



INFLATION REPORT

December 2014*

*Submitted by the technical staff to the Board of Directors for its meeting on January 30, 2015.

Banco de la República
Bogotá, D. C., Colombia

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THE INFLATION TARGETING STRATEGY IN COLOMBIA

OBJECTIVES

Monetary policy in Colombia is based on inflation targeting, which is intended primarily to keep inflation low and to ensure stable growth in output near its long-term trend. Accordingly, the objectives of monetary policy combine the goal of price stability with maximum sustainable growth in output and employment. In this respect, monetary policy complies with the constitution and contributes to the well being of the Colombian population.

HORIZON AND IMPLEMENTATION

The Board of Directors of *Banco de la República* (the Central Bank of Colombia) (BDBR) sets quantitative inflation targets for the current year and the next. BDBR policy initiatives are designed to meet each year's target and to provide for long-term inflation at around 3.0%. The annual change in the consumer price index (CPI) is the inflation measurement used.

THE DECISION-MAKING PROCESS

Monetary-policy decisions are based on an analysis of the current state of the economy and its future prospects, and on an assessment of the inflation forecasts against its targets. If the assessment suggests, with enough certainty, that inflation will deviate from its target under current monetary-policy conditions and within the time horizon in which this policy operates and that this deviation is not due

to temporary shocks, the BDBR will proceed to modify its policy stance. For the most part, this is done by changing the benchmark interest rate (charged by *Banco de la República* on short-term liquidity operations).

COMMUNICATION AND TRANSPARENCY

Decisions on monetary policy are announced immediately after meetings of the Board of Directors. This is done through a press bulletin posted at once on *Banco de la República's* website (www.banrep.gov.co).

Inflation reports are published quarterly and are designed to lend transparency to the Board's decisions. They also contribute to a better understanding of monetary policy and help to enhance its credibility. Specifically, these reports: i) let the public know how the Board of Directors and the Technical Governor of the Bank view recent and anticipated changes in inflation and its short-term and mid-term determinants; ii) explain the implications of those determinants for monetary-policy management within the scope of inflation targeting; iii) describe the context and analysis that justifies monetary-policy decisions made during the quarter; and iv) provide information that helps agents in the economy to form their own expectations about future developments with respect to inflation and growth in output.

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DEVELOPMENTS IN INFLATION AND MONETARY POLICY DECISIONS

The various indicators of economic activity in the fourth quarter of 2014 reflect vigorous domestic demand. Retail sales performance, consumer lending and consumer confidence suggest household spending accelerated during that period. There appears to have been important growth in investment as well, both in civil works and in machinery and equipment, and transportation equipment. It is estimated that the contribution from net exports was negative, due to a slowdown in exports. Given this information, the technical staff at *Banco de la República* is forecasting around 4.0% growth in the fourth quarter of 2014 and nearly 4.1% in the second half of the year. While this would imply less momentum than during the first six months of 2014, the country's economic performance continues to be remarkable for the region. GDP growth in 2014 would have been between 4.5% and 5.0%, with 4.8% being the most likely figure.

Oil prices on the international market plunged as of the third quarter of 2014, particularly during the last three months of the year. In fact, by December, the price of oil was 50% below the levels witnessed at mid-year. The net impact of this decline on global economic growth is likely to be positive, but mixed. Oil importing countries will benefit, thanks to household budget relief, lower input costs, and an improvement in their external position. However, oil exporting countries will be affected by a drop in their revenue and the pressure this would exert on their public finances and external balances.

In Colombia, the impact of lower oil is negative, since 55% of the value of the country's exports in dollars pertains to oil. The effect of this shock passes through to the economy via different channels. The most important one is deterioration in the country's terms of trade. This is reflected in a drop in national income and investment, as well as deterioration in Colombia's trade balance. Lower prices also reduce capital inflows, especially for foreign direct investment, a third of which went to the oil sector during the

