism in activity in the private sector. Moreover, the disasters caused by El Niño will also imply increased public spending, particularly for the reconstruction of the areas affected. In the short term, the growth of public investment spending would offset in part some of the expected fall of aggregate expenditure. Because of these reasons, the GDP growth rate projected for 2017 has been revised down in this report from 4.3 percent to 3.5 percent considering a lower recovery of private investment than that estimated in the report of December.

24. In 2018 domestic demand is expected to show greater dynamism than in the previous year considering that private investment would gradually resume a faster pace of growth, supported by the re-start of operations in the main projects given in concession and by the future investment projects that have been announced. Based on these considerations, GDP is expected to grow 4.1 percent in 2018 (slightly less than the rate of 4.2 percent forecast in the previous report).

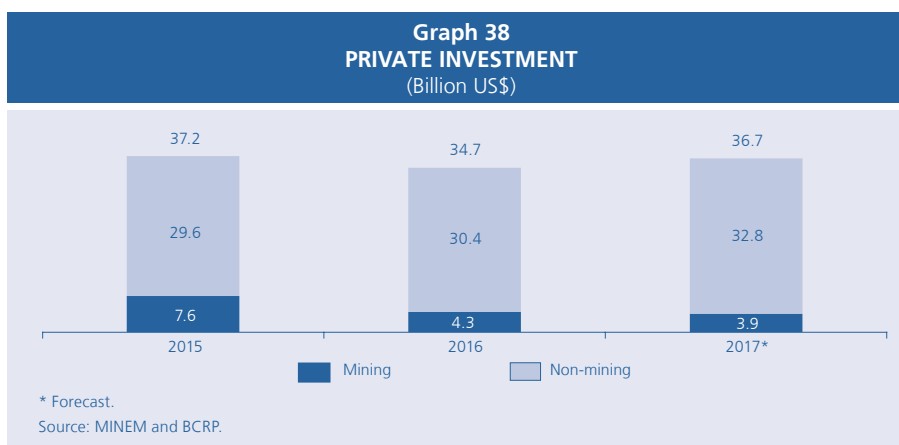
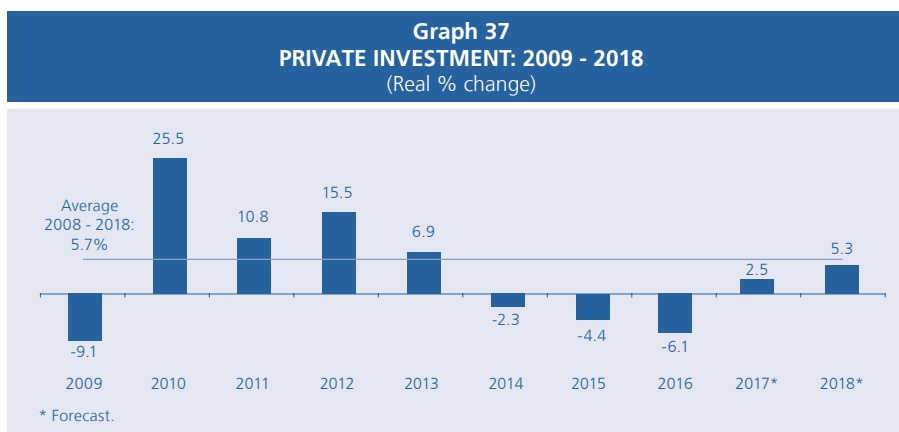
The survey of expectations of GDP growth reveals that expectations for 2017 have been adjusted on the downside: between December 2016 and February 2017, financial entities and economic analysts have revised their estimates down from 4.2 to 3.5 percent, and non-financial firms have adjusted them down from 4.2 to 3.8 percent. Moreover, in 2018 economic agents expect GDP to grow at an average rate of 3.9 percent.

**Table 20**  
**SURVEY ON MACROECONOMIC EXPECTATIONS: GDP GROWTH**  
(% change)

		IR Sep.16	IR Dec.16	IR Mar.17
<b>Financial entities</b>	2017	4.2	4.2	3.5
	2018	4.3	4.0	4.0
<b>Economic analysts</b>	2017	4.2	4.2	3.5
	2018	4.2	4.2	3.8
<b>Non-financial firms</b>	2017	4.1	4.2	3.8
	2018	4.5	4.5	4.0

25. The projected growth rate of **private investment** in 2017 has been revised down from 5.0 to 2.5 percent, due mainly to lower spending associated with some infrastructure projects, such as Gasoducto Sur Peruano, Line 2 of the Metro de Lima, Vías Nuevas de Lima, and Chavimochic Stage III, than that estimated in the report of December. In addition to this, lower investment is also expected in mining due to the culmination of some mega-projects that started their production phases, such as the expansion of Cerro Verde, Las Bambas, and Toromocho. Moreover, although investors' expectations remain on the optimistic side, they have fallen to levels below those observed in previous years. In 2018, private investment is expected to grow

5.3 percent considering the normalization of investment conditions reflected in the recovery of confidence and the progress made in terms of the projects announced and those granted in concession.



Private investment projects whose implementation has been announced for the period of 2017-2018 amount to US\$ 18.0 billion.

**Table 21**  
**PRIVATE INVESTMENT PROJECTS ANNOUNCED: 2017-2018**  
(Million US\$)

	IR Dec.16	IR Mar.17
Mining	6,003	5,480
Hydrocarbons	2,898	2,028
Energy	2,001	1,687
Industry	1,640	1,350
Infrastructure	3,438	2,858
Other sectors	4,477	4,610
<b>TOTAL</b>	<b>20,457</b>	<b>18,013</b>

Source: Media and Information of companies.





Furthermore, it is estimated that investment in projects awarded in concession between 2016 and 2017 would reach US\$ 2.1 billion, as pointed out in the Inflation Report of December. Proinversión has announced that total investment of projects to be carried out under concession contracts amount to US\$ 4.8 billion.

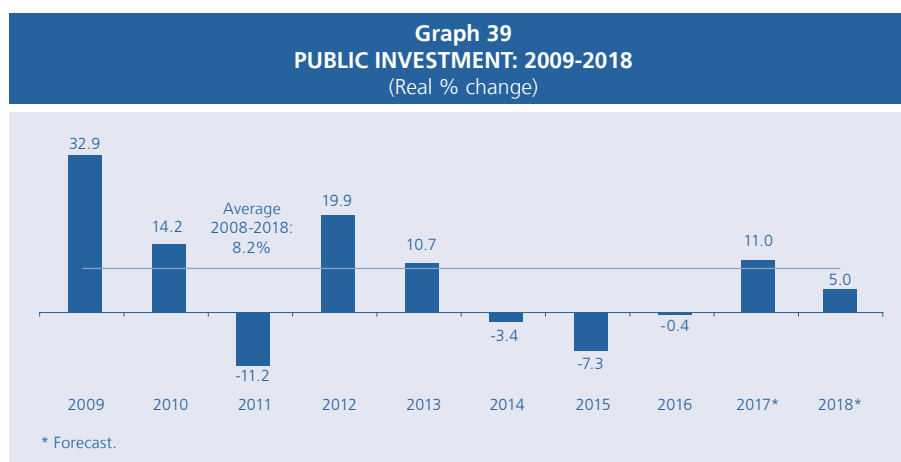
<b>Table 22</b>	
<b>MAIN PROJECTS TO BE IMPLEMENTED THROUGH CONCESSION ARRANGEMENTS IN 2016-2017</b>	
(Million US\$)	
	<b>Estimated investment</b>
<b>A. Awarded</b>	<b>2,060</b>
Nationwide 698-806 MHz band	1,680
Hydroelectric Power Plant San Gabán III	371
Electronic surveillance services through the use of electronic devices	9
<b>B. To award</b>	<b>4,769</b>
<b>B.1 Called</b>	<b>1,889</b>
Headworks and Conduction for the Drinking Water Supply in Lima	600
Longitudinal of the Sierra road project, Section 4	464
Liquid Petroleum Gas Supply System for Lima and Callao <sup>1/</sup>	250
Huancayo - Huancavelica Railway	204
Quillabamba Thermal Power Plant <sup>1/</sup>	180
The Amazon Waterway	95
220 Kv Tintaya - Azangaro Transmission Line	59
Aguaytia-Pucallpa 138 kV Electric Transmission Line	37
<b>B.2 To be called</b>	<b>2,880</b>
Michiquillay Remnants Mining Project	2,016
500kV Mantaro - Nueva Yanango -Carapongo Connection and Nueva Yanango - Nueva Huanuco connection and associated sub stations	568
Broadband Installation for Amazonas, Ica and Lima	142
Chillon River Water Supply Works <sup>1/</sup>	80
Repowering up to 1000 MVA of 500 kV Carabayllo-Chimbote-Trujillo Transmission Line	64
New 220 kV Carhuaquero Substation <sup>2/</sup>	10

Source: Proinversión.  
1/ Award to be defined.

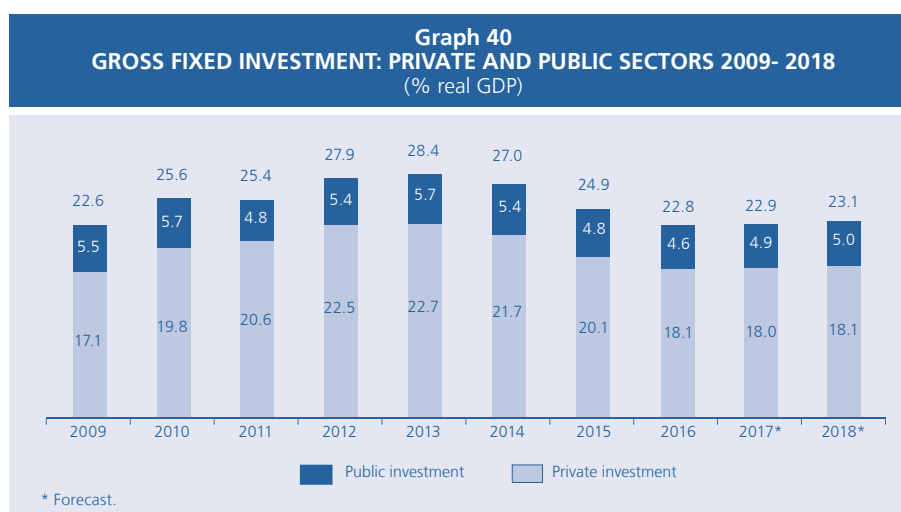
26. **Public investment** dropped 0.4 percent in 2016, which is explained by the evolution of expenditure at the level of the national government and regional governments. Moreover, the investment of public enterprises showed a significant rate of growth (22 percent), explained mainly by progress in the implementation of the Talara refinery project.

Taking into account the stimulus plan announced by the Government in March, the implementing agencies –or executing units– are expected to increase their levels of spending, particularly in the sectors of Transport and Communications, Education, Agriculture, Interior, Labor, as well as at the level of the sub-national governments. This would imply a reversal of the expenditure registered until the first quarter of 2017 and a re-composition of expenditure in the remaining quarters. As a result, it is estimated that public investment would rise from 7.4 percent –estimated in the previous report– to 11.0 percent in this report. The growth rate of expenditure

projected for 2018 is revised up from 4.5 percent (IR of December) to 5.0 percent in this report.



27. Based on the evolution of private investment and public investment, the gross investment-to-GDP ratio would remain around 23 percent between 2017 and 2018. These lower levels of investment would imply a somewhat lower growth in the potential output (3.8 percent) than that foreseen in the previous report for the forecast horizon.

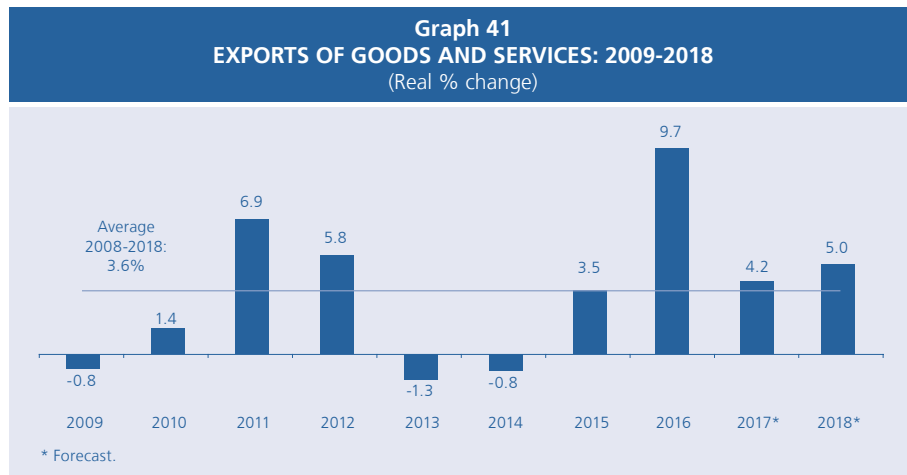


28. In 2016 **exports** grew 9.7 percent –6.2 percentage points higher than in 2015– due to the strong dynamism of exports of traditional commodities (copper, gold, coffee, and crude oil derivatives). Additionally, exports of non-traditional products showed a recovery due mainly to the greater dynamism of exports of agricultural and fishery

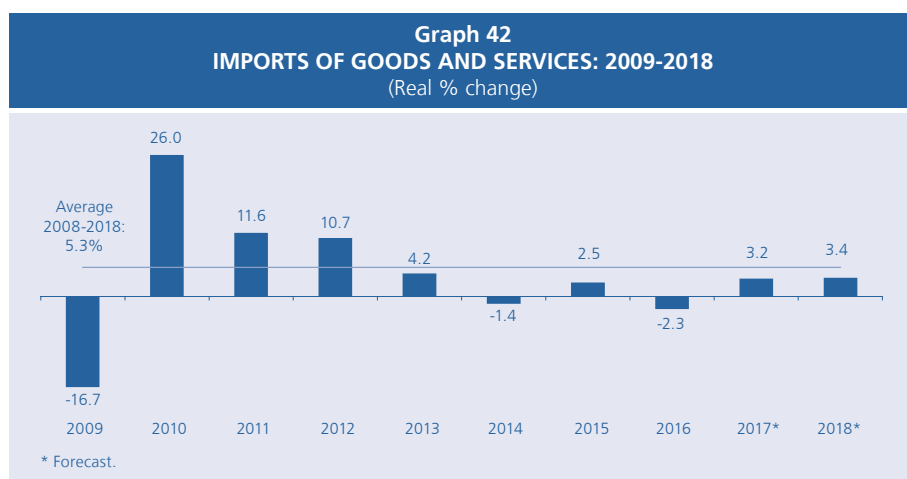




products observed since the second quarter of the year. A more moderate pace of growth is foreseen in exports between 2017 and 2018, in line with the lower output anticipated in the fishing sector in this period.



29. **Imports** recorded negative growth rates in 2016 due to the drop of imports of goods and the slower pace of growth of imports of services. However, a gradual recovery is expected in imports in 2017 and 2018, in line with the announcements of private investment projects and the increased growth of the output foreseen for this period. In 2017, however, because the growth of private investment would be lower than expected (estimates have fallen from 5.0 to 2.5 percent), the projected growth of imports has been revised down.



**Box 1  
EL NIÑO EVENT**

From the second half of January, the sea surface temperature off the coast of Paita began to increase steadily, and abnormalities –measured as the difference between recorded temperatures and the historical average temperature– recorded unusually high values. In view of this situation, the ENFEN Committee<sup>3</sup> issued a statement announcing that the probabilities of experiencing an El Niño episode had increased.

**EVOLUTION OF WEATHER WATCH THROUGH THE ENFEN: EL NIÑO EVENT**

Date	Stage	Conditions
January 17	<b>Neutral conditions</b>	Higher probability of non-occurrence of El Niño event, but the odds of El Niño with a weak magnitude increased to 30 percent.
January 24	<b>El Niño Costal Surveillance</b>	There is a probability over 50 percent of an occurrence of El Niño event with a weak magnitude.
February 2	<b>El Niño Costal Surveillance</b>	According to conditions El Niño with a weak magnitude has begun.
February 15	<b>El Niño Costal Alert</b>	Occurrence of El Niño event will extend until March.
March 2	<b>El Niño Costal Alert</b>	Occurrence of El Niño event will extend to the month of April and reach a weak-to-moderate magnitude.
March 16	<b>El Niño Costal Alert</b>	Occurrence of El Niño event will extend until April and reach a moderate magnitude*.

\* The event is considered of moderate magnitude when the El Niño Coastal Index (ICEN) reaches values between 1 and 1.7 ° C. The ICEN is the 3-month moving average of the monthly sea surface temperature (SST) anomalies in the 1 + 2 region.  
Source: Official releases.

Unlike a typical El Niño event, which is caused by the displacement of warm equatorial Kelvin waves that come from the Central Pacific and result in an increase in the temperature of sea subsurface waters, this El Niño event originated as a result of the displacement of waters coming south from Ecuador and of atypical weather conditions, both of which caused a sudden warming of the sea temperature along the coast of Northern Peru.

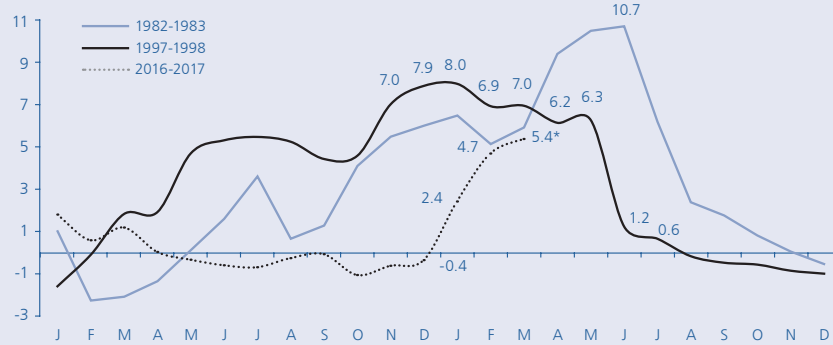
The impact of this episode of El Niño on the level of rainfall has also been significantly greater than that of the 2015-2016 El Niño, which was classified as a “strong” event. The difference is the time of the year in which the episodes have occurred: the 2015-2016 El Niño reached its maximum anomaly in December 2015, before the beginning of the seasonal rainy season, whereas the current episode has coincided with the peak of the rainy season, bringing about greater warming and greater rainfall. Moreover, the anomalies in terms of sea surface temperature and accumulated rainfall today are below those observed during the 82-83 and 97-98 events, although the level of rainfall in the week of March 12 to 19 has exceeded the level of rainfall observed in El Niño 97-98 and 82-83 in some regions, such as Piura, for example.

<sup>3</sup> The Multisectoral Committee for the National Study of El Niño (ENFEN Committee) is the multi-sector scientific and technical body responsible for monitoring and alerting on changes in oceanographic and meteorological indicators to allow the implementation of appropriate prevention measures to reduce the impacts of El Niño event.



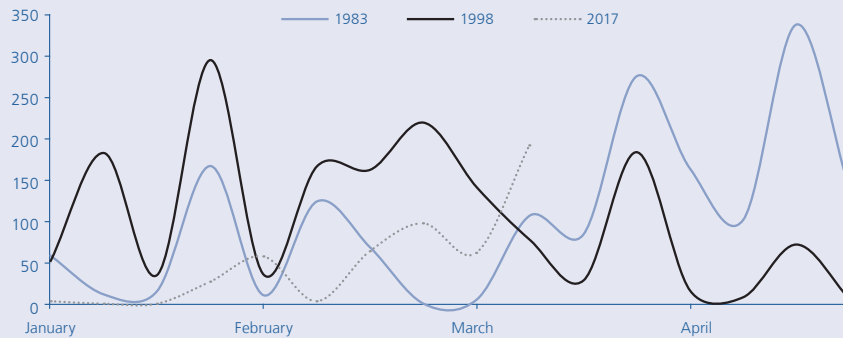


### ANOMALIES IN THE SEA SURFACE TEMPERATURE - PAITA (Celsius degree)



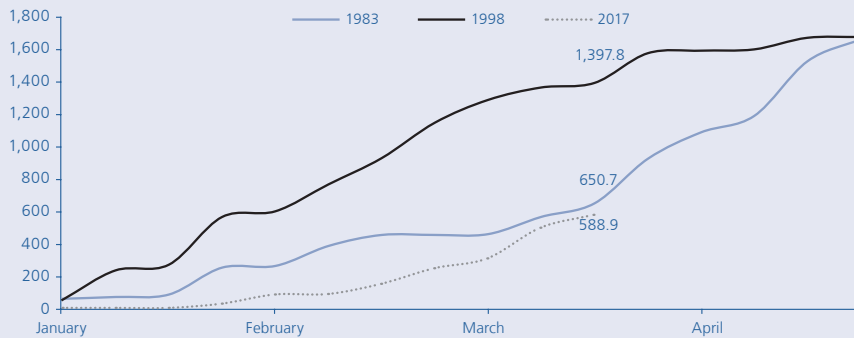
\* Data as of March 23.  
Source: IMARPE.

### WEEKLY RAINFALL - PIURA (Liter per square meter)



Source: Global Summary of the Day (GSOD) - NOAA

### WEEKLY ACCUMULATED RAINFALL - PIURA (Liter per square meter)



Source: Global Summary of the Day (GSOD) - NOAA.

## Economic Impacts

This type of events (i) affects the production of goods and services in the economy, which reduces GDP, and (ii) destroys the capital stock in the economy, which has a one-time impact on the potential output level.

### a. Agriculture Sector

#### MAIN CROPS IN THE NORTH COAST AREAS

	Crops	Sowing period	Export peaks	Thousands Has. Harvested 2015-2016 Season
Piura	Rice	Jan.-Mar. and Jul.-Sep.	-	57.6
	Banana	Permanent	All year	14.0
	Lemon	Permanent	-	11.7
	Mango	Permanent	Nov.-Feb.	19.9
	Avocado	Permanent	Apr.-Jul.	0.7
	Grape	Permanent	Oct.-Feb.	5.6
Lambayeque	Rice	Jan.-Mar. and Jul.-Sep.	-	49.5
	Grape	Permanent	Oct.-Feb.	1.3
	Asparagus	All year	All year	1.0
	Avocado	Permanent	Apr.-Jul.	0.8
	Sugar cane	Semi-permanent	-	23.4
La Libertad	Asparagus	All year	All year	14.2
	Sugar cane	Semi-permanent	-	40.9
	Avocado	All year	Apr.-Jul.	10.2

Of the main crops grown in the North Coast of the country, lemons, bananas, and sugar cane have been affected the most. The excess of rain has affected the maturing process and quality of lemons, while difficulties in the process of harvesting bananas and transporting them to the packing centers are already anticipated to have a toll on exports of organic bananas. In addition to this, over a thousand hectares planted with sugar cane are flooded in La Libertad and it is still difficult to transport this crop from Olmos to major domestic markets.

On the other hand, however, rice would be favored by the excess of heat and water. The Peruvian Association of Rice Producers has estimated an increase of 6 percent in cultivated areas.

As for export-oriented crops, asparagus and avocados are produced during the months of March and April and the production of hundreds of hectares would be lost due to the floods. Moreover, problems in the access to the fields could hinder the access of workers to harvest the crops, as well as packaging and shipping the crops to ports. In the case of asparagus, some companies have begun to replace fresh asparagus by canned asparagus to avoid losses in their final products. Other crops such as mangos show no impacts so far, but could be affected if the hot weather continues until June and July because they need a blast of cold of 18°C in those months. Grapes would not be affected significantly because the fields have already been harvested and the next farming season starts in the second half of the year.





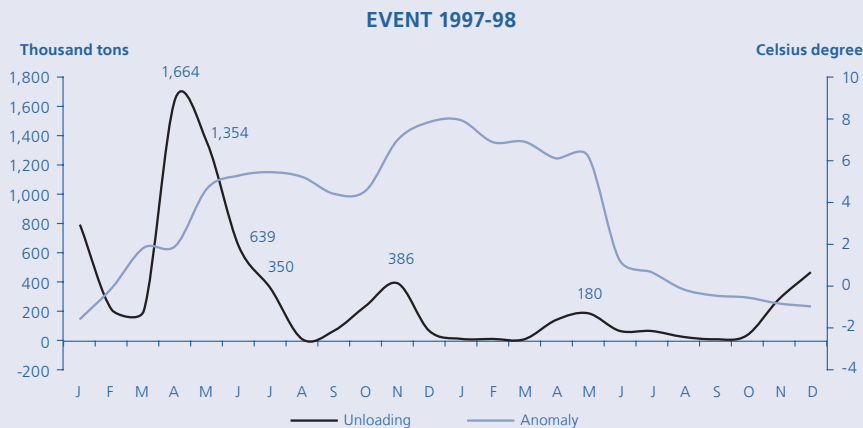
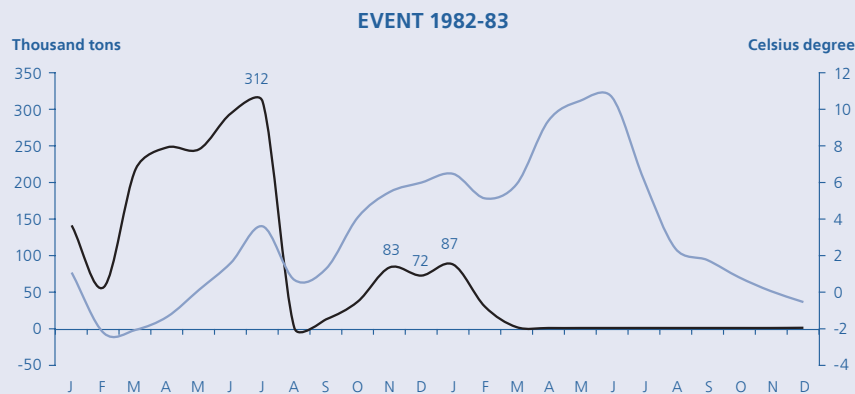


### b. Fishing Sector

The warming of the sea reduces the biomass in two ways: (i) decreasing the availability of phytoplankton, the basis of the marine food chain, and (ii) affecting anchovy spawning. Although some species such as perico and mackerel are favored by the increase in water temperature, the reduction of anchovy catch has an adverse effect on the growth of the sector.

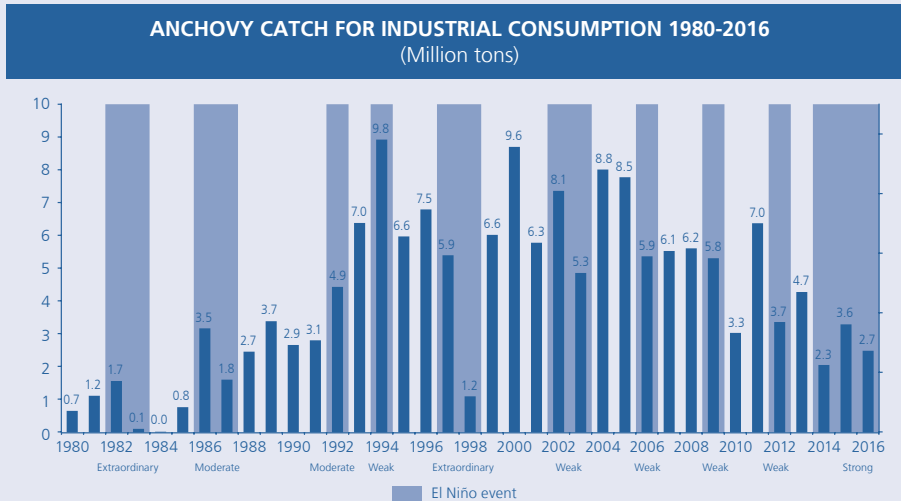
According to the latest statement of the ENFEN Committee, anchovy spawning has been affected in the North-Central coastal areas<sup>4</sup>, which would reduce the availability of this species during the first fishing season and especially during the second fishing season. Should the warming of sea temperature extend beyond April, and depending on its intensity, the impact of El Niño on the second fishing season would be more severe.

It is worth pointing out as reference that the anomalies of the 82-83 El Niño began in July 1982, which affected the output of the second fishing season that year as well as all the fish catches in 1983. Likewise, the onset of the 97-98 El Niño event in the first half of 1997 had similar consequences. In contrast, however, the 2017 El Niño episode is the result of a sudden warming of the level of sea temperatures observed from the second half of January, so the first fishing season would not be so severely affected by this event.



Source: IMARPE.

4 Anchovies reach their adult size at 7-9 months.



**c. Sectors of Trade and Transportation**

The North Coast of Peru has been the most affected region by this El Niño 2017 event. A significant part of its road infrastructure has collapsed, affecting business and services in all of the departments of the region. Tumbes, Piura, Lambayeque, and La Libertad account for about 18 percent of the country's total domestic trade and transportation services. The biggest impact on trade, which represents 11 percent of GDP, would be observed in the months of February to April, while freight, which represents 1 percent of GDP, would be the most affected component of transportation services. While commercial activity in other regions will not necessarily be affected by this event, transportation services in other regions will indeed be affected as well due to the lack of access to the North Coast. Even though the Government has already started installing Bailey bridges to recover access to the areas that have been isolated, the flow of vehicles is expected to be slower at least until April, which is when the effects of El Niño on both trade and transportation services are estimated to begin to subside. Otherwise, the impact of El Niño would also be seen in the second quarter of 2017.

**PARTICIPATION OF NORTH-COAST REGION IN TRADE AND TRANSPORTATION**

	Tumbes	Piura	Lambayeque	La Libertad	Total
<b>Trade</b>	1.1	6.3	5.2	5.7	18.2
<b>Transportation and storage</b>	0.6	6.4	4.2	6.5	17.8

Source: INEI.

**d. Reduction of Capital Stock**

El Niño 2017 event has destroyed and affected infrastructure, including bridges, roads, schools and health facilities, and houses, as well as production units such as significant numbers of hectares of farmland.





According to the Civil Defense Institute (INDECI), the number of people affected as of March 23 is 105,382 people, 91,356 of whom live in the North Coast region (this number is equivalent to about 28 percent of the victims affected by the 97-98 El Niño event). Furthermore, reported damages also include 28,552 hectares affected or destroyed –which is equivalent to 30 percent of the hectares destroyed and affected in the 97-98 El Niño event–, whereas the number of homes that have been affected or have collapsed (144,572) is 19 percent higher than the number of damaged houses in the 97-98 El Niño, and the number of kilometers of roads destroyed is 19 percent higher. It should be pointed out that the damages caused by the current El Niño have taken place only in the last two months, while those caused by the 97-98 El Niño took place during almost a year-long period.

**EVALUATION OF DAMAGES ORIGINATED BY EL NIÑO EVENT**

	People				Infrastructure				Agriculture (Hectares)			
	Damaged		Deceased		Collapsed bridges		Destroyed roads (Km.)		Destroyed		Affected	
<b>El Niño Event</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>
<b>Zone</b>												
Lima	21,783	5,896	10	6	34	55	55	823	680	259	1,680	2,722
North Coast areas	293,542	91,356	182	25	198	79	552	863	30,505	2,511	53,770	10,321
South Coast areas	64,924	6,919	47	18	16	22	13	352	2,835	3,497	3,650	6,150
Sierra-Central North	4,124	1,661	31	16	10	12	100	51	1,245	1,270	1,260	1,822
<b>Total</b>	<b>384,373</b>	<b>105,832</b>	<b>270</b>	<b>65</b>	<b>258</b>	<b>168</b>	<b>720</b>	<b>2,089</b>	<b>35,265</b>	<b>7,537</b>	<b>60,360</b>	<b>21,015</b>
	<b>Houses and public places</b>											
	Houses				Schools				Health centers			
	Collapsed		Affected		Collapsed		Affected		Collapsed		Affected	
<b>El Niño Event</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>	<b>97-98</b>	<b>2017*</b>
<b>Zone</b>												
Lima	704	1,257	2,966	7,584	0	11	1	44	2	2	15	2
North Coast areas	41,690	10,026	62,449	91,887	207	15	441	787	38	6	323	54
South Coast areas	1,796	1,045	10,040	30,470	0	4	18	196	2	0	31	4
Sierra-Central North	156	261	1,617	2,042	1	0	46	66	22	0	53	0
<b>Total</b>	<b>44,346</b>	<b>12,589</b>	<b>77,072</b>	<b>131,983</b>	<b>208</b>	<b>30</b>	<b>506</b>	<b>1,093</b>	<b>64</b>	<b>8</b>	<b>422</b>	<b>60</b>

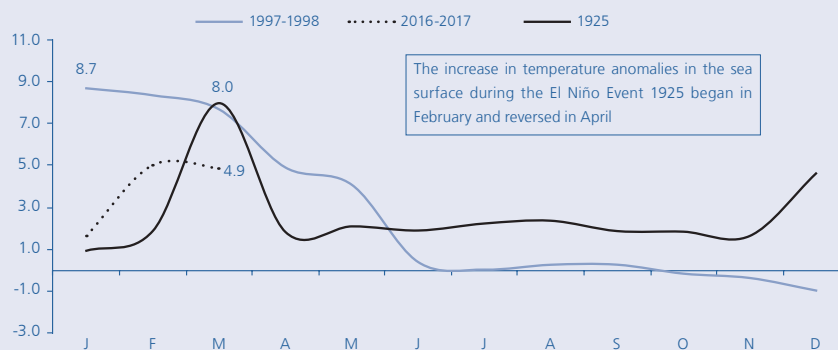
Source: INDECI.  
\*Data as of March 23, 2017.

In conclusion, because of its origin and characteristics, the current El Niño is different from previous El Niño events and its evolution is similar to the weather and meteorological patterns observed in El Niño 1925, the first El Niño with a very strong intensity recorded in the 20<sup>th</sup> century. It is worth highlighting that adverse external factors played an important role in explaining the lower production registered in the three previous severe El Niño events. The estimates of the impacts on productive activity and capital stock are based on the assumption that the intensity of the event will be offset as from April, coinciding with the end of the rainy season in the northern region of Peru, but this scenario is still uncertain.

EXTREME EL NIÑO EVENTS IN PERU		
Year	Source	President
1578	Acosta (1590), Cabo (1639), Labarthe (1914), Portocarrero (1926) y García Rosell (1903)	Francisco Álvarez de Toledo
1728	Feijóo (1763), Bueno (1763), Alcedo (1786), Paz Soldán (1882), Eguiguren (1894) y Palma (1894)	José de Armendáriz
1791	Unanue (1806), Ruschenberger (1834), Paz Soldán (1862), Eguiguren (1894) y Labarthe (1914)	Francisco Gil de Taboada y Lemos
1828	Ruschenberger (1834), Paz Soldán (1862), Spruce (1864), Hutchinson (1873), Eguiguren (1894) y Portocarrero (1926)	José de la Mar
1877-1878	Eguiguren (1894), Palma (1894), Melo (1913), Sievers (1914), Labarthe (1914), Bachmann (1921) y Portocarrero (1926)	Mariano Ignacio Prado
1891	Carranza (1891), Eguiguren (1894), Labarthe (1914), Sievers (1914) y Murphy (1926)	Remigio Morales Bermúdez
1925	Murphy (1926), Zegarra (1926), Berry (1927), Petersen (1935), Vogt (1940) y Mugica (1944)	Augusto B. Leguía
1982-83	-	Fernando Belaúnde
1997-98	-	Alberto Fujimori

Source: Quinn, William, Víctor T. Neal, Santiago E. Antunez De Mayolo (1987). El Niño Occurrences Over the Past Four and a Half Centuries.

### ANOMALIES IN THE SEA SURFACE TEMPERATURA - CHICAMA (Celsius degree)



Source: IMARPE and Quispe (1993).

### MACROECONOMIC INDICATORS DURING EL NIÑO EVENT

	1925*			1983			1998			2017**		
	t-1	t	t+1	t-1	t	t+1	t-1	t	t+1	t-1	t	t+1
1. GDP Perú (% Change)	9.5	2.4	9.7	-0.2	-10.4	3.6	6.5	-0.4	1.5	3.9	3.5	4.1
2. Public investment (% change)	17.6	9.7	20.0	3.6	-12.0	0.8	14.4	7.0	10.5	-0.4	11.0	5.0
3. GDP USA (% change)	2.7	2.5	7.8	-1.9	4.6	7.3	4.5	4.5	4.7	1.6	2.2	2.1
4. US interest rate	3.7	3.4	3.8	12.0	9.2	10.2	5.4	5.4	5.0	0.5	1.1	1.9

\* Includes total public spending in such years.

\*\* Forecast.

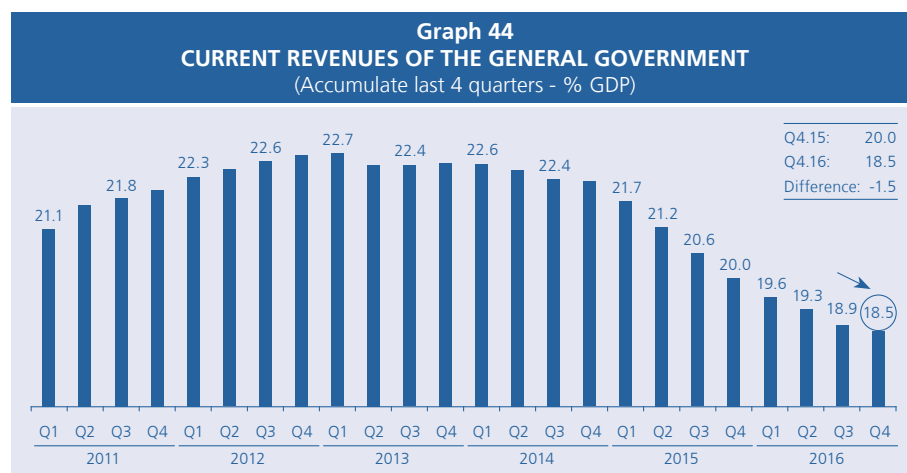
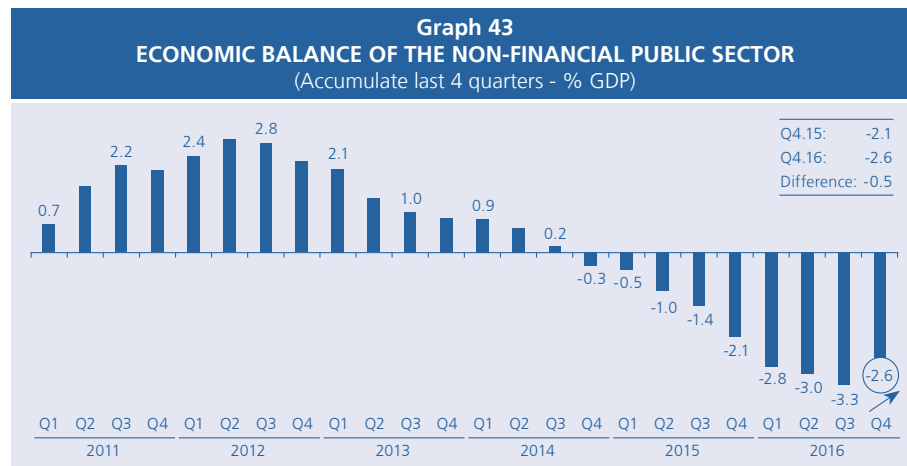
Source: BCRP and Seminario (2016)

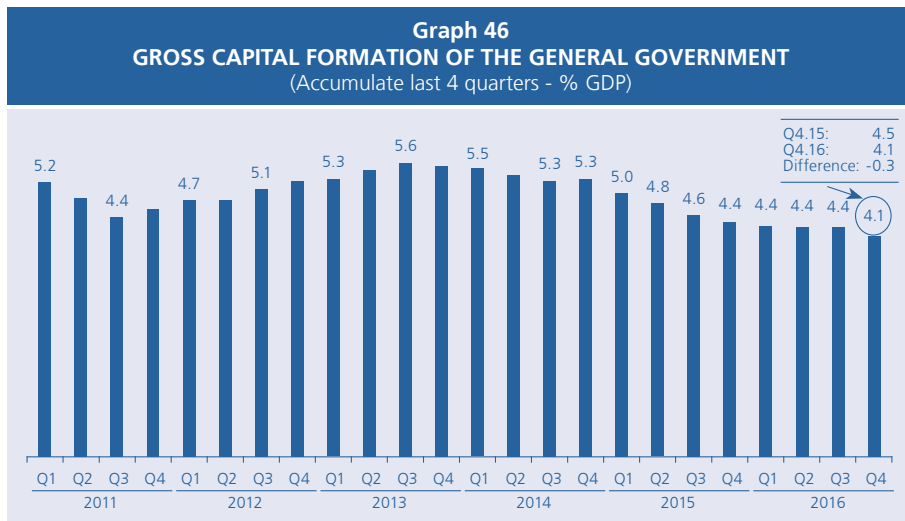
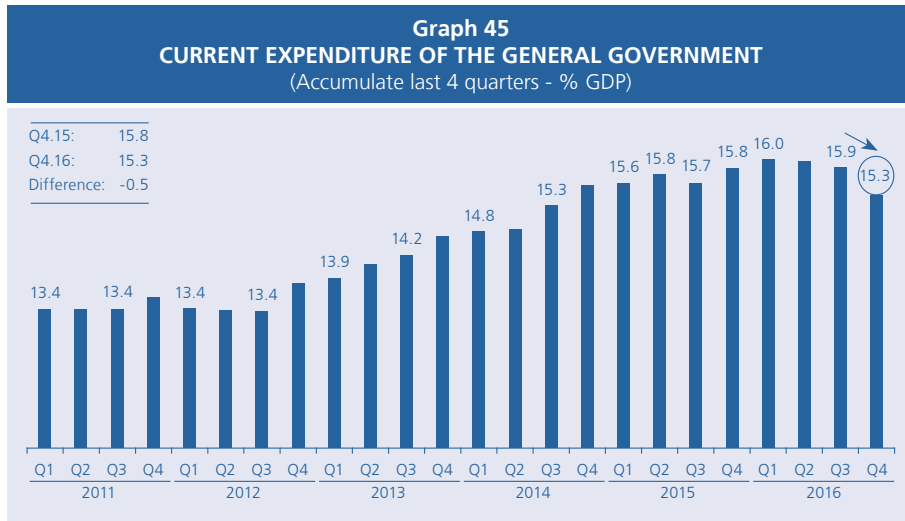




## IV. Public Finances

30. In 2016 the economic deficit of the **non-financial public sector** (2.6 percent of GDP) was below the fiscal target for this year (3.0 percent) due basically to the adjustment of expenditure in all of the government levels during Q4-2016 as a result of the measures implemented to achieve fiscal consolidation. Another factor that contributed to this result was extraordinary revenue received at the end of the year from non-domiciled agents for the sale of shares of Brazilian Group Invepar, which had been awarded the concession of Linea Amarilla project, to the French Vinci group.





31. The scenario foreseen for 2017 not only takes into account the impact of the tax measures adopted through legislative powers approved by Congress (considered in the previous report), but also includes the impact of the new measures announced recently as part of a stimulus program aimed at accelerating growth, mainly via allocating greater resources to investment and maintenance. Part of the resources would also be allocated to the transitory needs faced currently by the Government due to El Niño event, which has affected mainly the North of the country. Since this event is still in progress, no one can determine yet the extent of its impact nor the requirements of public resources involved. Considering these factors, it is estimated that deficit levels would increase relative to those considered in the report of December, from





2.5 percent to 2.8 percent of the output in 2017 and from 2.3 percent to 2.6 percent of GDP in 2018.

The projection of fiscal expenditure for 2017 increases the resources allocated to investment at the levels of the national government (particularly for transportation and communications) and the sub-national governments, as well as resources for maintenance. Some of these resources come from the re-allocation of funds that were not performed – for example, due to delays in the implementation of projects– or in other cases, as a result of greater resources and also as a result of resources obtained via competitive funds.

**Table 23**  
**NON-FINANCIAL PUBLIC SECTOR**  
(% GDP)

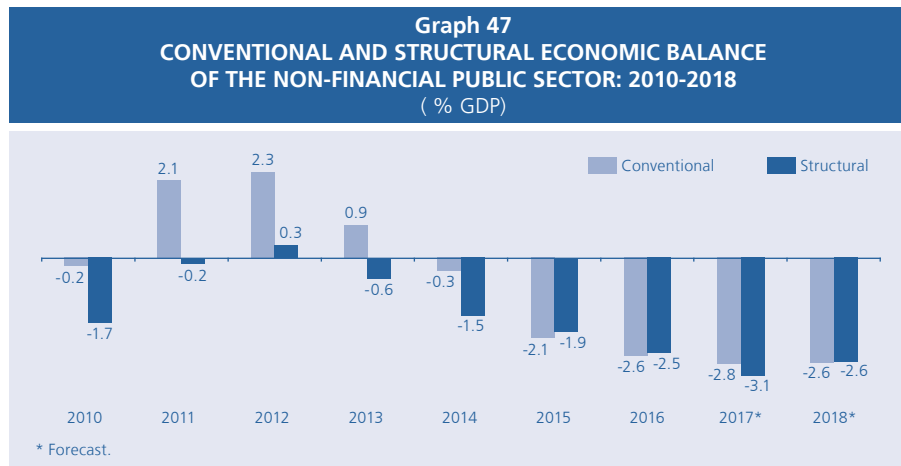
	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>1. General government current revenues <sup>1/</sup></b>	<b>20.0</b>	<b>18.5</b>	<b>19.0</b>	<b>18.9</b>	<b>18.7</b>	<b>18.6</b>
<i>Real % change</i>	-7.1%	-4.1%	8.8%	6.1%	2.0%	2.2%
<b>2. General government non-financial expenditure</b>	<b>21.2</b>	<b>20.0</b>	<b>20.3</b>	<b>20.5</b>	<b>19.7</b>	<b>20.1</b>
<i>Real % change</i>	1.4%	-2.4%	5.8%	7.0%	1.0%	1.4%
<u>Of which:</u>						
Current expenditure	15.8	15.3	15.2	15.3	14.7	14.9
<i>Real % change</i>	4.7%	0.3%	3.8%	3.9%	0.0%	1.4%
Gross capital formation	4.4	4.1	4.7	4.5	4.7	4.6
<i>Real % change</i>	-14.6%	-3.3%	11.9%	15.0%	4.4%	5.2%
<b>3. Others</b>	<b>0.2</b>	<b>-0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>
<b>4. Primary balance (1-2+3)</b>	<b>-1.0</b>	<b>-1.5</b>	<b>-1.2</b>	<b>-1.5</b>	<b>-1.0</b>	<b>-1.4</b>
<b>5. Interests</b>	<b>1.1</b>	<b>1.1</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>
<b>6. Overall Balance</b>	<b>-2.1</b>	<b>-2.6</b>	<b>-2.5</b>	<b>-2.8</b>	<b>-2.3</b>	<b>-2.6</b>

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.