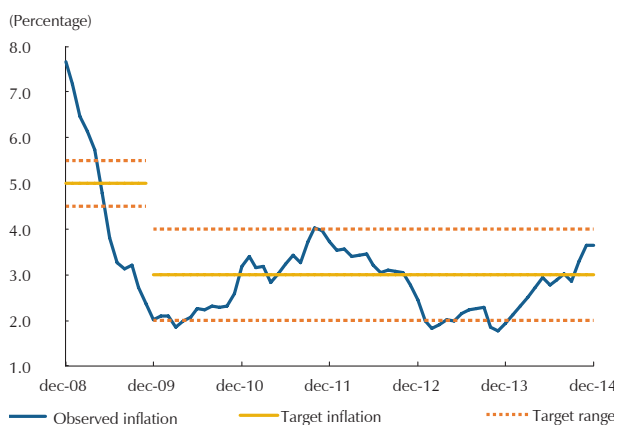
first three quarters 2014. Moreover, lower oil prices weaken the fiscal balance, as nearly 20% of all national government revenue comes from the oil industry, which also is the main source of royalty income for the regions.

Nevertheless, it is expected that other economic variables will cushion the effects of the oil shock. For example, the anticipated increase in investment in civil works and public consumption should mitigate the slowdown in economic activity. Likewise, depreciation of the Colombian peso against the dollar makes exports more competitive, as is also the case with production in certain sectors that compete with imported goods. This, in turn, will generate more demand for goods produced in the country, as the prices of similar imported goods would tend to become more expensive than those produced domestically.

The drop in oil prices has occurred in a context of weak and uneven global growth. While the United States economy continued to recover and gain strength, expansion in the euro area and Japan remains weak. The emerging countries are growing at a slower pace or at historically low rates. Therefore, the average growth of our trading partners in 2015 might be a bit higher than 2014, but still less than what was estimated in recent months.

Considering all these elements, the technical staff at *Banco de la República* lowered its growth forecasts for the Colombian economy in 2015 to between 2.0% and 4.0%, with 3.6% being the most likely figure, as opposed to the earlier forecast of 4.3%. The negative impact of the plunge in oil prices on national income is beginning to be evident in the investment budget cuts being made by the oil companies that operate in Colombia.

Graph A
Total Consumer Inflation



Sources: DANE and Banco de la República.

As for prices, inflation continued to climb during the fourth quarter and was 3.66% by December, which is within the target range set for 2014 by the Board of Directors of *Banco de la República* (Graph A). The deviation from the central point is explained largely by reversal of the temporary declines in food and regulated goods prices, and by temporary increases in other items prices, such as entertainment, cultural activities and recreation. The peso depreciation associated with the sharp drop in oil prices that occurred in the second half of the year has yet to be reflected in consumer prices.

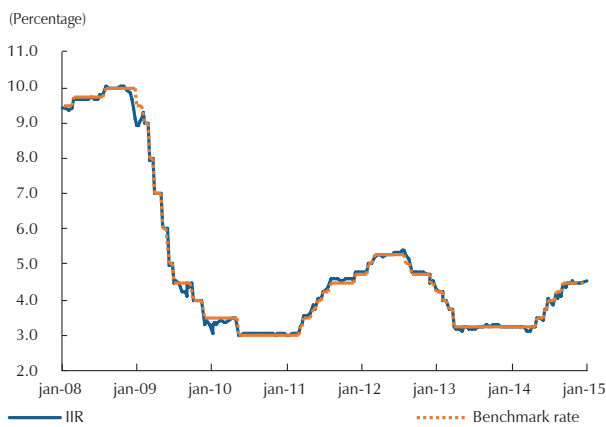
The rise in consumer inflation sparked an increase in core inflation and inflation expectations, but on

a lesser scale. Expectations in early January were in the upper half of the target range.

According to the technical staff estimates, during the first half of 2015 inflation will be at levels similar to those on record at the end of last year. The effects of peso depreciation are felt primarily in prices for tradable goods. However, since the decline in prices for oil and other raw materials is likely to prompt cutbacks in production and transport costs, and aggregate demand will not exceed the economy’s productive capacity, higher

prices for tradables will not jeopardize the target range defined for inflation this year. Inflation will likely begin to converge towards 3.0% during the second half of 2015.

Graph B
Banco de la República’s Benchmark Interest Rate and the Interbank Interest Rate (IIR)
(2007-2014)^{a/}



a/ The figures match the data for business days; the last figure is for October 10, 2014.
Sources: Office of the Colombian Superintendent of Finance and Banco de la República

In conclusion, domestic demand remains vigorous in a context nearing full productive capacity utilization. Meanwhile, inflation and inflation expectations have increased and are within the upper half of the target range. This occurs at a time when terms of trade are deteriorating and there is uncertainty about how they will evolve in the future and its impact on aggregate demand. As a result, after carefully analyzing the risk balance, the Board of Directors of *Banco de la República* decided, at its meetings in November and December 2014 and in January 2015, that it was appropriate to hold the benchmark interest rate at 4.5% (Graph B).