IR: Inflation Report.

\* Forecast.

32. The **structural economic balance** is an indicator that differs from the conventional economic balance in that it isolates from the latter the transitory effects of the business cycle and the effects of the prices of the commodities relevant to our economy. In 2016, the structural economic balance showed a deficit of 2.5 percent of GDP, while in 2017 and 2018 the structural deficit is estimated at 3.1 percent and 2.6 percent of GDP, respectively.



In order to determine the effect of changes in the revenues and expenditures of the Treasury on the economic cycle, we take into account the multiplier effect of these variables. Thus, the 2016 weighted fiscal impulse was slightly more contractionary, while in 2017 the fiscal stance is expected to be slightly more expansionary (around 0.6 percent of GDP). This outcome would be associated with the greater multiplier effect of public investment.

**Table 24**  
**FISCAL IMPULSE**  
(% GDP)

	2015	2016	2017*	2018*
<b>Fiscal impulse</b>	<b>0.6</b>	<b>0.9</b>	<b>0.0</b>	<b>-0.2</b>
By revenues	0.9	1.7	-0.5	0.2
By expenditures <sup>1/</sup>	-0.3	-0.8	0.5	-0.4
Current (Includes EPP)	0.1	-0.1	-0.1	-0.3
Capital	-0.4	-0.7	0.6	-0.1
<b>Weighted fiscal impulse<sup>2/</sup></b>	<b>-0.3</b>	<b>-0.6</b>	<b>0.6</b>	<b>-0.3</b>
Weighted fiscal impulse (IR Dec. 16)	-0.5	-0.5	0.1	-0.4

1/ Includes public enterprises.  
2/ According to estimate of fiscal multiplier. If GDP gap is positive: Revenues 0; current expenditure 0.28; capital expenditure 0.73; and if GDP gap is negative: Revenues 0.25; current expenditure 0.93; capital expenditure 1.42.  
\* Forecast.

## Tax Revenues

33. In 2016 the current revenues of the general government fell 4.1 percent in real terms and were equivalent to 18.5 percent of GDP. The deterioration registered in tax revenues during the year –down by 1.5 percentage points of GDP– reflected the impact of the slowdown of domestic demand, particularly the impact of this slowdown on the value added tax (VAT), and the increase in tax rebates for exports,







early recovery of the VAT, and the decline of non-tax revenues associated with royalties and oil royalties mainly.

The current revenue projected for 2017 has decreased slightly from 19.0 percent of GDP to 18.9 percent of GDP, while the projection for 2018 has decreased from 18.7 percent of GDP to 18.6 percent of the output. As mentioned previously, these projections take into account the effect of the series of actions approved between December 2016 and January 2017, including: (i) measures affecting the income tax, (ii) measures intended to promote the declaration and repatriation of assets abroad, (iii) the modification of the VAT for small businesses, and (iv) the new regime for the formalization of small businesses.

With regard to measures affecting the income tax, the tax rate of the general regime of the income tax was increased from 28.0 to 29.5 percent as from January of this year. Moreover, the effect of increasing the deduction of the income tax of natural persons by up to 3 tax units –in addition to the current 7 tax units– has also been considered. When implemented, this measure would reduce the revenue from this tax. As for the VAT, Law 30524 (IGV Justo) introduces an extension of up to 90 days for the payment of the VAT by MSES with sales totaling up to 1,700 tax units per annum (S/ 6.9 million). This modification of the payment of the VAT for small businesses would temporarily reduce the collection of this tax.

With regard to measures aimed at promoting that assets abroad be declared, as from 2017 a rate of 7 percent will be applied to the repatriation of assets and a rate of 10 percent will apply to those assets that are declared, but not repatriated. In addition to this, a tax amnesty and tax fractioning have been announced for 2017.

These measures would imply a positive impact of 0.3 and 0.1 percentage points of GDP in 2017 and 2018, respectively.

Non-tax revenues have increased from those estimated in the report of December due to the transfer of profits accumulated in 2016 (S/ 700 million) from Fondo Nacional de Financiamiento de la Actividad del Estado (FONAFE) to the Treasury in January of 2017, as provided for by the seventh additional provision of Law 30519, Financial Balance of the Public Sector Budget for FY 2017.

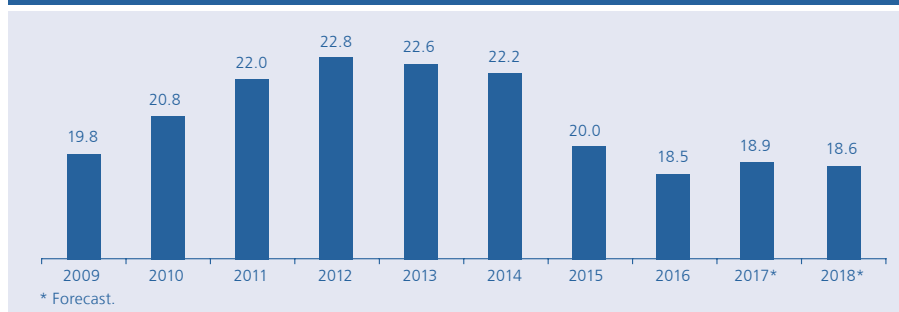
In addition, the increase in non-tax revenues is explained by the enforcement of the guarantee provided by consortium Gasoducto Sur Peruano (US\$ 262.5 million) due to the company's breach of contract, which determined the termination of the contract.

**Table 25**  
**CURRENT REVENUES OF THE GENERAL GOVERNMENT**  
 (% GDP)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>TAX REVENUES</b>	<b>15.1</b>	<b>14.0</b>	<b>14.6</b>	<b>14.1</b>	<b>14.2</b>	<b>14.0</b>
Income tax	5.7	5.6	5.5	5.3	5.3	5.4
Value added tax	8.4	8.0	7.8	7.8	7.9	7.9
Excise tax	0.9	0.9	0.9	0.9	0.9	0.9
Import duties	0.3	0.2	0.2	0.2	0.2	0.2
Other tax revenues	1.8	1.7	2.3	2.1	1.8	1.8
Tax returns	-1.9	-2.5	-2.2	-2.2	-2.0	-2.2
<b>NON-TAX REVENUES</b>	<b>4.9</b>	<b>4.5</b>	<b>4.5</b>	<b>4.8</b>	<b>4.5</b>	<b>4.6</b>
<b>TOTAL</b>	<b>20.0</b>	<b>18.5</b>	<b>19.0</b>	<b>18.9</b>	<b>18.7</b>	<b>18.6</b>

\* Forecast  
 IR: Inflation Report.

**Graph 48**  
**CURRENT REVENUES OF THE GENERAL GOVERNMENT: 2009-2018**  
 (% GDP)



## Evolution of Public Expenditure

34. In 2016, the non-financial expenditure of the general government decreased 2.4 percent. This is explained mainly by the drop of expenditure registered at the level of the national government (5.9 percent in real terms) resulting from the reduction in real terms of both the components of current expenditure (1.8 percent) and capital expenditure (22.7 percent). In addition to this, in Q4-2016 public expenditure declined in all of the government levels in both components, in line with the fiscal consolidation measures established in S.D. 272-2016-EF (published on October 5).

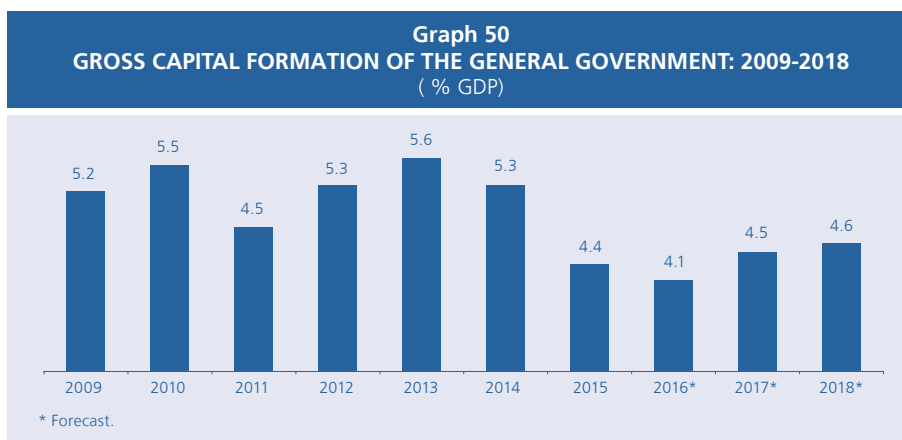
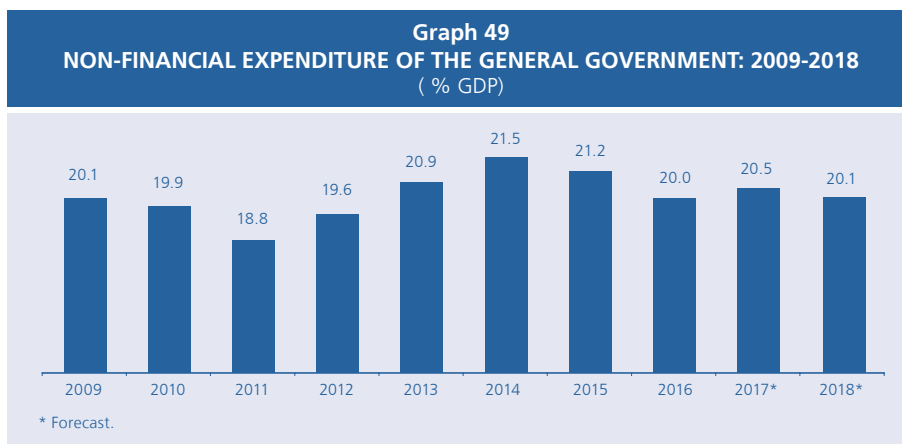
Projected non-financial expenditure for 2017 has been re-structured on the upside considering that greater investment spending is required to respond to the priorities announced by the Government after the recent natural disasters. Thus, the investment expenditure of the general government would grow 15.0 percent in real terms.





The latest government measures announced in March include the following:

- Expenditure requirements identified, which amount to S/ 5.5 billion (0.7 percent of GDP), will be financed by increased tax revenues and unused funds. Approximately S/ 1.5 billion of these funds will be earmarked to meet requirements to face the impact of the climatic events.
- In order to promote the formal employment of youths, companies hiring young workers will be exempted from the payment of Essalud (health insurance), which will be covered by the State. The fiscal cost of this measure is estimated at S/ 60 million per year.
- Promotion of MSE credit to finance the acquisition and renovation of fixed assets via a trust of over S/ 1.1 billion.
- Promote a faster pace of implementation of the Public Works Tax Deduction Law –*Obras por impuestos*– with a portfolio of 62 projects at the national level (between S/ 1.0 and S/ 1.5 billion).



**Table 26**  
**NON-FINANCIAL EXPENDITURE OF THE GENERAL GOVERNMENT**  
(% GDP)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>CURRENT EXPENDITURE</b>	<b>15.8</b>	<b>15.3</b>	<b>15.2</b>	<b>15.3</b>	<b>14.7</b>	<b>14.9</b>
National Government	11.1	10.5	10.6	10.5	10.1	10.3
Regional Governments	3.0	3.1	3.0	3.1	3.0	3.0
Local Governments	1.7	1.7	1.6	1.6	1.6	1.6
<b>CAPITAL EXPENDITURE</b>	<b>5.4</b>	<b>4.7</b>	<b>5.0</b>	<b>5.3</b>	<b>5.0</b>	<b>5.1</b>
<b>Gross capital formation</b>	<b>4.4</b>	<b>4.1</b>	<b>4.7</b>	<b>4.5</b>	<b>4.7</b>	<b>4.6</b>
National Government	1.7	1.4	1.9	1.6	1.9	1.6
Regional Governments	0.9	0.9	0.9	1.0	0.9	1.0
Local Governments	1.7	1.8	1.9	1.9	1.9	2.0
<b>Others</b>	<b>1.0</b>	<b>0.6</b>	<b>0.3</b>	<b>0.8</b>	<b>0.3</b>	<b>0.6</b>
<b>TOTAL</b>	<b>21.2</b>	<b>20.0</b>	<b>20.3</b>	<b>20.5</b>	<b>19.7</b>	<b>20.1</b>
National Government	13.8	12.5	12.8	12.9	12.2	12.5
Regional Governments	4.0	4.0	3.9	4.0	3.9	4.0
Local Governments	3.4	3.5	3.5	3.6	3.5	3.6

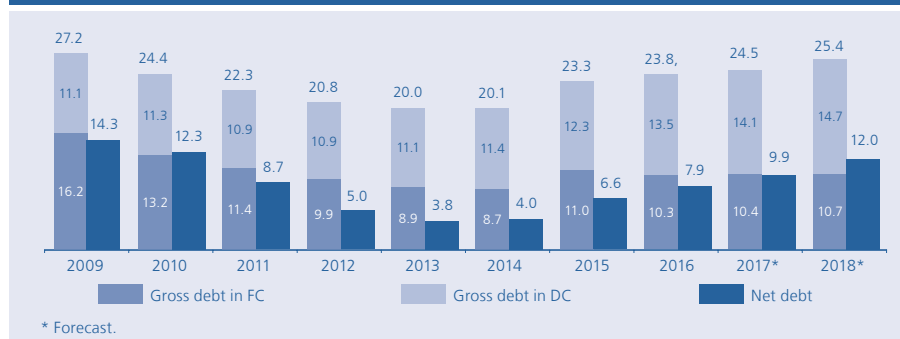
\* Forecast.  
IR: Inflation Report.

## Public Debt

35. The funding required to cover the fiscal deficit and the amortization of the public debt goes from S/ 32 billion in 2016 to S/ 25 billion in 2017 and to S/ 26 billion in 2018. In GDP terms, this means that this financial requirement declines from 4.8 percent of GDP in 2016 to 3.5 percent of GDP in 2017 and 2018.

The gross debt of the non-financial public sector would be equivalent to 25.4 percent of GDP at the end of the forecast horizon, while the net debt would increase to 12.0 percent of the output by 2018.

**Graph 51**  
**NON-FINANCIAL PUBLIC SECTOR DEBT: 2009-2018**  
(% GDP)





**Table 27**  
**FINANCIAL REQUIREMENTS OF THE NON-FINANCIAL PUBLIC SECTOR AND ITS FUNDING**  
(Million S/)

	2015	2016	2017*		2018*	
			IR Dec.16	IR Mar.17	IR Dec.16	IR Mar.17
<b>I. USES</b>	<b>20,607</b>	<b>31,751</b>	<b>22,339</b>	<b>24,597</b>	<b>23,533</b>	<b>26,080</b>
1. Amortization	7,963	14,830	4,937	4,872	6,478	6,269
a. External	3,859	5,636	3,106	2,951	4,276	4,067
b. Domestic	4,103	9,195	1,832	1,921	2,202	2,202
<i>Of which:</i>						
<i>Recognition bonds</i>	666	629	792	822	814	814
2. Overall Balance (Negative sign indicates surplus)	12,644	16,920	17,402	19,725	17,055	19,811
<b>II. SOURCES</b>	<b>20,607</b>	<b>31,751</b>	<b>22,339</b>	<b>24,597</b>	<b>23,533</b>	<b>26,080</b>
1. Change on debt stocks	21,178	30,050	14,661	21,405	23,422	21,429
2. Change on deposits and others <sup>1/</sup>	-571	1,701	7,679	3,192	112	4,651
Memo:						
% GDP						
Gross debt balance	23.3	23.8	24.9	24.5	26.2	25.4
Net debt balance <sup>2/</sup>	6.6	7.9	11.6	9.9	13.6	12.0

1/ A positive sign indicates a reduction of deposits.

2/ Defined as the difference between gross public debt and NFPS deposits.

\* Forecast.

IR: Inflation Report.

**Box 2**  
**ECONOMIC STIMULUS PLAN**

In early March, the Government announced a new series of economic policy actions aimed to foster dynamism in economic activity in the short term and to enhance potential growth.

A group of measures has already been approved with the aim of increasing public investment by a real 15 percent –investment had dropped in 2014, 2015, and 2016– in order that the growth rate of GDP in real terms may come closer to 4 percent in 2017.

a) Budgetary Measures: Emergency Decree 004-2017 –dated March 17 and in force until December 31– has approved a series of changes in the 2017 budget:

- Supplementary credit for a total of S/ 4.40 billion has been earmarked for investments (S/ 1.78 billion), maintenance (S/ 1.05 billion), Intervention Fund for disasters (S/ 1.31 billion), Bono Familiar Habitacional –housing bonus– (S/ 130 million), temporary housing modules (S/ 30 million), and modernized irrigation and water management Programa Sierra Azul (S/ 100 million).

The Fund for interventions in case of disasters managed by the MEF was founded in June 2016) to fund disaster mitigation, rehabilitation, and reconstruction projects, with an initial funding of S/ 300 million. Law 30458 also authorized the national government and regional governments to transfer funds from their ordinary budgets to the Disaster Intervention Fund, which has already been allocated S/ 1.31 billion. In addition, this law also authorized MEF to make transfers of resources from the Contingency Reserve Fund.

Bono Familiar Habitacional is a program that gives priority to the families affected by the disaster and contributes to relocate them by giving a housing bonus to the victims that lived in areas in which risks cannot be mitigated so that they can buy a new house. The families living in areas in which risk can be reduced will be given a bonus to help them reconstruct their homes (Construcción en Sitio Propio).

- FONIPREL: S/ 1.10 billion has been allocated to Fondo de Promoción a la Inversión Pública Regional y Local (FONIPREL). FONIPREL is authorized to lift the suspension of funds to projects not implemented in 2014 and to use these resources for the emergency projects to be developed in response to the recent natural disasters that have affected several regions in the country.
- Maintenance: Agencies in the three government levels are authorized to reallocate capital expenditure funds to finance maintenance actions. The ministries of Education and Health have also been authorized to use S/ 200 million each to repair and improve schools and health infrastructure and services in the areas affected by the rains.





- Emergency expenses: The applicability of the measures allowing to channel resources for disasters approved by Emergency Decree 002-2017 is extended from April 30 to the moment when the competent authorities declare that the rainy season is over. Each local government declared in emergency (including those which received the resources approved by Emergency Decree 002-2017) is allocated S/ 100 thousand, which will be financed by the Intervention Fund for Disasters. Total emergency expenses would amount to S/ 81.8 million.

b) Obras por Impuestos (OXI) (Public works in exchange for taxing benefits): the Government announced that this year it will carry out a portfolio of projects valued S/ 1 billion-S/ 1.5 billion through the mechanism called *Obras por Impuestos* (OXI). Among other projects, 62 projects including schools, health centers, police stations, water and sanitation works, and irrigation canals have been identified.

It is worth mentioning that regulations of the OXY regime have been simplified recently. Projects to be carried out under OXI are exempted from the requirements established in the State Procurement and Contracts Act and the limit of 15 thousand tax units (UIT) has been eliminated from the value of the projects to be developed by regional and local governments. Moreover, this regime, which also allows sub-national governments to co-execute projects, has also been extended to new sectors of the national government.

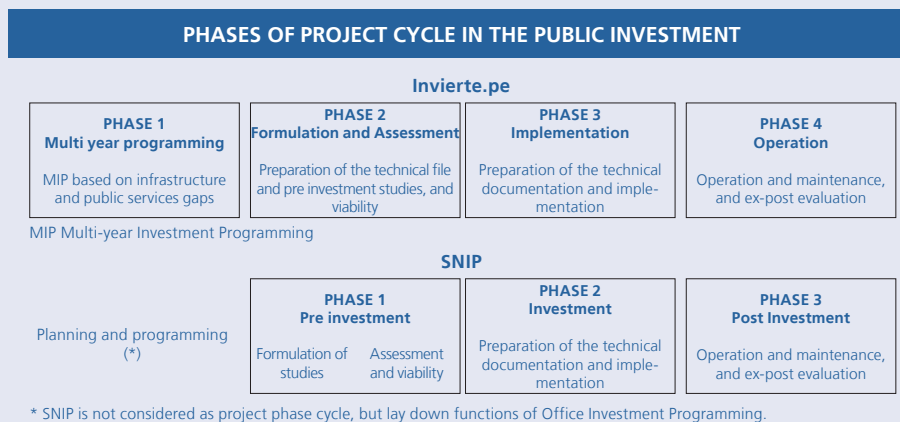
c) Fondo de Adelanto Social: The government has also announced the allocation of resources to the Fund for the Promotion of Social Progress (approved by Legislative Decree 1341). This fund is a mechanism established to finance projects aimed to close or reduce social gaps in geographic areas where various economic activities will be developed. The aim is to improve the conditions for the social acceptance of a portfolio of mining projects (US\$ 18.70 billion) whose implementation in 2017-2021 has been given priority.

**Box 3**  
**INVIERTE.PE: THE NEW PUBLIC INVESTMENT SYSTEM<sup>5</sup>**

In replacement of the National Public Investment System (SNIP, for its acronym in Spanish) introduced in 2000, the Government has created “Invierte.pe”, the National Multi-Year Programming and Management of Investment System –Sistema Nacional de Programación Multianual y Gestión de Inversiones– with the aim of orienting public investment to the effective delivery of services and to the provision of the infrastructure the country needs, as well as with the aim of preventing the allocation of resources to projects with low social profitability.

Public investment in the new system will be based on a multi-year planning of projects aimed to meet people’s needs (measured through infrastructure gaps), and pre investment studies will be used to properly determine the size of the projects and their costs. Another element of the new system is the standardization of projects, which will reduce the time of project formulation and evaluation. Finally, project operation and maintenance will be supported through programming budget as well as through the evaluation of executed projects to learn lessons and improve the system.

The system comprises a cycle of four phases in the public investment project (PIP):



*Phase 1: Multi-year programming*

This stage is managed by the national government agencies in each sector since they elaborate the diagnoses of the gaps identified in terms of infrastructure and access to public services that must be closed in each sector. They also establish the objectives to be achieved and the criteria for the prioritization of projects and communicate this information to regional and local governments so that they may prepare their multi-year investment programming (MIP).

Multi-year investment programming (MIP), which must be based on the infrastructure and public services gaps identified by the national government agencies, includes investments for a timeframe of 3 years counted as from the year after the programming was carried out.

5 Legislative Decree 1252 created this new system which repeals Law 27293, the National Public Investment System (SNIP), on December 1, 2016 and came into force from February 24, 2017, after the publication of the respective regulations.







Through the General Directorate of Multi-year Investment Programming, the Ministry of Economy (MEF) consolidates and prepares the multi-year program of State investments –PMIE– based on the MIP submitted by public entities.