Jose Dario Uribe
General Manager

INFLATION REPORT

Prepared by:
Programming and Inflation Department
Economic Studies Division

Technical Management

Hernando Vargas

Deputy Technical Governor

Economic Studies Division

Jorge Hernán Toro

Chief Economist

Programming and Inflation Department

Carlos Huertas

Department Head

Inflation Section (*)

Adolfo León Cobo

Section Officer

Juan Sebastián Amador

Édgar Caicedo

Camilo Cárdenas

Joan Granados

Daniel Parra

Juan Sebastián Rojas

Macroeconomic Programming Section

Julián Pérez

Section Officer

Luis Hermán Calderón

Celina Gaitán

Aarón Levi Garavito

Jhon Edwar Torres

Programming and Inflation Department Assistant

Gloria Sarmiento

(*) This report was prepared with the help of Eliana González, Statistics Section Officer; Franz Hamann (Head), Jesús Antonio Bejarano (Section Officer), Rafael Hernández, Camila Londoño and Joao Hernández of the Macroeconomic Models Department; Enrique López, Senior Researcher for the Research Unit; and María Alejandra Prieto, Juan Sebastián Mariño and Nicolás Martínez, who are student interns.

I. THE EXTERNAL SITUATION AND THE BALANCE OF PAYMENTS

The main external environment economic news for Colombia was the collapse of international oil prices, which have dropped approximately 58% since June 2014, causing a revision in oil prices forecasts for 2015.

The 2015 growth forecasts for Colombia's major trading partners were reduced in this report compared to those presented three months ago.

The decline in commodity prices, especially those of fuels, has significantly reduced inflationary pressures in developed economies.

Estimates point to a major increase in the current account deficit during 2014, favored by ample terms for foreign financing. A slight correction in the external imbalance is expected for 2015, amid a context of considerable uncertainty about the momentum in financial flows.

A. THE INTERNATIONAL SITUATION

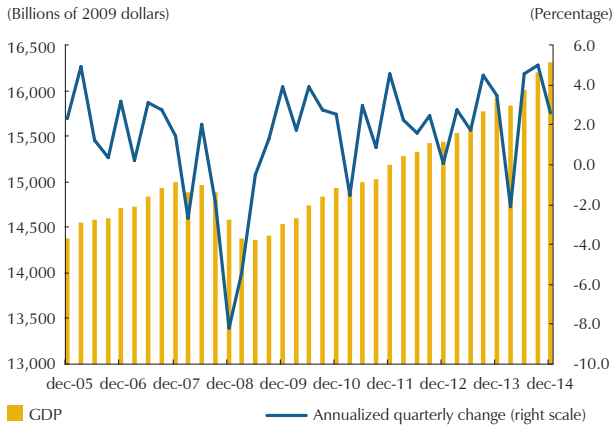
1. Real Activity

Real global activity during the fourth quarter of 2014 continued to show a heterogeneous behavior. On the one hand, positive figures in the United States indicate it maintained the economic momentum it exhibited in the previous quarters; however, there still was very little economic growth in the euro area. At the same time, several emerging market economies continued to slowdown, with gross domestic product (GDP) growth in China and Latin America below levels witnessed in recent years.

According to an initial estimate for the United States, GDP in the fourth quarter increased at an annualized quarterly rate of 2.6% (a.q.), bringing annual growth for 2014 to around 2.4% (Graph 1). Although this is less than the rate observed three months ago, domestic demand remained strong and suggests that economic growth continues to be robust. The behavior of household consumption is a high point, having gone from an increase of

Global economic activity in the fourth quarter was mixed. The United States economy maintained its momentum, even as the euro area and several emerging economies weakened.

Graph 1
Real GDP in the United States



Source: Bureau of Economic Analysis.