*Phase 2: Formulation and Assessment*

Projects submitted to the MIP are formulated and assessed according to their complexity and value. A technical file will be used for projects with a low complexity (this instrument contains the description of the project and estimates of its costs and benefits), the content depending on the value of the project, whereas a project profile and a reinforced profile will be used for highly complex projects according to the value of the PIP. The following table summarizes the study levels that will be used by Invierte.pe and those used in the SNIP:

PRE INVESTMENT STUDIES FOR PUBLIC INVESTMENT PROJECTS (PIP)	
	Value
<b>Invierte.pe</b>	
Low complexity PIP	
Simplify technical file	< S/ 3 Mills.
Standard technical file	< S/ 60.7 Mills.
High complexity PIP	
Profile	> S/ 60.7 Mills.
Reinforced profile	< S/1 648 Mills.
<b>SNIP</b>	
Simplify profile	<S/1.2 Mills.
Profile	< S/ 20 Mills.
Profile and feasibility studies	> S/ 20 Mills.

*Phase 3: Implementation*

The implementation phase begins with the preparation of the technical documentation of the project and with the process of recruiting the company responsible for carrying out the works, which is governed by the State Contracts Act. Invierte.PE will be responsible for monitoring the physical and financial implementation of the project through computer systems. Once the physical implementation of the project is over, the project must be physically and financially culminated closing the corresponding record at Banco de Inversiones. When projects are carried out through PPPs, the implementation phase is subject to provisions established in the respective contract.

*Phase 4: Operation*

The entities owners of the assets must not only program the payment of the necessary funds required to ensure the operation and maintenance of these assets, but also prepare annual reports on the situation and condition of these assets. MEF will determine each year which completed PIP meet the ex-post evaluation criteria.

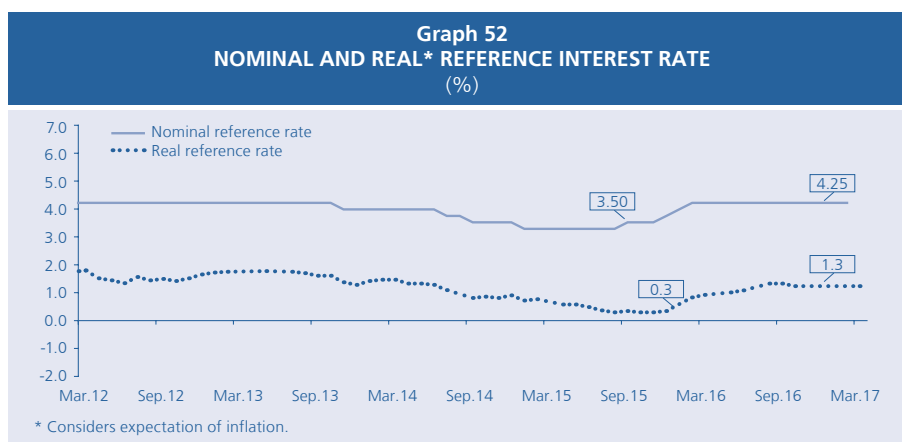
The new system should contribute to improve the allocation of public resources to enhance significantly the contribution of government investment to economic growth in the country if it ensures that projects are linked to closing the gaps identified in infrastructure.

## V. Monetary Policy and Financial Markets

### Monetary Policy Actions

36. Since September 2016, the rate of inflation has remained above the upper band of the inflation target range, reflecting the effect of the water deficit observed in Q4-2016 and the climatic anomalies (extreme rainfall) that affected the prices of some perishable foodstuffs, whose effects on inflation are transitory. Moreover, inflation without food and energy has been declining (showing a year-to-year rate of 2.6 percent), favored by a stable foreign exchange rate and a somewhat weaker-than-expected economic cycle as a result of lower public investment and private investment.

The BCRP benchmark interest rate has remained at 4.25 percent since March 2016 (after the Board of BCRP adjusted it in December 2015, and in January and February of 2016). The Central Bank has reiterated that it oversees the inflation forecasts and inflation determinants to assess the convenience of adjusting its monetary policy rate.

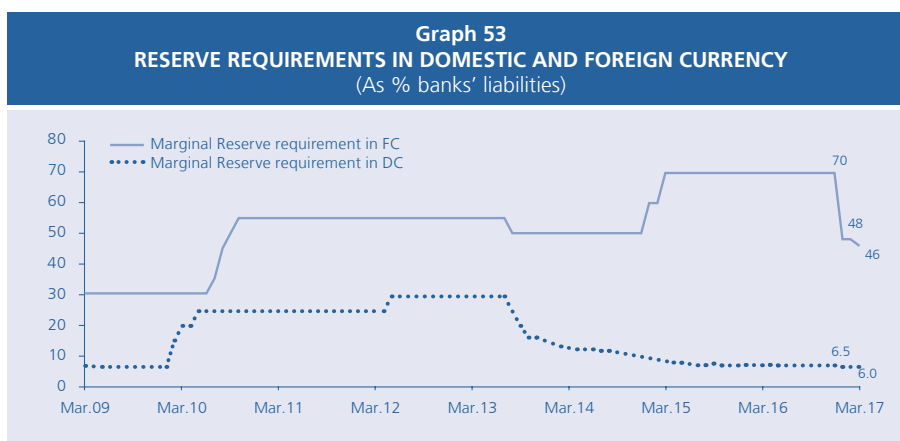


Between December and March, BCRP preventively lowered the rate of marginal reserve requirements in US dollars from 70 to 46 percent and the cap of the average rate of reserve requirement from 65 to 46 percent, seeking in this way to offset in part the effect that the anticipated increase in international interest rates could have on monetary conditions in dollars. In December, the BCRP also lowered the rate of





reserve requirements in soles from 6.5 to 6.0 percent, thus injecting liquidity for around S/ 300 million in a context of slower growth of credit to the private sector.



## Monetary Operations

37. Between December and February, the monetary operations of the Central Bank were oriented to maintaining appropriate levels of liquidity in domestic currency in a context characterized by a greater availability of funds associated mainly with maturing CDBCRP (S/ 6.13 billion) and CDRBCRP (S/ 1.51 billion), by the reduction of public sector deposits at the Central Bank (S/ 2.97 billion), and by the return of banknotes to the current account of banks (S/ 683 million). This injection of liquidity was in part offset by the maturity of security repos<sup>6</sup> (S/ 600 million), the maturity of credit expansion-currency repos (S/ 1.40 billion) and the maturity of Treasury funds auctioned (S/ 500 million).

In this context, the Central Bank mainly carried out sterilization operations, managing in this way to maintain the interbank interest rate around the Central Bank's benchmark level. As a result, banks' initial level of liquidity was higher than the level of liquidity after the monetary operations.

The balance of BCRP-CDs moved from representing 9.9 percent of the BCRP net assets to representing 12.6 percent of these assets, while the balance of repos declined from representing 12.9 percent to representing 11.7 percent. Public sector deposits remained as the most important liability of BCRP, even though the ratio of these deposits to the BCRP net assets decreased from 34.0 percent to 32.9 percent.

6 Considering repos placed before December 1, 2016 only.

**Table 28**  
**SIMPLIFIED BALANCE SHEET OF THE BCRP**  
 (As % of Net Assets)

	Dec.14	Dec.15	Dec.16	Feb.17
<b>I. Net assets</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Net International Reserves</b>	<b>94.9%</b>	<b>87.4%</b>	<b>88.1%</b>	<b>88.3%</b>
	(US\$ 62,307 mills.)	(US\$ 61,485 mills.)	(US\$ 61,364 mills.)	(US\$ 62,291 mills.)
<b>Repos</b>	<b>5.1%</b>	<b>12.6%</b>	<b>11.9%</b>	<b>11.7%</b>
<b>II. Net liabilities</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>1. Total public sector deposits</b>	<b>36.9%</b>	<b>32.7%</b>	<b>34.0%</b>	<b>32.9%</b>
In domestic currency	18.7%	13.0%	12.5%	11.6%
In foreign currency	18.2%	19.7%	21.4%	21.3%
<b>2. Total financial system deposits</b>	<b>27.0%</b>	<b>37.1%</b>	<b>33.2%</b>	<b>32.7%</b>
In domestic currency	7.7%	4.5%	4.1%	3.9%
In foreign currency	19.4%	32.6%	29.1%	28.8%
<b>3. BCRP instruments</b>	<b>9.8%</b>	<b>10.0%</b>	<b>11.9%</b>	<b>14.0%</b>
CD BCRP	8.0%	6.5%	10.7%	12.6%
CDR BCRP	1.3%	3.0%	0.6%	0.1%
Term deposits	0.0%	0.4%	0.2%	1.1%
Overnight deposits	0.5%	0.1%	0.3%	0.2%
<b>4. Currency</b>	<b>19.7%</b>	<b>15.7%</b>	<b>15.9%</b>	<b>16.1%</b>
<b>5. Others</b>	<b>6.5%</b>	<b>4.5%</b>	<b>5.0%</b>	<b>4.3%</b>

Moreover, BCRP also continued carrying out regular auctions of 6-month, 12-month, and 18-month BCRP-CDs three times a week with the aim of increasing the volume of trading of these certificates and providing more liquidity to its secondary market, which contributes to develop the short-term yield curve in soles. The yield curve of CDBCRP increased 11 basis points on average between December 2016 and February 2017.

**Table 29**  
**INTEREST RATE OF AUCTIONS OF CD BCRP**  
 (%)

	Term (months)				
	1	3	6	12	18
22 Feb.	4.28	4.38			4.78
23 Feb.	4.29	4.38		4.57	
24 Feb.	4.28	4.38			
27 Feb.	4.28	4.37	4.48		
28 Feb.		4.38	4.54		
1 Mar.					4.80
2 Mar.				4.62	
3 Mar.					
6 Mar.			4.45		
7 Mar.					
8 Mar.		4.37			4.79
9 Mar.	4.26	4.33		4.61	
10 Mar.		4.32			4.73
13 Mar.		4.31	4.44		4.75
14 Mar.			4.43	4.55	
15 Mar.			4.43	4.54	4.72
16 Mar.			4.43	4.54	
17 Mar.	4.26		4.43		
20 Mar.			4.43	4.56	
21 Mar.					
22 Mar.					4.71





## Interest Rates

38. Most of the interest rates on lending operations in domestic currency remained stable, showing slight increases compared to their levels in Q4- 2016.

On the other hand, the interest rates for operations in dollars increased less in the domestic market than the international interest rates, reflecting the effect of the reserve requirements measures adopted by BCRP. However, a greater increase was observed in interest rates in dollars (128 basis points) in the segment of consumer loans due to greater credit risk.

**Table 30**  
**INTEREST RATE IN DOMESTIC CURRENCY**  
(%)

		Sep.15	Dec.15	Sep.16	Dec.16	Feb.17
<b>Passive</b>	Deposits up to 30-day	4.12	4.01	4.03	4.29	4.27
	On 31 to 180-day term deposits	4.41	4.67	4.98	4.77	4.81
	On 181 to 360-day term deposits	4.41	4.74	5.20	5.04	5.01
<b>Active</b>	Corporate	5.87	6.18	6.07	5.88	6.04
	Large companies	7.16	7.12	7.23	7.12	7.39
	Medium-sized enterprises	10.19	10.23	10.74	10.39	10.54
	Small businesses	20.36	20.45	21.59	21.65	21.60
	Consumer	42.4	44.03	44.01	46.77	44.84
	Mortgage	8.59	8.95	8.82	8.52	8.71

Source: SBS and BCRP.

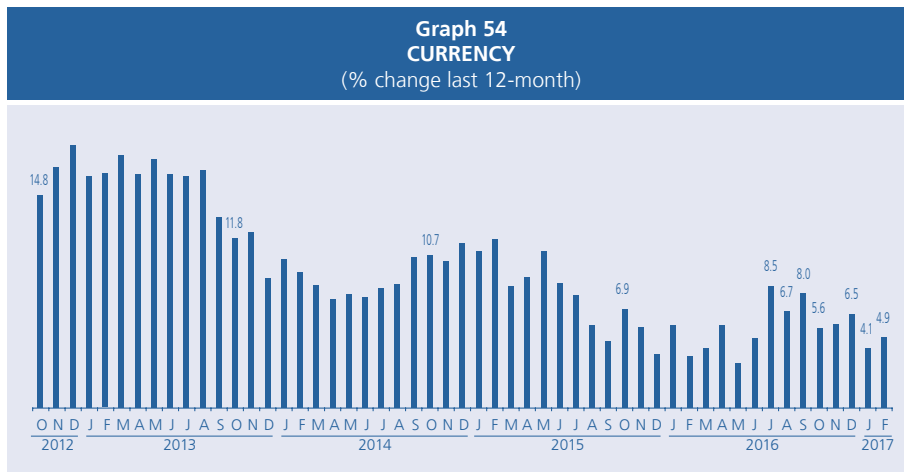
**Table 31**  
**INTEREST RATE IN FOREIGN CURRENCY**  
(%)

		Sep.15	Dec.15	Sep.16	Dec.16	Feb.17
<b>Passive</b>	Deposits up to 30-day	0.15	0.23	0.28	0.29	0.49
	On 31 to 180-day term deposits	0.31	0.45	0.56	0.55	0.60
	On 181 to 360-day term deposits	0.60	0.57	0.55	0.55	0.65
<b>Active</b>	Corporate	1.94	2.33	3.00	2.47	2.30
	Large companies	5.55	5.54	5.18	5.02	5.16
	Medium-sized enterprises	8.48	8.06	7.37	6.91	7.21
	Small businesses	12.82	11.26	10.00	10.67	10.85
	Consumer	32.4	32.07	32.38	32.08	33.36
	Mortgage	6.81	6.71	6.46	6.14	6.33

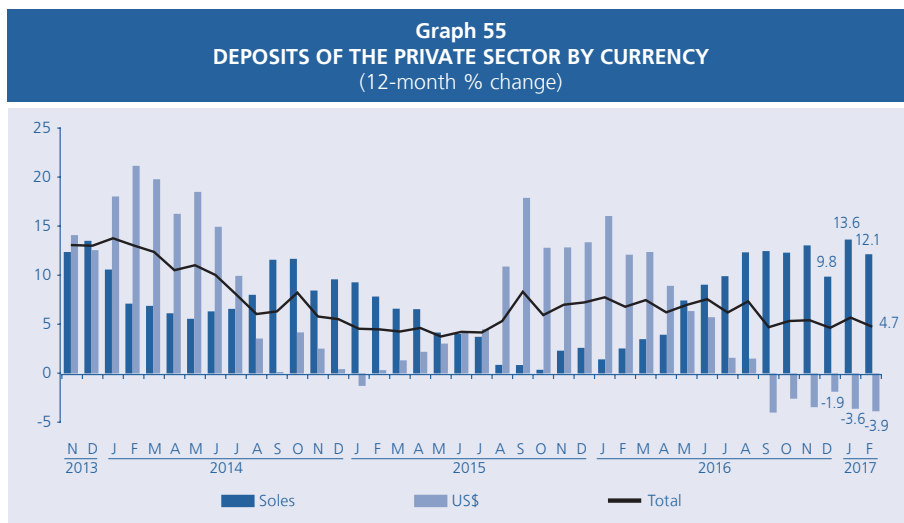
Source: SBS and BCRP.

**Liquidity**

39. Currency in circulation showed a year-on-year growth rate of 4.9 percent in February –a higher rate than in January (4.1 percent)–, in line with the economic slowdown observed during the month.



The year-on-year growth rate of private sector deposits increased from 4.6 percent in December to 4.7 percent in February. By currencies, the growth of deposits in soles recovered, their growth rate rising from 9.8 percent in December to 12.1 percent in February, while the growth rate of deposits in dollars dropped from -1.9 to -3.9 percent in the same period. This result was consistent with a greater preference for saving in domestic currency in a context of lower expectations of depreciation of this currency, which makes saving in soles more attractive.





**Table 32**  
**MONETARY AND CREDIT ACCOUNTS OF THE DEPOSITORY CORPORATIONS**  
(12-month % change - End of period)

	Dec.15	Mar.16	Jun.16	Sep.16	Dec.16	Jan.17	Feb.17
Currency in circulation	3.8	4.1	4.9	8.0	6.5	4.1	4.9
Deposits in domestic currency	2.6	3.5	9.0	12.4	9.8	13.6	12.1
Total deposits <sup>1/</sup>	7.2	7.4	7.5	4.6	4.6	5.6	4.7
Broad money in domestic currency	3.0	4.1	8.4	11.1	9.0	10.9	10.1
Total broad money <sup>1/</sup>	6.5	7.1	7.5	5.1	5.0	5.2	4.6
Credit to the private sector in domestic currency	28.0	23.1	17.0	9.5	7.2	6.5	6.2
Credit to the private sector <sup>1/</sup>	8.0	7.7	7.1	5.0	5.6	5.5	5.9

<sup>1/</sup> Balances in foreign currency are valuated at constant exchange rate on December 2016.

As a result of this, the ratio of dollarization of deposits declined from 49.1 percent in December to 49.0 percent in February. By type of deposits, dollarization has decreased in personal deposits (mainly in demand deposits and term deposits). Furthermore, the ratio of dollarization of corporate deposits declined between September and February, especially in the case of term deposits.

**Table 33**  
**DOLLARIZATION RATIO OF DEPOSITS**  
(%)

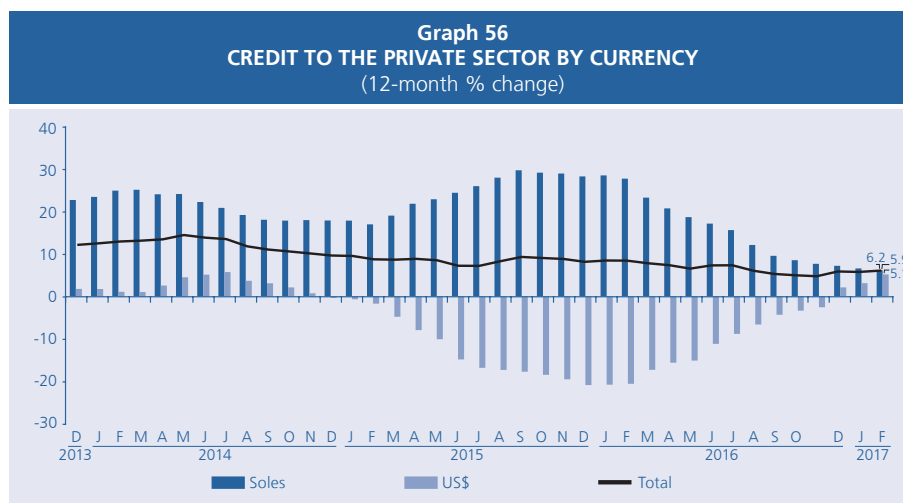
	Dec.14	Dec.15	Sep.16	Dec.16	Jan.17	Feb.17
<b>Business</b>	<b>50.7</b>	<b>55.5</b>	<b>56.1</b>	<b>54.3</b>	<b>52.4</b>	<b>53.2</b>
Demand deposits	47.1	50.6	53.5	52.2	53.1	50.4
Savings deposits	63.6	68.9	61.0	57.6	61.8	63.0
Term deposits	61.8	71.7	64.6	62.7	47.3	61.9
<b>Individuals</b>	<b>33.7</b>	<b>40.3</b>	<b>37.6</b>	<b>36.3</b>	<b>36.3</b>	<b>36.0</b>
Demand deposits	48.0	50.6	53.5	52.2	53.1	50.4
Savings deposits	35.2	40.7	41.4	40.0	40.0	40.2
Term deposits	30.8	38.5	31.9	30.7	30.6	30.1
CTS	33.9	33.6	32.4	30.1	29.8	29.8
Other terms	29.5	40.3	31.7	31.0	30.9	30.2
<b>Pension funds</b>	<b>62.0</b>	<b>68.3</b>	<b>58.9</b>	<b>56.9</b>	<b>57.6</b>	<b>57.4</b>
<b>Mutual funds</b>	<b>60.5</b>	<b>67.4</b>	<b>62.5</b>	<b>63.4</b>	<b>63.2</b>	<b>64.1</b>
<b>TOTAL</b>	<b>49.2</b>	<b>54.9</b>	<b>50.8</b>	<b>49.1</b>	<b>49.0</b>	<b>49.0</b>

The process of de-dollarization of liquidity is expected to show a faster pace in 2017-2018 since lower expectations of depreciation of the sol, together with higher interest rates in soles than in dollars, would make saving in domestic currency

more appealing. In line with this, deposits in domestic currency are foreseen to show a greater dynamism with rates of over 10.0 percent in the next two years.

## Credit

40. Credit to the private sector grew 5.9 percent in annual terms in February, showing a slightly higher growth rate than that recorded at end-2016 (5.6 percent) and higher than that recorded in October (4.7 percent). This evolution of credit is associated with the more moderate growth of domestic demand and private investment, which has reflected in the lower growth of credit to the corporate sector and to large enterprises and, to a lesser extent, in the growth of personal loans.



Credit in domestic currency continued growing, but showing lower rates and recording a year-to-year growth rate of 6.2 percent in February (17.0 percent in June 2016), while credit in foreign currency showed a recovery recording positive growth rates for two consecutive months (from -11.1 percent in June to 5.1 percent in February) due to a recovery of credit to the corporate sector in dollars. At year-end, total credit to the private sector is expected to show growth rates around 5.5 percent, which is consistent with the anticipated evolution of economic activity.

Credit to business showed less dynamism than personal loans at the end of February. This slowdown was associated with a slower pace of growth of credit in the segment of middle-sized companies, which declined from 2.6 percent to 1.0 percent between December and February. On the other hand, the growth rate of credit in the segment of corporations and large enterprises recovered and rose from 4.7 percent to 6.0 percent in the same period. Like during 2016, personal loans have continued growing







at a moderate rate, the more dynamic segment being consumer loans, which grew at an annual rate of 8.0 percent in February (8.7 percent in December), while mortgage loans grew 4.9 percent (4.9 percent in December).

**Table 34**  
**CREDIT TO THE PRIVATE SECTOR**  
(12-month % change)

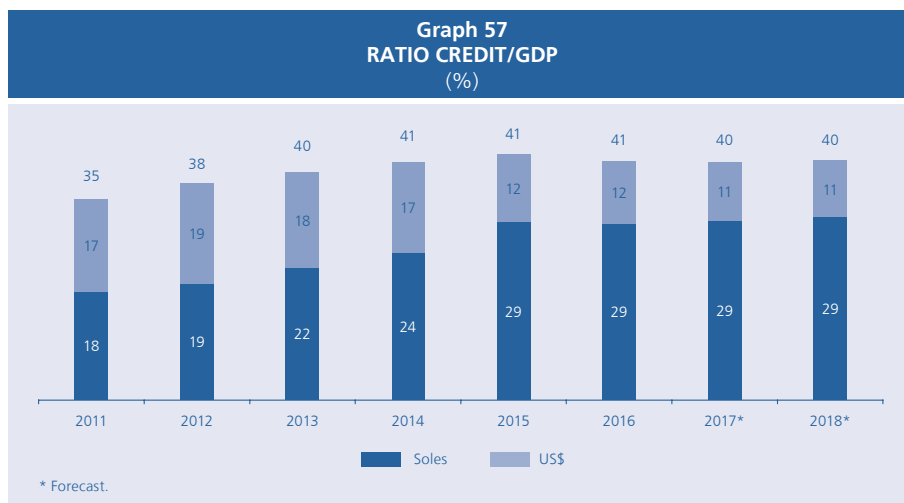
	Dec. 14	Dec. 15	Dec. 16	Jan. 17	Feb. 17
<b>Businesses</b>	<b>8.6</b>	<b>6.2</b>	<b>4.8</b>	<b>4.7</b>	<b>5.4</b>
Corporate and large companies	9.6	12.7	4.7	5.0	6.0
Medium-sized enterprises	13.1	-2.5	2.6	1.0	1.0
Small business and Microbusinesses	1.5	2.7	7.7	8.2	9.0
<b>Individuals</b>	<b>11.4</b>	<b>11.4</b>	<b>7.1</b>	<b>7.0</b>	<b>6.7</b>
Consumer	11.3	14.5	8.7	8.6	8.0
Car loans	5.8	-8.0	-7.4	-7.9	-8.0
Credit cards	14.9	23.7	8.2	7.9	2.9
Rest	9.9	11.6	10.2	10.4	12.3
Mortgage	11.6	7.3	4.9	4.8	4.9
<b>TOTAL</b>	<b>9.6</b>	<b>8.0</b>	<b>5.6</b>	<b>5.5</b>	<b>5.9</b>

The slowdown of depository entities' credit to the private sector is in line with the lower dynamism of domestic demand. The indicators of economic activity, domestic demand, and private investment show significant correlations with credit to the private sector that are close to 0.5. Moreover, statistical evidence suggests that credit to the private sector responds with a lag to changes in domestic demand, investment, and GDP.

**Table 35**  
**MAXIMUM DYNAMIC CORRELATION**

	Credit to the private sector	Loans to business	Loans to individuals
GDP	0.44	0.32	0.52
Domestic demand	0.50	0.52	0.47
Private investment	0.54	0.50	0.64

The growth rates of credit to the private sector and liquidity in the 2017-2018 forecast horizon are expected to evolve in line with the rate of growth of nominal GDP, with credit and deposits in domestic currency showing greater dynamism. In 2017, total credit would grow 5.5 percent, with credit in soles showing a growth rate of 6.9 percent and credit in dollars showing a growth rate of 2.2 percent, the latter being explained mainly by the evolution of credit for foreign trade operations. Moreover, because this growth of credit is supported by the recovery of growth in the primary sectors of the economy, it is foreseen that the ratio of credit to GDP will remain at 40 percent during 2017.



### Advances in the De-dollarization of Credit

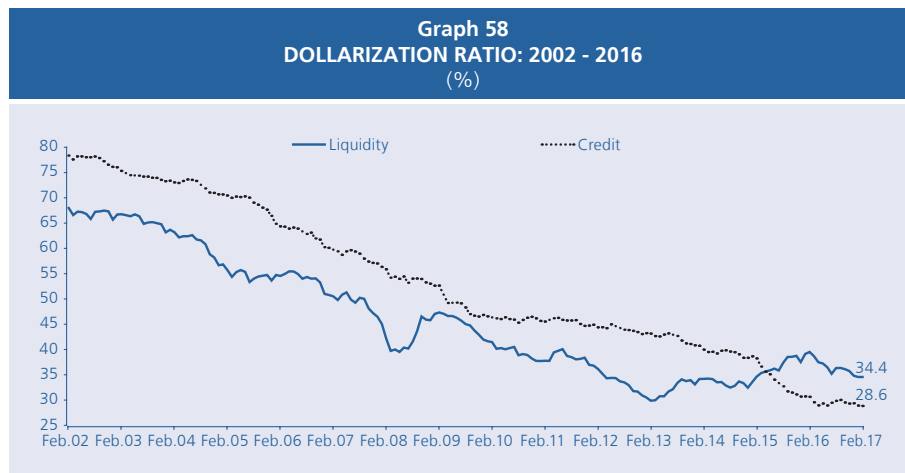
41. At end 2014, BCRP established the Credit De-dollarization Program with the aim of reducing economic agents' risks associated with the high levels of dollarization of credit in the country. The program establishes additional reserve requirements in foreign currency with the aim of increasing the cost of funding in this currency. Particularly, the program sought to reduce banks' balances of loans in dollars: (i) in the case of total loans, banks were required to show in December 2015 a balance of loans in dollars equal to 90 percent of such balance at September 2013, while the requirement for end-2016 was 80 percent of the balance of September 2013. (This requirement applies for end-2017 as well); and (ii) in the case of car loans and mortgage loans, banks were required to show in December 2015 a balance equal to 85 percent of the balance of these loans in February 2013, while the required balance at the end of 2016 was 70 percent of the balance recorded in February 2013. The balance required for the end of 2017 has been adjusted to 60 percent.

As a result of these measures and of the depreciation registered until early 2016, the balance of credit in dollars declined and these loans were replaced by loans in soles. The balance of total loans fell from a balance of US\$ 23.90 billion in December 2014 to US\$ 16.69 billion in January 2017 (a contraction of US\$ 7.21 billion). Such balance is equivalent to 70.2 percent of the credit balance that banks had in September 2013 (which reflects that the requirements set for both December 2015 and 2016 have been met). It should be pointed out that since banks have already met the de-dollarization requirement set for end-2016 and that given the lower pace of depreciation of the sol registered since March, the total balance of total loans in dollars has been maintained around 70 percent of such balance in September 2013, while the balance of car loans and mortgage loans in foreign currency has declined to 57.8 percent of the balance recorded in February 2013 given that the new required balance set for end-2017 is 60 percent of the balance of these loans in February 2013.





The ratio of dollarization of credit has decreased from 38.2 percent in December 2014 to 28.6 percent in February 2017. Furthermore, the dollarization of credit is expected to continue declining in the following years, with greater intensity in the case of car loans and mortgage loans given that the credit levels that trigger additional reserve requirements will continue decreasing until the amount of these loans in dollars reaches 5 percent of banks' net worth.



By type of credit, lower ratios of dollarization are now observed in all the segments of credit. In mortgage loans, the ratio of dollarization declined from 33.9 in December 2014 to 21.4 percent in February 2017, while this ratio in car loans declined from 68.9 to 24.8 percent (more than 40 percentage points) in the same period. As for business loans, the dollarization ratio of loans to corporate enterprises and large companies dropped by 27.6 percentage points since December 2014, and the ratio of dollarization of loans to medium-sized companies declined by 27.1 percentage points in the same period.

**Table 36**  
**DOLLARIZATION RATIO OF CREDIT TO THE PRIVATE SECTOR**  
(%)

	Dec.14	Dec.15	Dec.16	Jan.17	Feb.17
<b>Business</b>	<b>48.4</b>	<b>38.7</b>	<b>38.3</b>	<b>37.9</b>	<b>37.9</b>
Corporate and large companies	59.8	46.5	49.3	48.7	49.0
Medium-sized enterprises	59.3	47.6	42.9	42.3	42.2
Small business and Microbusiness	11.5	8.8	7.0	6.8	6.6
<b>Individuals</b>	<b>20.0</b>	<b>15.9</b>	<b>13.3</b>	<b>12.9</b>	<b>12.7</b>
Consumer	9.5	7.9	6.9	6.7	6.7
Car loans	68.9	44.6	26.8	25.8	24.8
Credit cards	6.6	6.4	6.4	6.4	6.7
Rest	5.9	6.0	5.9	5.7	5.5
Mortgage	33.9	26.8	22.4	21.8	21.4
<b>TOTAL</b>	<b>38.2</b>	<b>30.5</b>	<b>29.2</b>	<b>28.7</b>	<b>28.6</b>
<i>At constant exchange rate</i>	<i>41.1</i>	<i>30.2</i>	<i>29.2</i>	<i>29.2</i>	<i>29.2</i>

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

### Non-Performing Loans

42. In February, the ratio of non-performing loans was 3.31 percent, a slight rising trend being observed in comparison with December 2016 (3.09 percent). The delinquency rate in credit to business was 5.29 percent –higher than in December (5.16 percent) and in December 2015 (5.04 percent)– while the delinquency rate in personal loans was 3.19 percent –also higher than in September and December 2016 (3.05 percent in both months). The increase observed in the last two months in the rate of delinquency rates in loans to medium-sized companies (up by 72 basis points) and credit cards (up by 40 basis points) is noteworthy.

**Table 37**  
**CREDITS DELINQUENCY INDEX**

	%				
	Dec.14	Dec.15	Dec.16	Jan.17	Feb.17
<b>Business</b>	<b>3.14</b>	<b>4.65</b>	<b>5.04</b>	<b>5.24</b>	<b>5.29</b>
Corporate and large companies	0.37	0.47	0.41	0.48	0.47
Medium-sized enterprises	4.79	5.28	6.10	6.76	6.82
Small business and microbusinesses	7.82	7.46	7.16	7.31	7.53
<b>Individuals</b>	<b>2.46</b>	<b>2.65</b>	<b>3.05</b>	<b>3.17</b>	<b>3.19</b>
Consumer	3.34	3.32	3.66	3.84	3.84
Credit cards	4.23	4.10	4.86	5.16	5.26
Car loans	4.25	4.41	5.60	5.75	5.71
Mortgage	1.44	1.84	2.28	2.33	2.39
<b>Average</b>	<b>2.91</b>	<b>2.87</b>	<b>3.09</b>	<b>3.26</b>	<b>3.31</b>

As for credit in dollars, higher rates of delinquency are observed in the segments with less capacity to generate income in this currency, such as the segments of credit to small and micro businesses and in personal loans. Thus, for example, the rate of delinquency in the latter increased from 4.08 in December to 4.17 percent in February 2017, due mainly to non-performing loans in the segments of car loans which increased by 35 basis points. This higher delinquency rate in the segment of personal loans is explained by the increased foreign exchange risk to which people are exposed in comparison with the business segments, given that the latter have greater access to hedge instruments against foreign exchange risk.





**Table 38**  
**CREDITS DELINQUENCY INDEX : DOMESTIC CURRENCY**

	%				
	Dec.14	Dec.15	Dec.16	Jan.17	Feb.17
<b>Business</b>	<b>4.03</b>	<b>5.11</b>	<b>5.78</b>	<b>5.97</b>	<b>6.09</b>
Corporate and large companies	0.24	0.22	0.20	0.24	0.28
Medium-sized enterprises	5.63	5.04	6.07	6.69	6.80
Small business and microbusinesses	7.65	6.90	6.63	6.77	7.01
<b>Individuals</b>	<b>2.57</b>	<b>2.53</b>	<b>2.90</b>	<b>3.02</b>	<b>3.05</b>
Consumer	3.33	3.23	3.57	3.74	3.75
Credit cards	4.31	4.20	5.03	5.34	5.45
Car loans	4.61	1.91	2.58	2.76	2.90
Mortgage	1.33	1.46	1.87	1.93	2.00
<b>Average</b>	<b>3.40</b>	<b>2.87</b>	<b>3.18</b>	<b>3.34</b>	<b>3.43</b>

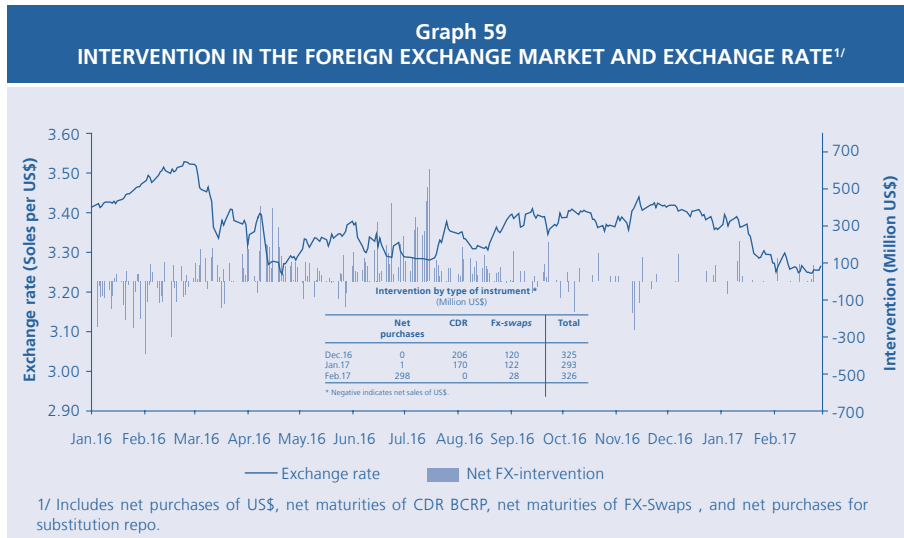
**Table 39**  
**CREDITS DELINQUENCY INDEX: FOREIGN CURRENCY**

	%				
	Dec.14	Dec.15	Dec.16	Jan.17	Feb.17
<b>Business</b>	<b>2.14</b>	<b>3.89</b>	<b>3.77</b>	<b>3.97</b>	<b>3.91</b>
Corporate and large companies	0.45	0.78	0.64	0.74	0.68
Medium-sized enterprises	4.22	5.55	6.15	6.87	6.85
Small business and microbusinesses	9.39	15.70	19.58	20.18	20.92
<b>Individuals</b>	<b>2.06</b>	<b>3.28</b>	<b>4.08</b>	<b>4.18</b>	<b>4.17</b>
Consumer	3.42	4.58	5.29	5.46	5.33
Credit cards	3.07	2.62	2.59	2.66	2.72
Car loans	4.09	7.52	13.86	14.34	14.21
Mortgage	1.64	2.88	3.70	3.79	3.81
<b>Average</b>	<b>2.13</b>	<b>2.87</b>	<b>2.84</b>	<b>3.06</b>	<b>3.00</b>

### Exchange Rate and BCRP Intervention in the Forex Market

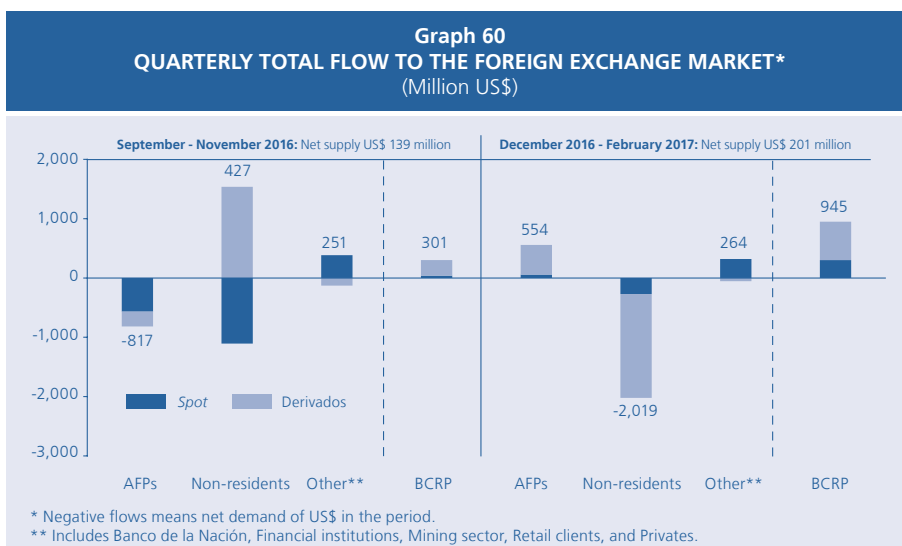
43. Between December 2016 and March 10, 2017, the PEN appreciated 2.0 percent against the dollar –the exchange rate moved from S/ 3.357 per dollar to S/ 3.291 per dollar–, influenced by the higher prices of commodities, particularly copper, and by the global depreciation of the dollar due to uncertainty about the new trade policies of the United States and signals pointing against an appreciation of the dollar.

In this context of appreciation of the PEN, BCRP registered a net maturity of US\$ 645 million in its forex instruments of intervention in the forex market (sell-FX Swaps and CDRBCRP) and bought dollars for a total of US\$ 299 million.



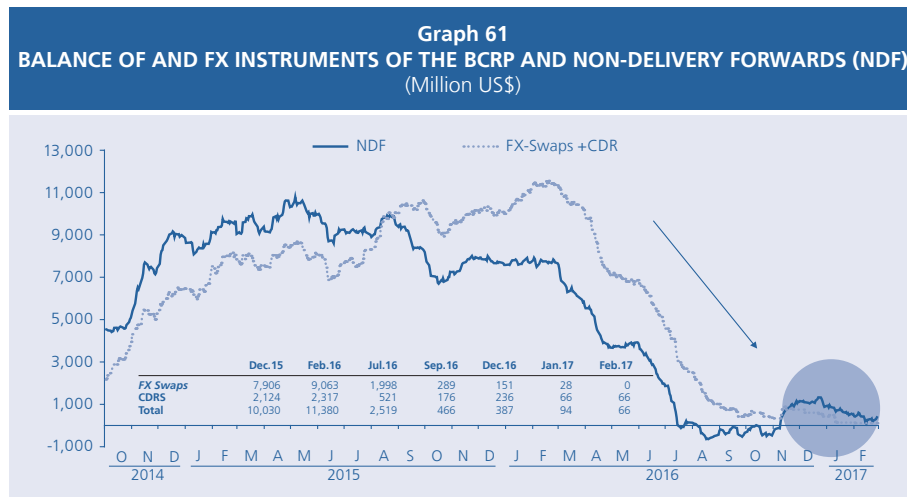
As for currency flows in the local foreign exchange market, the net supply of dollars between December 2016 and February 2017 was US\$ 1.20 billion (while between September and November 2016 the net supply of dollars amounted to US\$ 139 million), with the supply of non-resident investors accounting for US\$ 568 million, US\$ 336 million, and US\$ 298 million in the months of December, January, and February, respectively.

In the same period, the demand for dollars of the Central Bank amounted to US\$ 945 million. BCRP acquired dollars mainly through the net maturities of its foreign exchange instruments (US\$ 646 million) and through purchases of dollars in the spot market (US\$ 299 million).

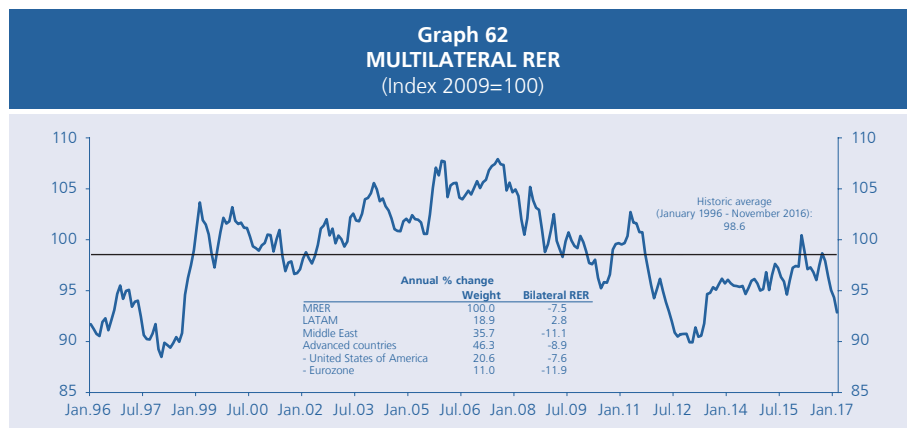




It is worth highlighting that the balances of BCRP foreign exchange instruments have remained at minimum levels. On March 10, sell-FX Swaps showed a zero balance while BCRP-CDs registered a balance of US\$ 66 million, in line with a lower future demand for dollars in the forward market.

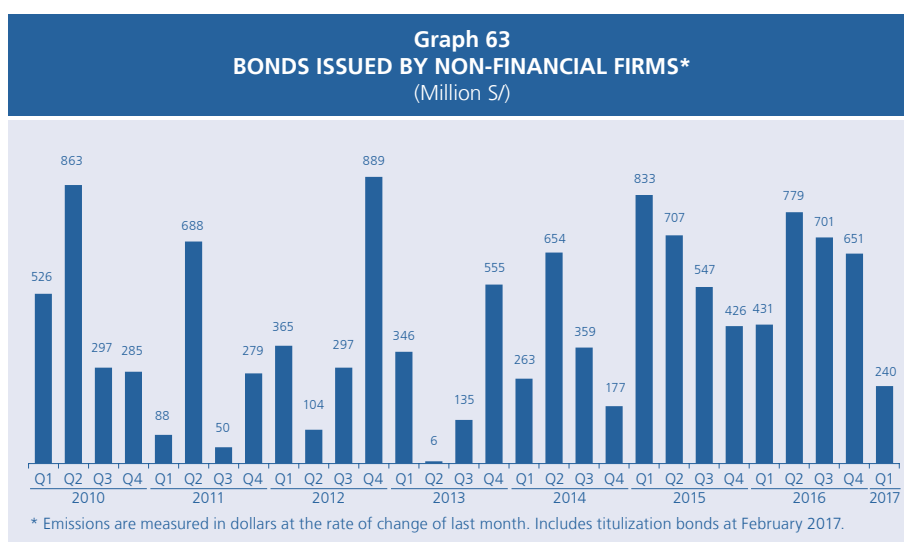


The multilateral real exchange rate index (RER) registered a level of 92.9 in February compared to the 2009 base period, which is a level 5.8 percent lower than the average level observed in the last 21 years and 7.5 percent than that recorded in February 2016. The decline of the RER index in the last 12 months is associated mainly with the drop of the real exchange rate relative to the currencies of East Asian countries (11.1 percent) and developed countries (8.9 percent), offset in part by the increase of the exchange rate relative to Latin American currencies (2.8 percent).



## Capital Market

44. In January and February 2017, the securities issued in the local capital market by non-financial companies amounted to S/ 240 million. The preference for indebtedness in soles continues this year (71 percent of total indebtedness). Furthermore, the demand for local debt continues to show high levels, the bid to cover ratio being 1.29 in soles and 1.73 in dollars.

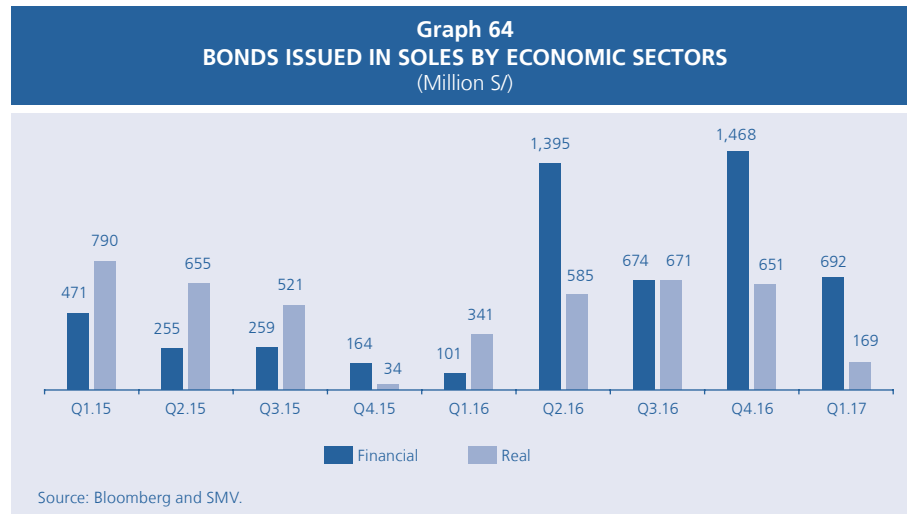


Financial entities obtained funding in the local capital market selling bonds for a total of S/ 721 million (86 percent in soles and 14 percent in dollars). The average maturity of the bonds issued by banks and financial entities was 9 years in soles and 8 years in dollars, which is explained by volatility in the foreign exchange market which tends to increase the cost of coverage for the payment of interest on coupons and capital in the derivatives market.