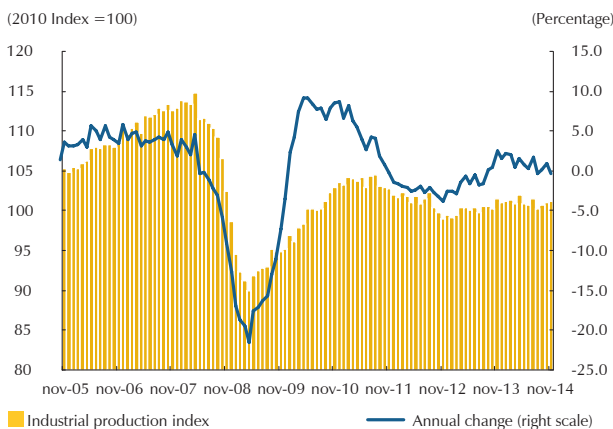
3.2% to 4.3% a.q. Meanwhile, although the rate of investment slowed with respect to the preceding quarter, it was favorable (2.3% a.q.). In contrast, net external trade detracted from the expansion in real activity, due to an increase in imports (8.9% a.q.) that outpaced export growth (2.8%). In the same time, the quarterly variation in government spending was negative, given the high base of comparison from the previous quarter, when there was a significant increase in defense spending.

The good performance of real activity of the United States has allowed its job market to continue recovering. Job creation remained dynamic:

nonfarm payrolls increased at an average monthly rate of approximately 324,000 new jobs during the fourth quarter and 260,000 for the entire year, which is the best growth on record since 1999. Consequently, the unemployment rate stayed on a clear downward trend, declining from 6.6% at the beginning of the year to 5.6% in December.

Other job market indicators monitored by the Federal Reserve (Fed) are still above those recorded prior to the financial crisis in 2008, but improved significantly during the year. For example, long-term unemployment¹ and underemployment² are down considerably; this suggests surplus capacity in the US labor market continues to decline and the quality of the jobs being created has improved.

Graph 2
Euro Area Industrial Production Index



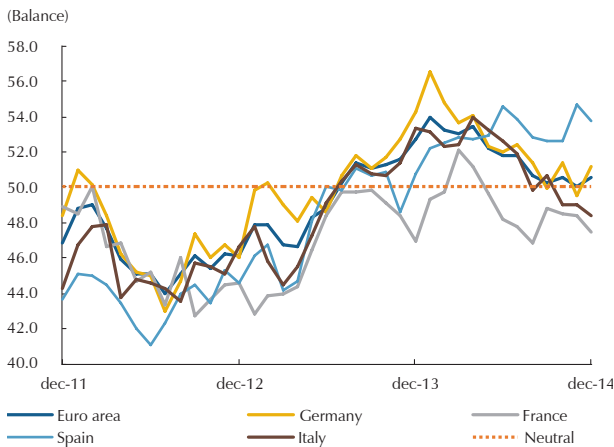
Source: Datastream.

In contrast, third-quarter GDP figures for the euro area showed very weak growth (0.2% against the previous quarter), and the latest indicators suggest this situation persisted throughout the final quarter of 2014. Taking into account the figures up to November, the annual change in industrial production data was negative (Graph 2), while exports to countries outside the euro area and retail sales posted very modest annual growth.

1 (Note 1) This is the number of people who have not found employment in more than 27 weeks, as a share of total unemployment.

2 (Note 2) This refers to the total number of unemployed, part-time employees who want full-time work and those outside the labor supply who would be willing to work if they could find a job (marginally linked to the job market), as a portion of the workforce and those marginally attached to the job market.

Graph 3
Manufacturing Activity Index for Several European Economies (Purchasing Managers Index: PMI) (Balance)



Source: Bloomberg.

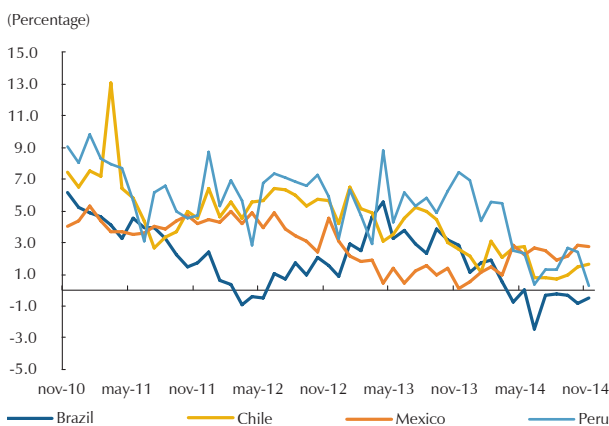
However, the picture is somewhat different across countries (Graph 3). A high point is the positive case of Spain, where quarterly GDP growth was 0.7% for the fourth quarter, bringing expansion for all of 2014 to 1.4%. This is the highest figure on record since 2007. In contrast, the manufacturing index suggests the German economy would have continued to grow at modest rates, as a result of less external demand and deteriorating consumer and business confidence. The economies of France and Italy have been stagnant or even shrunk as consumption continued to expand at very low rates and investment growth was negative.