In 2016, placements of securities in soles issued by banks grew by 217 percent, which would be reflecting banks' preference for obtaining financing in the capital market. On the other hand, the placement of securities issued by companies of the real sector (both tradable and non-tradable) showed moderate growth levels (12 percent).







As for bond placements in the international market, Fondo MiVivienda was the first Peruvian entity that has issued securities in this market in the first quarter of 2017. The operation was carried out on February 7, 2017, and consisted of two issuances: i) an opening issuance of the bond maturing in 2023 for a total of US\$ 150 million, with a coupon rate of 3.50 percent, issued under the par, which was assigned a spread of 170 points on the benchmark US Treasury Bond, and (ii) a new bond issuance maturing in 2024 for a total of S/ 1.50 billion denominated as Global Depositary Notes (GDN). The demand for these bonds was high (the bid-to-cover ratio was 1.52), non-resident investors accounting for about 67 percent of the 7 percent coupon rate, and the spread on the US Treasury Bond was 143 basis points. It is worth pointing out that GDN are instruments with high demand by non-residents investors because these bonds allow them to get the payments of interests and principal in US dollars.

As of February 2017, the balance of bonds issued by Peruvian companies in the international market amounts to US\$ 19.64 billion. In the next two years, total maturities of the bonds issued in the international market amount to US\$ 1.33 billion, of which US\$ 1.03 billion corresponds to bonds issued by the financial sector and US\$ 300 million corresponds to bonds issued by the tradable sector.

The market of government bonds issued in the region showed a positive performance between December 2016 and February 2017. The interest rates on the sovereign

**Table 40**  
**BONDS ISSUED IN THE INTERNATIONAL MARKET**

Business	Emission date	Amount (Million US\$)	Maturity (Years)	Rate
<b>Year 2014</b>		<b>5,510</b>		
<b>Non-financial sector</b>		<b>3,306</b>		
Compañía Minera Ares	15 Jan.	350	7	7.75%
Minsur	31 Jan.	450	10	6.25%
Abengoa Transmisión Sur	8 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	1 Jul.	350	7	6.50%
InRetail Consumer	7 Oct.	300	7	5.25%
Unión Andina de Cementos	28 Oct.	625	7	5.88%
Energía Eólica	15 Dec.	204	20	6.00%
<b>Financial sector</b>		<b>2,204</b>		
<u>Private financial sector</u>		<u>1,025</u>		
Banco de Crédito	15 Jan.	200	13	6.13%
Interbank	11 Mar.	300	15	6.63%
Banco de Crédito	1 Jul.	225	4	2.75%
BBVA Banco Continental	15 Sep.	300	15	5.25%
<u>Public financial sector</u>		<u>1,179</u>		
Fondo Mivivienda	26 Mar.	300	5	3.38%
Fondo Mivivienda*	15 May.	279	4	1.25%
COFIDE	8 Jul.	300	5	3.25%
COFIDE	8 Jul.	300	15	5.25%
<b>Year 2015</b>		<b>4,510</b>		
<b>Non-financial sector</b>		<b>3,361</b>		
GyM Ferrovias***	3 Feb.	206	25	4.75%
Southern Copper Corporation	17 Apr.	500	10	3.88%
Southern Copper Corporation	17 Apr.	1,500	30	5.88%
Consortio Nuevo Metro de Lima	10 Jun.	1,155	19	5.88%
<b>Financial sector</b>		<b>1,149</b>		
<u>Private financial sector</u>		<u>349</u>		
Intercorp	3 Feb.	250	10	5.88%
Interbank**	3 Feb.	99	15	7.66%
<b>Public financial sector</b>		<b>800</b>		
COFIDE	7 Jul.	200	4	3.25%
COFIDE	7 Jul.	600	10	4.75%
<b>Year 2016</b>		<b>797</b>		
<b>Non-financial sector</b>		<b>497</b>		
Kallpa Generación	19 May.	350	10	4.88%
Camposol	20 May.	147	5	10.50%
<b>Financial sector</b>		<b>300</b>		
<u>Private financial sector</u>		<u>300</u>		
Banco de Crédito del Perú	20 Oct.	300	3	2.25%
<b>Year 2017</b>		<b>605</b>		
<u>Public financial sector</u>		<u>605</u>		
Fondo Mivivienda**	7 Feb.	455	6	7.00%
Fondo Mivivienda	7 Feb.	150	7	3.50%

\*Emission in Swiss Franc.

\*\* Emission in Soles.

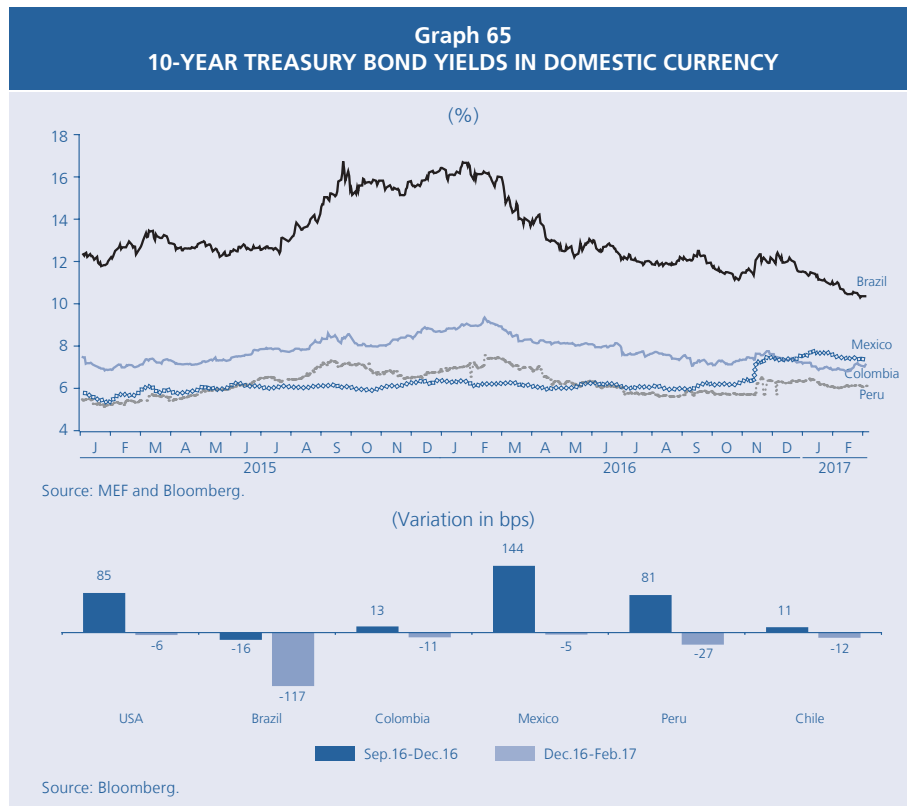
\*\*\* Emission in Soles VAC.

Source: Bloomberg and SMV.





bonds of Brazil, Chile, Colombia, Mexico, and Peru decreased by 30 basis points on average. The interest rate on the Peruvian bond fell 27 basis points. The higher value of Latin American government bonds reflects the recovery in commodity prices which has enhanced the perception of economic growth in the region and country risk indicators, as well as the favorable spread of interest rates in comparison with the spread of developed countries' bonds.



**Box 4**  
**STRUCTURAL DETERMINANTS OF THE EVOLUTION OF CREDIT  
 TO THE PRIVATE SECTOR**

The contribution of external factors to the evolution of credit –an issue of utmost importance for the design of monetary policy– is quantified in this box. In addition to this, it is worth pointing out that credit to the private sector has been showing lower growth rates in recent months than in previous years. For example, the pace of growth of banks' total credit has dropped from 9.9 percent in March 2016 to 5.5 percent in January this year. What explains this slowdown? In this box, we answer this question using a VAR model and doing a historical decomposition exercise that quantifies the contribution of structural factors to the evolution of credit.

The slowdown of credit has not been uniform in all the different economic sectors. As one can see in the table below, it has been more intense in sectors that have been showing lower levels of investment, such as the mining sector, for example, or in sectors in which economic activity has lost dynamism, such as construction and trade. On the other hand, however, in sectors such as transportation, education and health services, credit not only continues to show two-digit growth rates, but also registers a faster pace of growth.

**BANKS: TOTAL CREDIT BY ECONOMIC SECTORS**

	Annual growth rate (%)		
	Dec.14	Dec.15	Dec.16
<b>1. Companies</b>	<b>9.2</b>	<b>10.3</b>	<b>3.7</b>
1.1.Tradables	-5.5	12.3	-7.2
Agriculture and livestock	8.0	15.5	4.6
Fishing	-24.3	-4.7	1.0
Mining	-9.7	13.0	-17.5
1.2.Non-tradables	11.1	10.0	4.9
Manufacturing	10.9	3.9	3.6
Electricity, Gas, and Water	12.6	6.7	6.3
Construction	26.4	2.2	-1.7
Trade	8.6	11.2	3.4
Hotels and Restaurants	12.8	19.9	3.0
Transport, Storage, and Communications	8.6	4.2	10.1
Real Estate and Rents	15.8	10.5	10.3
Tuition	12.4	35.9	15.6
Social service and Health	10.8	8.3	11.7
<b>2. Mortgage loans</b>	<b>11.1</b>	<b>7.5</b>	<b>4.4</b>
<b>3. Consumer loans</b>	<b>11.1</b>	<b>16.3</b>	<b>7.4</b>
<b>TOTAL</b>	<b>9.8</b>	<b>10.8</b>	<b>4.4</b>

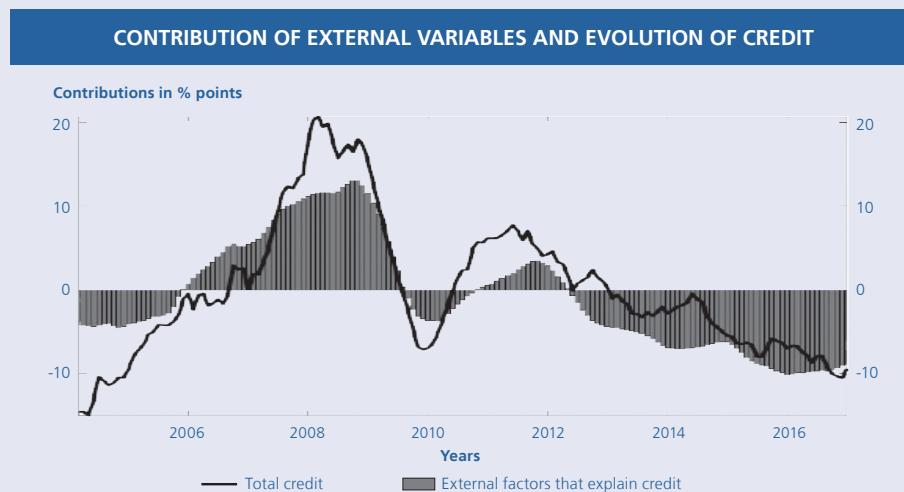
1/ Balance in foreign currency are valued to the constant exchange rate (December 2016).  
 Source: SBS.

Given that observed credit data is a variable reflecting both supply and demand factors, it is necessary to estimate these determinants to identify which factors explain the evolution of credit. With this





aim, we estimated a vector autoregressive (VAR) model and followed the empirical literature for the identification of structural shocks. Thus, we defined the annual growth of total credit as the main variable and, on the other hand, identified demand shocks through the growth of GDP; supply shocks through inflation, reserve requirements in soles and in dollars; monetary policy shocks through interest rates, and foreign exchange shocks. We also included a block of external variables, such as international interest rates as well as the prices of commodities and oil since these external variables capture both supply and demand factors, as well as the monetary policy of the United States. Finally, we interpreted the shock associated with credit as a financial shock. We carried out the identification of the model using the *Cholesky* decomposition matrix and data for the period of January 2004-December 2016.



Using the model estimated, we obtained the historical decomposition of total credit (solid black line), which is depicted in the graph above<sup>7</sup>. Given that the VAR model is a difference equation, the solution depends on the initial observation, which has a decreasing contribution. The contribution of external or exogenous variables is quite noticeable thereafter, both in the stages of credit expansion and credit contraction.

Taking into account the events caused by the international financial crisis, we can see two credit cycles during 2004-2016. The first cycle starts in 2006 following the cycle of the prices of metals and is reflected in a strong positive contribution of the external component. This first cycle lasts until 2008, when the international financial crisis unfolds. The second cycle, which begins at the end of 2010, is marked by the fact that the recovery in the pace of growth of credit to the private sector is supported by domestic sources, such as demand, monetary, and financial impulses. The external conditions become negative thereafter around 2013, coinciding with the US Federal Reserve announcement of the withdrawal of monetary stimulus (Tapering Tantrum).

<sup>7</sup> The rate of credit growth was demeaned in order to see the (positive and negative) sign of contributions.

Moreover, monetary shocks, which included policy actions in terms of both interest rates and reserve requirements, became more relevant after the Central Bank launched its de-dollarization program in 2014. On the other hand, demand shocks associated with the growth of GDP also played an important role. As we can see, they contributed significantly during the period 2013-14 and in the last year.

Then, the negative impact of external shocks was offset during 2014 by domestic monetary policy factors as well as by the exchange rate, after which it intensified in 2015-2016. This was reflected in a modest evolution of credit. After this, towards the end of 2016 we can see a reversal in the trend of external factors, which reflects that the evolution of credit will not continue to be negatively affected by external factors in the medium term.

In conclusion, this analysis shows that credit to the private sector in Peru is highly dependent on external factors, both because the economic cycle in the country is influenced by these factors and because credit conditions in dollars are determined by international interest rates. However, the analysis also shows that monetary policy has offset the effect of these external factors on domestic credit conditions, both through the interest rate and the active use of the rates of reserve requirements in soles and in dollars, and that this has prevented total credit from experiencing a sharp slowdown over the past five years. In this line, the BCRP recent reductions in the rate of reserve requirements in dollars are contributing to offset the impact of hikes in international interest rates, associated with the reversal of the Fed monetary stimulus, on domestic interest rates.

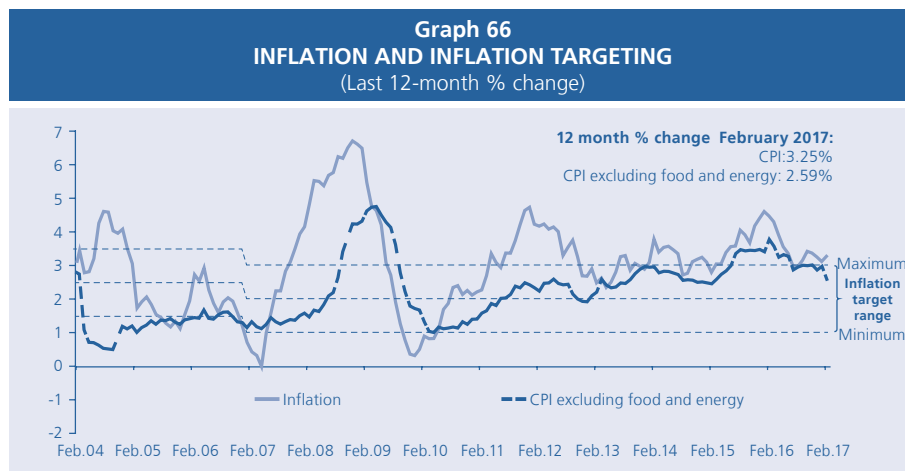




## VI. Inflation Forecast and Balance of Risks

### Inflation at February 2017

45. In February 2017, inflation recorded a year-on-year rate of 3.25 percent. The rate of inflation without food and energy fell from 3.02 percent in November 2016 to 2.59 percent in February this year, this fall being associated with the appreciation of the exchange rate whose annual variation went from 2 percent to -7 percent in the same period. On the other hand, food and energy inflation rose from 3.73 percent in November 2016 to 4.01 percent in February. This rise was associated with increases in the prices of perishable foodstuffs as a result of adverse weather conditions, as well as with a rebound in the price of gasoline, whose variation increased from -4.8 to 12.2 percent in the same period.



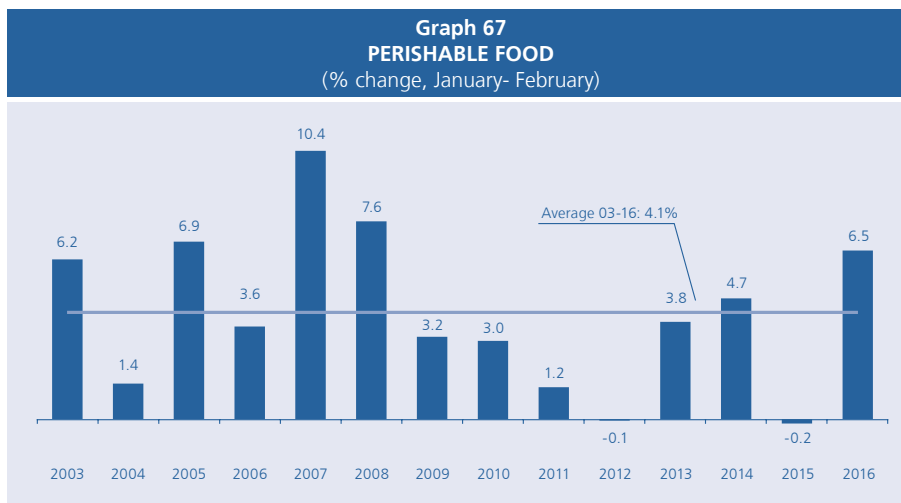
**Table 41**  
**INFLATION**  
(% change)

	Weight	2012	2013	2014	2015	2016	2017	
							Jan.-Feb.	12-month
<b>CPI</b>	<b>100.0</b>	<b>2.65</b>	<b>2.86</b>	<b>3.22</b>	<b>4.40</b>	<b>3.23</b>	<b>0.56</b>	<b>3.25</b>
<b>1. CPI excluding food and energy</b>	<b>56.4</b>	<b>1.91</b>	<b>2.97</b>	<b>2.51</b>	<b>3.49</b>	<b>2.87</b>	<b>0.18</b>	<b>2.59</b>
a. Goods	21.7	1.60	2.62	2.43	3.57	3.41	0.19	3.00
b. Services	34.8	2.10	3.18	2.55	3.44	2.54	0.18	2.34
<b>2. Food and energy</b>	<b>43.6</b>	<b>3.55</b>	<b>2.73</b>	<b>4.08</b>	<b>5.47</b>	<b>3.66</b>	<b>1.00</b>	<b>4.01</b>
a. Food and beverages	37.8	4.06	2.24	4.83	5.37	3.54	1.29	4.07
b. Fuel and electricity	5.7	0.22	6.09	-0.85	6.20	4.48	-0.99	3.63
Fuel	2.8	-1.48	5.95	-5.59	-6.33	0.61	1.71	6.51
Electricity	2.9	2.19	6.23	4.37	18.71	7.53	-2.97	1.51

Table 42 INFLATION (% contribution)									
	Weight	2011	2012	2013	2014	2015	2016	2017	
								Jan.-Feb.	12-month
<b>CPI</b>	<b>100.0</b>	<b>4.74</b>	<b>2.65</b>	<b>2.86</b>	<b>3.22</b>	<b>4.40</b>	<b>3.24</b>	<b>0.56</b>	<b>3.25</b>
<b>1. CPI excluding food and energy</b>	<b>56.4</b>	<b>1.36</b>	<b>1.05</b>	<b>1.62</b>	<b>1.37</b>	<b>1.89</b>	<b>1.54</b>	<b>0.10</b>	<b>1.39</b>
a. Good	21.7	0.51	0.34	0.54	0.50	0.73	0.69	0.04	0.61
b. Services	34.8	0.85	0.71	1.08	0.87	1.16	0.85	0.06	0.78
<b>2. Food and energy</b>	<b>43.6</b>	<b>3.38</b>	<b>1.60</b>	<b>1.24</b>	<b>1.86</b>	<b>2.51</b>	<b>1.69</b>	<b>0.46</b>	<b>1.86</b>
a. Food and beverages	37.8	3.03	1.59	0.89	1.91	2.15	1.43	0.52	1.65
b. Fuel and electricity	5.7	0.35	0.01	0.35	-0.05	0.36	0.26	-0.06	0.21
Fuel	2.8	0.23	-0.05	0.18	-0.18	-0.18	0.02	0.04	0.16
Electricity	2.9	0.12	0.06	0.17	0.12	0.54	0.25	-0.10	0.05,

Between January and February, the prices of perishable farming foodstuffs rose above their historical high rates due to the impact of adverse weather conditions on agriculture late last year and early this year. These conditions also generated problems for the marketing of these goods due to the damage they caused in roads.

Table 43 CPI AND PERISHABLE FOODS (Monthly average %)		12-month
<b>2002-2016</b>		
CPI		0.26
Perishable foods		2.09
<b>2016</b>		
CPI		0.27
Perishable foods		-0.08
<b>2017</b>		
CPI		0.28
Perishable foods		3.21







In the period of January-February, items in the food and energy categories affected inflation the most, both on the upside and on the downside. The items with the higher positive contribution to inflation included vegetables, fresh legumes, meals outside the home, papaya, and citrus fruits. On the other hand, the items with the higher negative contribution to inflation were potatoes, electricity rates, chicken meat, vehicles, and national transportation.

**Table 44**  
**ITEM WITH THE HIGHEST WEIGHTED CONTRIBUTION TO INFLATION: JANUARY - FEBRUARY 2017**

Positive	Weight	% Chg.	Contribution	Negative	Weight	% Chg.	Contribution
Other green vegetable	0.4	26.3	0.13	Potato	0.9	-12.5	-0.16
Fresh legumes	0.2	48.9	0.13	Electricity rates	2.9	-3.0	-0.10
Meals outside the home	11.7	0.9	0.12	Poultry meat	3.0	-3.2	-0.10
Papaya	0.2	48.9	0.08	Purchase of vehicles	1.6	-2.8	-0.05
Citrus fruits	0.5	10.7	0.07	National transportation	0.3	-12.1	-0.04
Water consumer	1.6	3.2	0.05	Avocado	0.1	-20.8	-0.04
Carrots	0.1	37.1	0.05	Airplane fare	0.4	-7.6	-0.03
Education costs (tuition and fees)	8.8	0.5	0.05	Eggs	0.6	-5.0	-0.03
Tomato	0.2	18.9	0.04	Grapes	0.1	-12.3	-0.02
Gasoline and lubricants	1.3	3.5	0.04	Fresh and frozen fish	0.7	-1.1	-0.01
<b>Total</b>			<b>0.76</b>	<b>Total</b>			<b>-0.58</b>

### Inflation Without Food and Energy

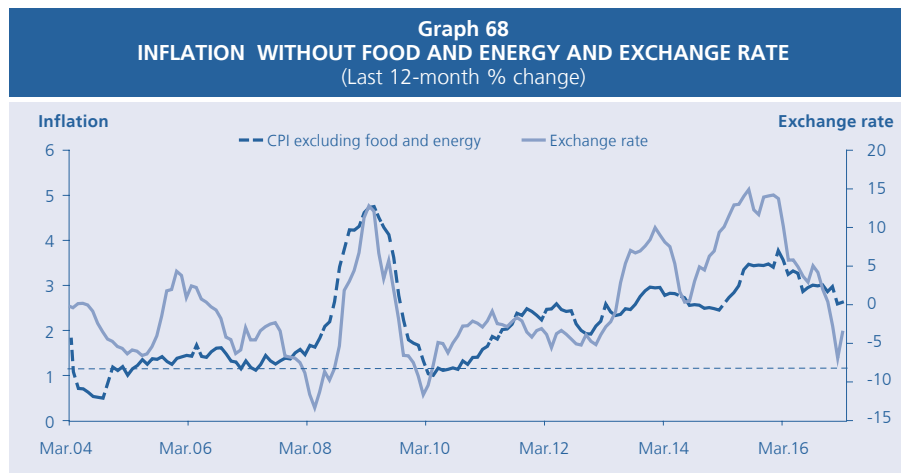
After reaching a year-on-year peak rate of 3.8 percent in February 2016, 12 month-inflation without food and energy has been showing rates close to the upper band of the target range since August. However, in February 2017 it slowed down, declining from 2.98 to 2.59 percent, its lowest level since March 2015. Items contributing to this result included vehicles, airfares, and particularly education costs (tuition and fees).

In February, education costs (tuition and fees) showed an increase of 0.3 percent (vs. 1.4 percent in February last year). This difference is explained by the fact that the variation recorded last year was due mostly to the increase of tuition in private universities –the component with the greater weight within this category– which rose 2.6 percent in February and 0.8 percent in March. This year, the increase in February has been 0.5 percent, so a greater increase is expected in March.

The evolution of the dollar-PEN exchange rate over the past few months has favored the slowdown of inflation without food and energy in recent months. Inflation has shown a more moderate pace of growth in some goods –e.g. inflation without food and energy component– and in some services –airfares and rents– as a result of the

2.4 percent appreciation of the sol during February. In January, goods recorded an increase of 0.14 percent, while in February, the rise was 0.05 percent.

In annual terms, the dollar-PEN exchange rate decreased by 7.0 percent between March 2016 and February 2017, contributing also to the reduction of trend inflation in the last 12 months.



### Water Rates

In the first two months of 2017, water rates increased 3.2 percent, in line with the regulations establishing that water rates should be updated whenever the cumulative change in the wholesale price index exceeds 3.0 percent (the last adjustment in water rates was carried out in May 2015). The adjustment this time was based on the cumulative increase of the wholesale price index in the period June 2015 - December 2016 (3.19 percent). In the last twelve months, this item registers a growth rate of 3.2 percent, a similar rate to the CPI (3.25 percent).

### Education Costs

Prices in the category “Education: tuition and fees” rose 0.5 percent as a result of increases in tuitions at the beginning of the new school year. Tuition in public schools increased 4.3 percent (vs. 11.8 percent in February 2016) while tuition in private schools increased 5.9 percent (vs. 7.4 percent in February 2016). Moreover, tuitions were also increased in private universities (1.7 percent) as well as in public universities (0.9 percent).

In the last twelve months this category has increased 4.1 percent –higher than the variation of the general price index (3.25 percent)– not only as a result of the increases registered at the beginning of the school year, but also as a result of





the adjustments of tuitions recorded in higher education institutes throughout the period.

### **Food and Energy Inflation**

#### **Other vegetables**

In January and February, this category of items, which increased 26.3 percent, was the one that contributed the most to inflation in this period. Strong price increases were observed in the prices of broccoli (115.2 percent), lettuce (54.9 percent), and leek (25.5 percent), all of which are produce that come mainly from the valleys of the Lima region. Increased temperatures affected both planting decisions as well as the supply and quality of these products.

In the past twelve 12 months this category recorded a growth rate of 22.1 percent. The sharpest price rises were observed in the summer months, which is when there is a greater seasonal demand as well as greater losses during marketing due to the warmer weather.

#### **Fresh Legumes**

In January-February, this category increased 48.9 percent, reflecting mainly the rise in the price of green peas, the main component of this item. The American variety of peas rose 59.7 percent and the Creole variety rose 58.0 percent. In the last twelve months, legumes increased 26.0 percent on average, the higher rises being observed in the months of December to February.

This produce comes mainly from Junín, where yields this year were lower than in the previous year due mostly to the lack of rain and to the occurrence of frost in November.

#### **Meals Outside the Home**

Prices in the category of “meals outside the home” continued to be among those with the highest contribution to inflation. Despite this, a more moderate pace of growth was observed in comparison with recent years, during which this category showed higher growth rates than food consumed in the household and even higher than the growth rate of the general price index.

In January-February, this category increased 0.9 percent, a lower rate than that recorded in the prices of food consumed in the household (1.5 percent). Moreover, the increase registered in the last twelve months was 3.9 percent,

a rate also lower than that registered in food consumed in the household (4.1 percent).

### **Papaya**

The price of papaya increased 48.9 percent in the first two months of the year and 23.1 percent in the last 12 months. The rise, which was associated with increased seasonal demand, was then supported by lower production in San Martín, one of the main regions that supplies Lima, as a result of the heavy rains that affected crops and transportation over the past few months.

### **Tomatoes**

The price of tomatoes increased 18.9 percent due mainly to smaller cultivation in the valleys of Lima –the main supplying region– and to lower yields as a result of warmer weather conditions. The supply fell in February in comparison to February 2016 (164 metric tons vs. 197 metric tons per day), even though the supply from the Lima region was similar to that recorded in January.

In the last twelve months the price of tomatoes rose 29.0 percent, the highest rise being observed in April 2016 (22.0 percent) due to supply problems resulting from lower cultivated areas and from the lower quality of crops due to warmer temperatures.

### **Potatoes**

The item “potatoes” showed a negative contribution to inflation in January-February, with a price fall of 12.5 percent (and an accumulated drop of 7.8 percent in the last twelve months). This result was influenced by a larger supply –up 11 percent compared to January-February 2016–, the increased participation of Huánuco being noteworthy given that crops in this region increased as a result of sporadic rains that favored preparing the land and sowing as from September following the drought that affected crops during most of the crop year. In addition, crop production was also favored in December by regular intense rainfall.

### **Chicken Meat**

Another category with a negative contribution to the CPI was chicken meat. Between January and February, the price of chicken fell 3.2 percent and accumulated a decrease of 2.4 percent in the past 12 months. This result was associated with the lower prices of the main substitute foodstuffs –fish, such as tuna and mackerel, have a high demand in lower-income sectors– as well as





with lower demand at the beginning of the year after the December holidays. However, this was in part offset by some supply constraints resulting from the lower weight of chickens –warmer weather conditions leads birds to eat less–, although these constraints were not as strong as those observed in the summer of 2016.

### Gasoline and Lubricants

The category **Gasoline and Lubricants** registered an increase of 3.5 percent in January-February and an increase of 12.3 percent in the last 12 months, reflecting the trend of ex-plant prices set by the local refineries, which vary according to the parity prices determined by Osinergmin.

The prices of gasohols have increased 3.3 percent on average in the first two months of the year following the 5.0 percent rise of gasohol import parity prices, although the increase also reflects retailers' higher marketing margins (9.2 percent) and the advanced adjustment of refinery net prices relative to the parity prices set by Osinergmin (32.9 percent).

**Table 45**  
**GASOHOL PRICES**  
(S/ per gallon)

	Dec.16	Feb.17	% Chg.
1. Import parity price of gasohols (US\$)*	1.71	1.80	5.0
2. Exchange rate	3.40	3.26	-4.0
3. Import parity price of gasohols (S/)(=1*2)	5.80	5.85	0.8
4. Price in advance	0.28	0.38	32.9
5. Refinery price (=3+4)	6.09	6.23	2.3
6. Taxes	3.08	3.15	2.1
7. Commercial margin	1.61	1.75	9.2
<b>8. Final price (=5+6+7)</b>	<b>10.78</b>	<b>11.13</b>	<b>3.3</b>

Source: INEI and OSINERGMIN.

\* Corresponds to international prices calculated by OSINERGMIN.

### Electricity Rates

In January-February, electricity rates decreased 3.0 percent, reflecting mainly the suspension of the portion of the rate charged for "Strengthening of energy security" (approved by Osinergmin on January 27), which was destined to financing the Gasoducto Sur Peruano and implied an approximate increase of 2.5 percent in the rates paid by consumers. Additionally, the prices of the contracts between energy generating companies and energy distribution companies were adjusted according to their quarterly update in February, and the update formulas used for the distribution component were also adjusted taking into account the decline registered in the dollar-PEN exchange rate. In the last twelve months, electricity rates have increased 1.5 percent.

**Table 46**  
**DETERMINANTS OF ELECTRIC TARIFF CHANGE**

Item	2016	Jan.-Feb.2017
Infrastructure	3.7	-2.5
Transmission line	-0.5	0.0
RER *	-0.4	0.0
Cold reserve	0.2	0.0
Gasoducto Sur Peruano	1.8	-2.5
- Nodo Energético del Sur (CT Puerto Bravo)	1.4	0.0
- Nodo Energético del Sur (CT Ilo)	1.2	0.0
Exchange rate	0.3	-1.1
IPM	0.2	0.0
Others**	3.3	0.6
<b>TOTAL</b>	<b>7.5</b>	<b>-3.0</b>

\* RER: Renewable energy resources.  
\*\* Includes other unit charges in the main and secondary transmission system; The unitary charges by the FISE (mechanism of social inclusion of the State destined to expand the energy frontier in the vulnerable segments of the population); Generation and distribution charges in medium and low voltage, etc.

### Forecast for 2017-2018

46. BCRP monetary policy actions are taken anticipating the most likely scenarios on the basis of inflation forecasts and projections of inflation determinants elaborated based on the information available at the time of decision making. Indicators standing out as key indicators for monetary policy actions include inflation expectations, imported inflation (including the effect of the foreign exchange rate), and demand inflationary pressures, all of which are quantified through the concept of the output gap (the difference between GDP and its potential level).

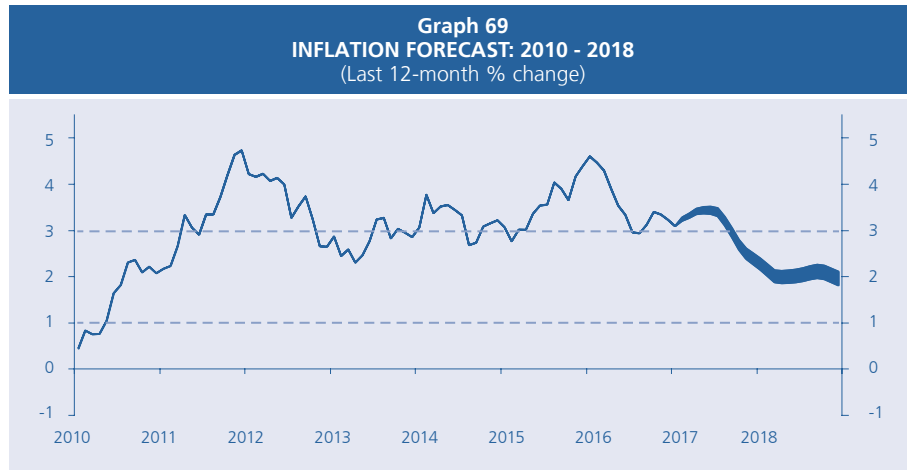
**Inflation** is forecast to converge towards 2 percent in the 2017-2018 forecast horizon, showing a path that would be around the upper band of the target range during the first half of 2017, but converging thereafter towards the target at a faster pace than estimated in the Inflation Report of December 2016. This forecast takes into account the higher prices of food products as a result of the water deficit in the last months of 2016 as well as the impact of the adverse climatic events (severe rainfall) observed during the first quarter of 2017.

On the other hand, inflation without food and energy has been showing a faster-than-expected decline with a rate of 2.6 percent in February and is expected to show rates around 2.4 percent at the end of 2017 and around 2.0 percent in 2018. This faster reduction is favored by two factors: (i) a stable dollar-PEN exchange rate, which fell 2.0 percent in the first two months of the year and which should show no significant increase in the rest of the year, in accordance with the favorable evolution anticipated in the terms of trade and in the trade balance, and (ii) a somewhat more negative output gap, which is expected to recover this year, although at a more gradual pace due to the postponement of infrastructure investment projects and the damage generated by El Niño on infrastructure. The lower rates of inflation forecast





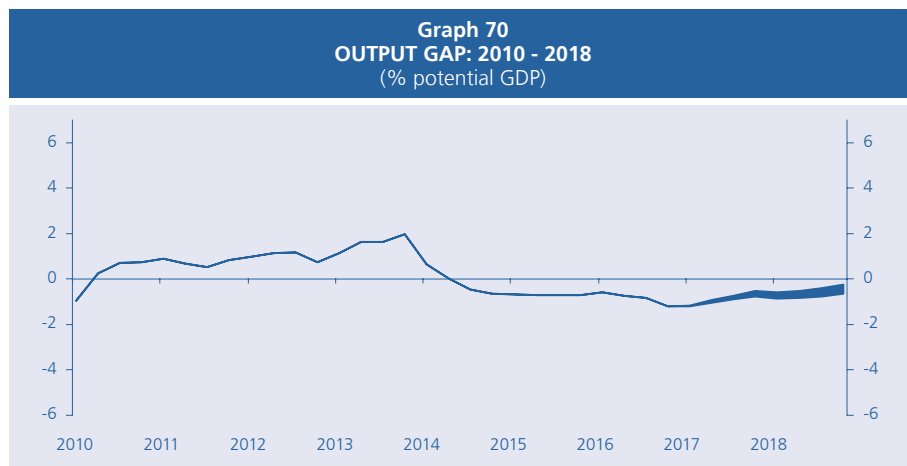
as from the second half of the year are consistent with a sustained decline of inflation expectations during the forecast horizon, with the reversal of supply shocks on prices, and with economic growth without inflationary pressures on the side of demand.



47. The **determinants of the inflation forecast** are discussed below:

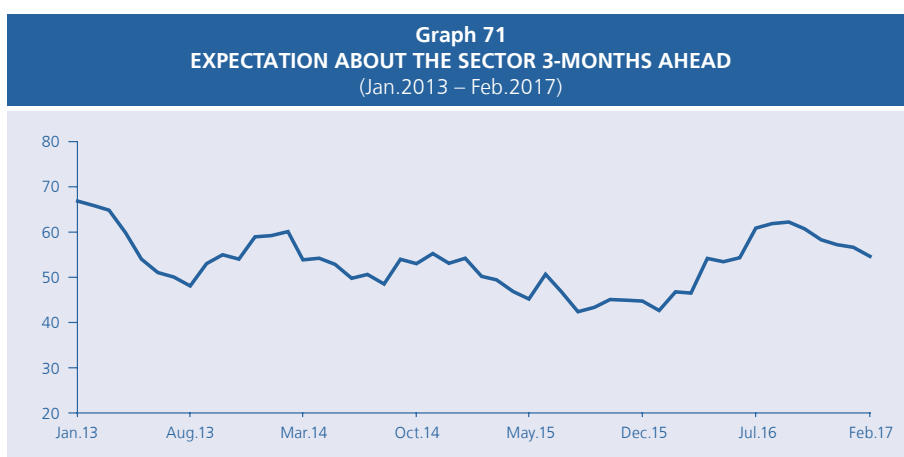
- a) The economic slowdown in recent months has led to a somewhat more negative output gap in the first quarter of the year than that estimated in the Inflation Report of December due to the postponement of infrastructure projects and lower public spending.

In 2017 the economy is estimated to recover, showing similar growth rates to those of potential GDP and to show rates above the potential output in 2018, in line with a recovery of the **output gap** toward its neutral level. This recovery of the output gap considers a greater fiscal stimulus, especially in the second half in 2017, as well as the effect of higher terms of trade. Moreover, still expansionary monetary conditions in domestic currency are also expected.

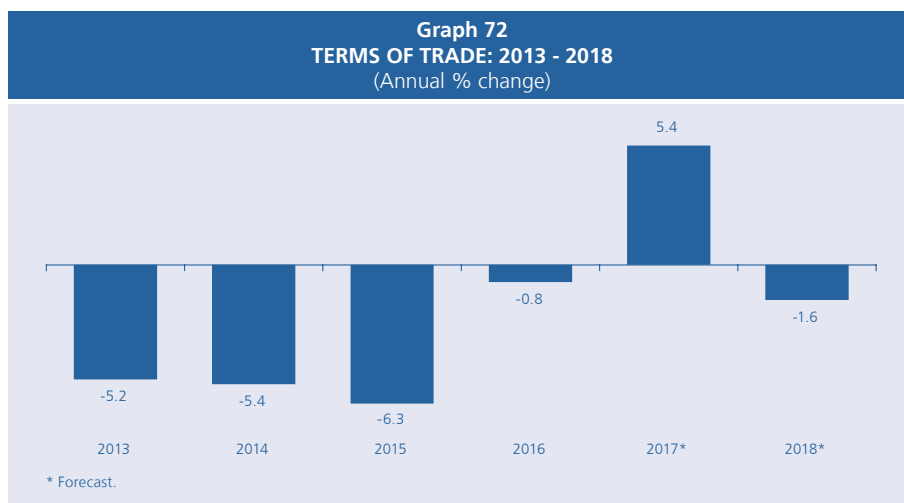


Based on the information available to date, it is estimated that the economy will head towards a neutral economic cycle in the forecast horizon. The main determinants of the forecast of the **output gap** include the following:

- **Business confidence:** Business confidence is expected to remain within the optimistic side in 2017, although showing more moderate levels than those observed in the previous report. This would reflect the recent evolution of the domestic economy, the legal problems of companies in the construction sector (the “Odebrecht effect”), and the impact of El Niño on capital stock.



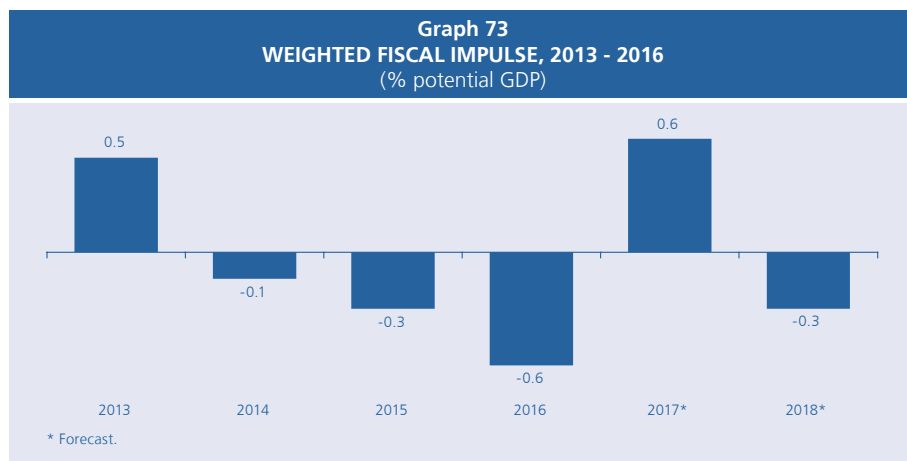
- **External conditions:** More favorable external conditions than those considered in the Inflation Report of December are foreseen. Peru’s terms of trade in the forecast horizon are expected to be higher than estimated in the Inflation Report of December, which would have a positive impact on private investment and consumption.



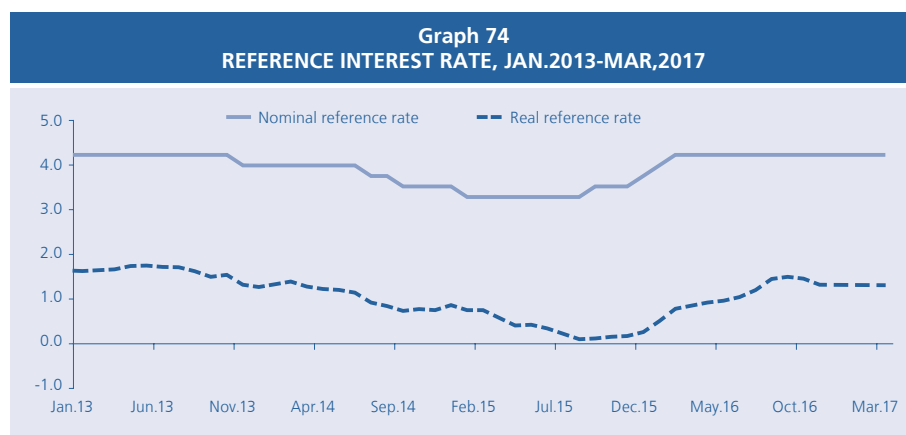




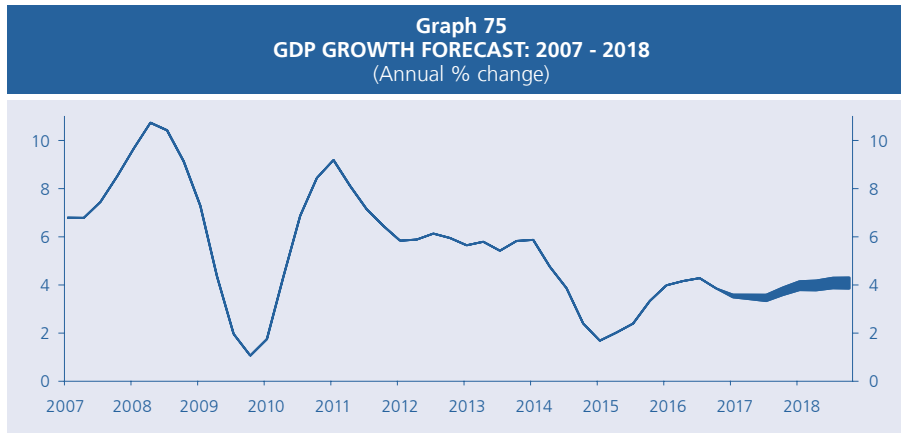
- **Fiscal impulse:** The weighed fiscal impulse estimated for 2017 would be positive and higher than estimated in the Inflation Report of December, in line with the increased public expenditure generated by the reconstruction actions required due to the damages caused by the recent climatic events. A slightly negative fiscal impulse is expected for 2018. This greater fiscal impulse is expected to have a positive effect on the output gap in the second half of this year.



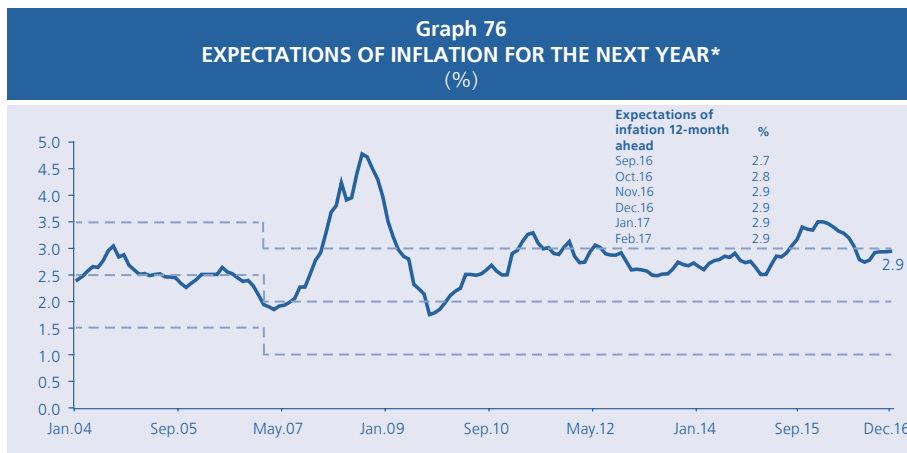
- **Monetary conditions:** Monetary conditions in soles continue to be one of the factors that contribute to the recovery of the output gap. On the other hand, conditions in dollars are expected to be similar to those foreseen in our previous report. Although higher Fed interest rates are anticipated, the effects of these higher rates would be in part offset by the reductions of reserve requirements in dollars carried out by BCRP and by more moderate expectations of depreciation.



It is worth highlighting that the growth forecast for the 2017-2018 forecast horizon is consistent with a growth rate of the potential output of around 3.8 percent, a lower rate than that estimated previously (4 percent) due to lower investment.



- b) **Expectations of inflation in 12 months** are foreseen to remain within the inflation target range during this year, close to the upper band of the target range in the first half of the year, and to show a faster declining trend from the second half of the year following the reversal of the supply shocks that have been affecting inflation during the first quarter.



**Table 47**  
**SURVEY ON MACROECONOMIC EXPECTATIONS: INFLATION**  
(% change)

		Expectation about:		
		IR Sep.16	IR Dec.16	IR Mar.17*
<b>Financial entities</b>	2017	2.6	2.8	2.9
	2018	2.5	2.5	2.7
<b>Economic analysts</b>	2017	2.8	3.0	3.0
	2018	2.6	2.8	2.9
<b>Non-financial firms</b>	2017	3.0	3.0	3.0
	2018	3.0	3.0	3.0

\*Survey conducted during February 27, 2017.





- c) **Imported inflation** reflects the evolution of import prices and the evolution of the exchange rate. At end-2017, imported inflation is estimated to be lower than projected in the Inflation Report of December due mainly to market expectations of a lower exchange rate in nominal terms.

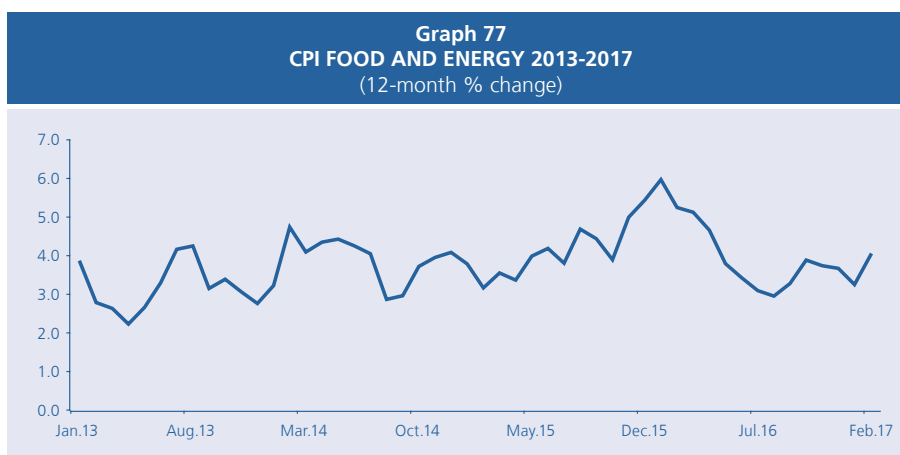
The latest survey on expectations regarding the dollar-PEN exchange rate shows that economic agents expect lower levels during the forecast horizon. As a result of the improvement observed in the trade balance, the increase in the prices of metals, and the announcements of tax facilities for the repatriation of capital, the depreciation of the exchange rate is expected to be lower, although this effect has been offset in part by the rise in the rate of the Fed in March.

**Table 47**  
**SURVEY ON MACROECONOMIC EXPECTATIONS: EXCHANGE RATE**  
(S/ per US\$)

		Expectation about:		
		IR Sep.16	IR Dec.16	IR Mar.17*
<b>Financial system</b>	2017	3.48	3.50	3.41
	2018	3.53	3.60	3.45
<b>Economic analysts</b>	2017	3.45	3.50	3.37
	2018	3.53	3.50	3.40
<b>Non-financial firms</b>	2017	3.50	3.50	3.40
	2018	3.50	3.55	3.50

\*Survey conducted during February 27, 2017.

- d) Among the main **supply shocks** that have affected inflation, the effects of climatic alterations and the problems in the access roads to the city of Lima stand out. As a result of these factors, food and energy inflation in 2017 is projected to register a rate of 2.3 percent. Moreover, at end 2018 food and energy prices would show a rate of 1.8 percent due to the reversal of these supply shocks.



### **Balance of Risks in the 2017 – 2018 Horizon**

48. 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. The main factors that could divert the inflation forecast from the baseline scenario include the following:

a. **Negative shocks on domestic supply**

The risk that food production may be negatively affected by unforeseen adverse climate factors could generate inflationary pressures, particularly in the food component. Should these pressures be persistent, they could slow down inflation's convergence to the inflation target range.

b. **Negative shocks on domestic demand**

Economic recovery could be more gradual if public and private investment grew at lower rates than expected, which would imply a more negative output gap and for a longer period of time. As a result of this, inflation would tend to show rates below the baseline scenario. This risk has increased due to the postponement of infrastructure projects.

c. **Decline in the terms of trade**

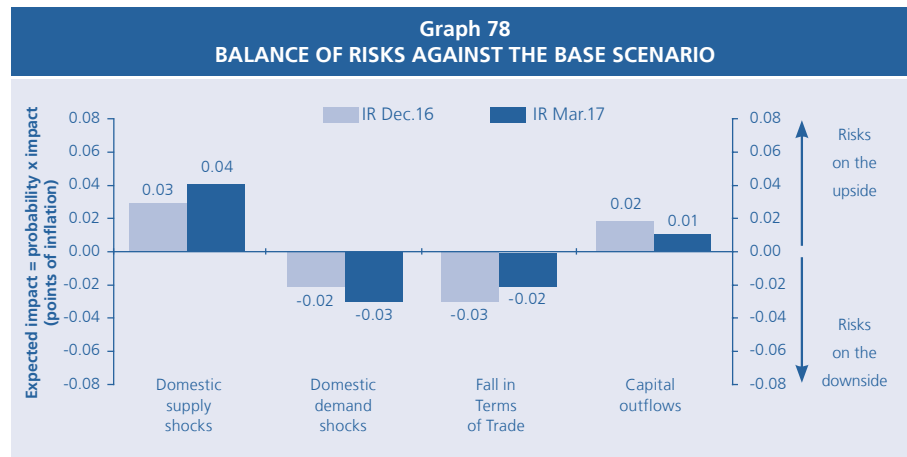
Although the baseline scenario considers a recovery in the prices of raw materials, a decline in the terms of trade would mean a more negative output gap and an inflation rate below the one considered in the baseline scenario. Because of the recent trends recorded in the international prices of metals, the likelihood of this scenario has decreased compared to its probability of occurrence in the Inflation Report of December.

d. **Volatility in international financial markets**

A faster pace of rate hikes than the estimated one could generate abrupt adjustments in the interest rates of long-term bonds and increased capital flows to the United States, which would push the exchange rate upwards.

49. The balance of the afore mentioned risks remains neutral on the inflation forecast, so the impact of factors that could increase inflation is equal to the impact of factors that imply a fall in prices.





### Conclusions

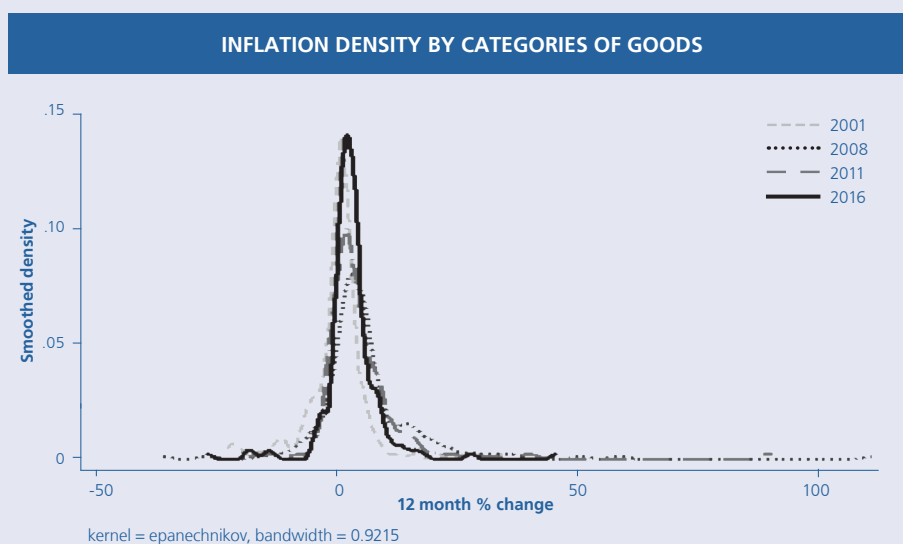
50. Inflation is still forecast to converge to the inflation target range in the 2017-2018 forecast horizon, which is consistent with economic growth without demand inflationary pressures and with a declining trend in inflation expectations in the following months.

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

**Box 5  
DISTRIBUTION OF INFLATION BY PRODUCTS**

Inflation is defined as a widespread and sustained price rise. It is important to analyze the distribution of the evolution of prices because price variability generates changes in the allocation of resources in the economy. This box discusses the dynamics of the distribution of the relative prices of the 174 categories of products or items included in the consumer price index (CPI) basket.

Changes in the prices of these 174 items have had similar annual distributions since 2001, except in periods of higher inflation (2008-2011) and lower inflation rates (2001). More extreme values are usually seen in years of higher inflation, like in 2008 and 2011, as depicted in the following graphs, which confirms that supply shocks are the origin of higher inflation.



**MAIN STATISTICAL VARIABLES OF INFLATION**

	2001	2008	2011	2016
12 month inflation	-0.13	6.65	4.74	3.23
Average	0.24	6.42	5.30	2.79
Median	0.52	3.90	2.89	2.59
Standard deviation	7.19	13.50	11.62	6.36
Coefficient of variation*	13.90	3.47	4.01	2.45
Asymmetry coefficient**	0.67	3.44	4.70	1.09
Kurtosis***	6.49	24.51	31.03	15.70

\* The relationship between the standard deviation of a sample and its mean.

\*\* The ratio of the third moment around the mean and the standard deviation. High values means a higher quantity of positive value.

\*\*\* The ratio of the fourth moment around the mean and the standard deviation. High values means a lesser concentration of values near average.





### PERCENTAGE CHANGE OF PRICES (12 month % change)



The smoothed<sup>8</sup> distribution of 12 month-variations carried out for 2001 (year with the lower inflation rate), 2008 and 2011 (years with higher rates), and 2016 do not show significant movements which would be indicating distributions of similar price rises. Some regularities are observed: a higher rate of inflation is usually associated with (i) greater volatility, (ii) a greater number of positive extreme values –which is known as a positive asymmetry coefficient–, and (iii) a lower concentration of values close to the average (or a high kurtosis coefficient).

A positive relationship is verified between the level of inflation and the standard deviation (measure of variability) of the 174 items on a monthly basis. Assarsson<sup>9</sup> (2003) says that the main reason accounting for this relationship is that changing prices immediately implies costs for firms. Thus, if the costs associated with prices vary between firms, then an increase in the rate of inflation will increase the variability of changes in relative prices, hindering the information on prices for decision-making regarding consumption and production.

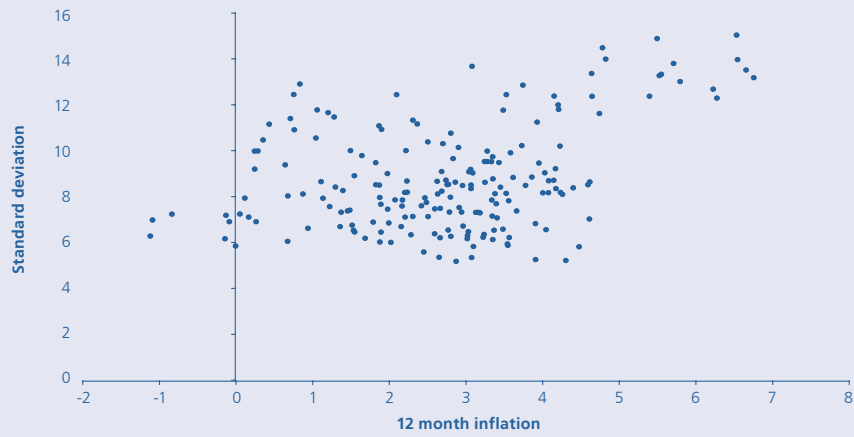
Moreover, Assarsson (2003) says that there is also a positive relationship between the variation of changes in relative prices and an unexpected rate of inflation. The fact that economic agents have imperfect information about absolute and relative prices generates a positive relationship between

8 Smoothing was carried out estimating the kernel distribution of the variation of the 174 items of the inflation data, which is a common way of approximating the density function of a group of data to make inferences about the population.

9 Assarsson, B. (2003), Inflation and higher moments of relative price changes in Sweden. BIS Paper No 19.

the variance of changes in relative prices and changes in inflation, which is corroborated by data on the Peruvian economy.

**RELATIONSHIP BETWEEN ANNUAL INFLATION AND STANDARD DEVIATION <sup>1/</sup>**



<sup>1/</sup> Standard deviation of annual change in the 174 items from CPI.







### Box 6 MEASURING INFLATION PERSISTENCE

An inflation targeting (IT) regime with a high degree of credibility contributes to anchor inflation expectations around the inflation target, which reduces the persistence of the inflation rate. In other words, if the economy is affected by a macroeconomic shock, the rate of inflation returns faster to the target range since its dynamics is not strongly dependent on its own past values.

Several measurements of the persistence of total inflation and inflation without food and energy<sup>10</sup> are discussed in this box. The results obtained based on reduced forms<sup>11</sup> suggest that the persistence of inflation in Peru varies directly in line with the current monetary policy regime and with the lessons that economic agents have learned and use to determine their expectations of inflation. This learning process determines both the evolution of inflation expectations as well as the persistence of forecast errors in the formation of expectations, and therefore influences the degree of inflation persistence. For example, between 1960 and the mid-nineties, overall inflation in Peru behaved as a process with a high degree of persistence. However, after the adoption of inflation targeting (IT), there has been a continued and significant reduction in the persistence of inflation. Between 2010 and 2016, the measurements suggest a slight increase in the degree of persistence which coincides with a period of recurring supply shocks. Despite this, total inflation behaves as a process that fluctuates around its average during the years with inflation targeting.

#### Reduced Measurements of Inflation Persistence

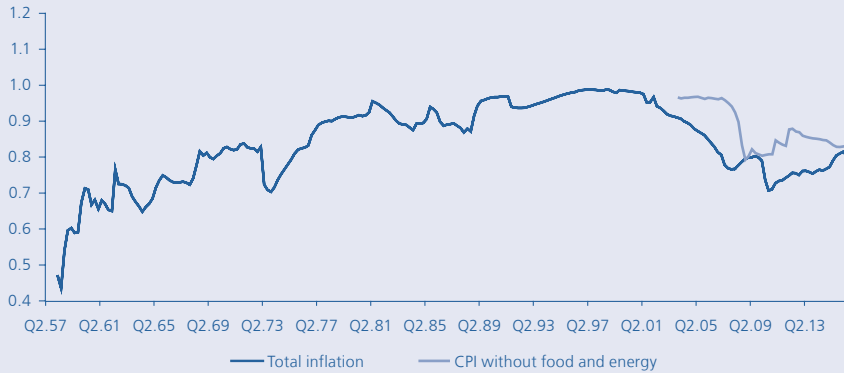
As a preliminary analysis, we estimated the correlation coefficients between year-to-year inflation and its first lag in a rolling window of 8 years. A correlation coefficient close to 1 would be indicative of a very persistent rate of inflation, while levels of less than 1 would indicate that inflation has a low persistence.

As shown in the following graph, the results suggest that this measurement of persistence has increased from levels close to 0.5 in 1960 to levels close to 1 during periods of hyperinflation and monetary stabilization at the beginning of the 90s. A clear decreasing trend is also observed from the adoption of inflation targeting in 2002 and a slight rebound is observed since 2010, which coincides with the recent period of supply shocks. Moreover, the behavior of inflation without food and energy has been similar to the behavior of total inflation, showing a significant reduction of this persistence measurement during most of the 2000s, but with slight increases in some of the past five years.

10 The variables are analyzed using quarterly data. Total inflation is analyzed in the period that goes from the second quarter of 1949 to the fourth quarter of 2016. The sample data used for inflation without food and energy goes from the first quarter of 1995 to the fourth quarter of 2016.

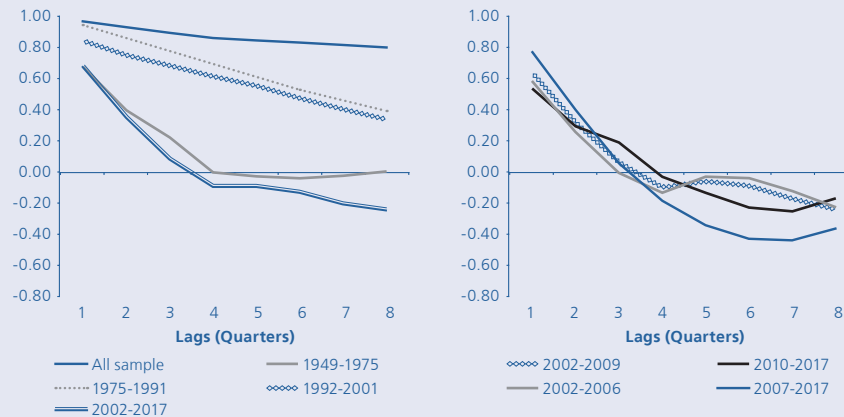
11 According to Jeffrey C. Fuhrer of the Boston Federal Reserve, persistence measurements are classified as measures obtained from reduced forms and structural models. The first type of measurements make reference to an empirical property of inflation without having to associate it with an economic interpretation, while the second type of measurements come from some economic structure that has been identified as a potential source of change in inflation's persistence.

**AUTO-CORRELATION RATIO OF ANNUAL INFLATION**  
(8-years moving window)



A second way of assessing the persistence of inflation is through the analysis of their correlograms.<sup>12</sup> To do so, we define subsamples and estimate the correlograms for a period of up to 8 lags in each subsample. The results, which are presented in the following graph, suggest that total inflation has a very persistent behavior in the whole sample (1949-2016). However, when we divide the information into subsamples, it becomes evident that this greater persistence corresponds to the periods of 1975-1991 and 1992-2001, the former corresponding to the period of high inflation and hyperinflation while the latter corresponds to the period of monetary stabilization. After the adoption of inflation targeting (2002-2017), a rapid drop is observed in the correlograms, which suggests that inflation returns rapidly to its average level without directly depending on its past values. When the period after IT is divided into subsamples, we see a mild rebound in the correlograms associated with the periods after 2007, which would indicate that there may have been an increase in the degree of persistence of inflation from 2008, but without reaching levels similar to those observed in the period prior to the adoption of IT. The presence of successive supply shocks in recent years would account for this increase.

**CORRELOGRAM: ANNUAL INFLATION BY SUBSAMPLES**



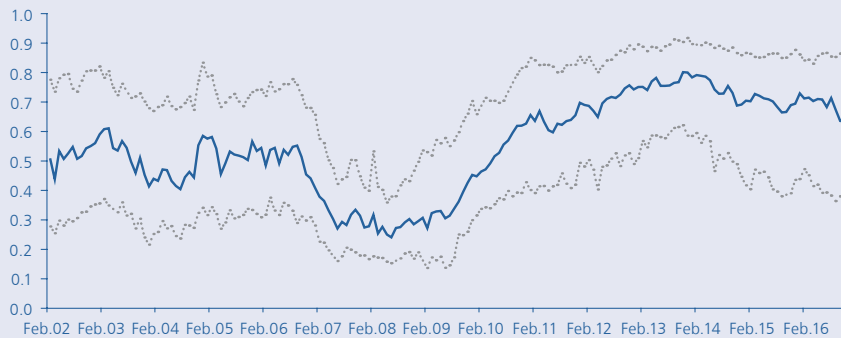
12 A correlogram measures the correlation between inflation and its own lags at different points of time.



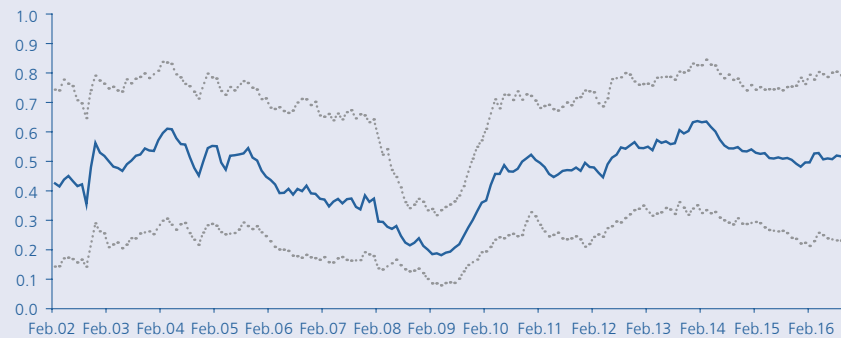


Finally, we provide a multivariate measurement of inflation persistence, obtained from a vector autoregressive estimation (VAR) with changing coefficients over time and stochastic volatility following the methodology applied by Timothy Cogley and Tomas Sargent for the Peruvian case. The following graph shows the persistence estimated for both total inflation and inflation without food energy from February 2002 to October 2016. The trend observed with previous measures is corroborated: the persistence of inflation declines after the adoption of IT until approximately late 2009 and then increases from 2010, during the period of supply shocks.

**PERSISTENCE OF TOTAL INFLATION**  
(68% more likely)



**PERSISTENCE OF CPI WITHOUT FOOD AND ENERGY**  
(68% more likely)



These findings suggest that monetary policy regimes with greater stability and transparency generate inflation expectations anchored to the inflation target and therefore a lower persistence in the dynamics of inflation. At the same time, supply shocks affect the formation of expectations and can slow down economic agents' continuous learning, which is necessary for the formation of expectations. The latter may cause temporary increases in the persistence of inflation.

**BANCO DE RESERVA DEL PERU**

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