Growth in most of the emerging market economies still is below the figures observed in recent years. Chinese GDP was up 7.3% in annual terms during the fourth quarter, bringing economic growth for all of 2014 to 7.4%, which was below the government's target (7.5%) and less than the year before (7.8%). This slowdown was due largely to a major decline in investment in fixed assets, especially those associated with real estate. The Chinese government and the country's central bank have launched stimulus plans aimed to curb this trend in specific sectors of the economy. However, they are unlikely to resolve the imbalances in other sectors (i.e., real estate and the financial sector).

As for Latin America, the latest indicators of real activity show the countries in the region continued to perform sluggishly during the fourth quarter (Graph 4). Overall, exports remained weak as a result of declining prices for key export commodities and weakening demand from trading partners.

Household and businesses confidence has remained low, affecting investment decisions and consumption.

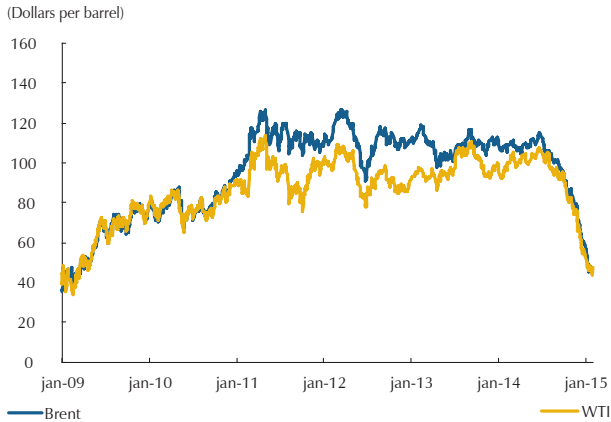
Graph 4
Annual Growth in Monthly Economic Activity Indexes for Several Latin American Economies



Source: Datastream.

In addition to the external shock, which affects all countries of the region, there are idiosyncratic factors that help to explain the low growth witnessed in 2014. In Peru, for example, local governments spent less and the fishing sector, which has important production links to industry, has been affected by *El Niño* weather. Meanwhile, uncertainty sparked in Brazil by the need to consolidate its fiscal situation somewhat explains that country's modest economic growth. Finally, there is the case of Venezuela, where the sharp drop in

Graph 5
International Oil Prices (Brent and WTI)



Source: Datastream.

oil prices has heightened the decline in real activity in a situation where inflation is soaring.

2. Commodity Prices, Inflation, and Monetary Policy

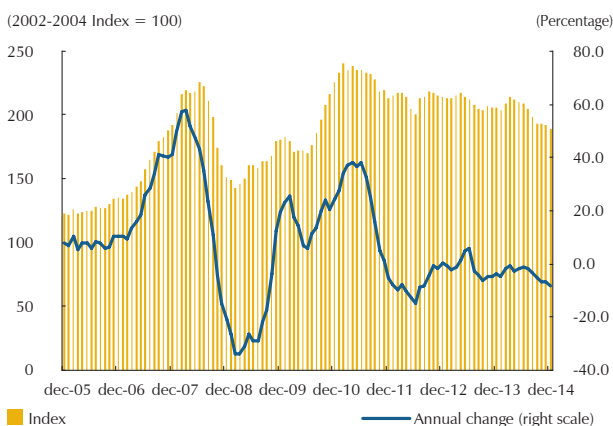
The main news for Colombia in recent months was the collapse of oil prices. Taking into account the prices at January, they were down 58% from the high point in June 2014 (USD 115.4 per barrel) (Graph 5). As a result, the average price for the year was far below what was anticipated in previous editions of this report.

A major part of this decline could be permanent, in response to an unwavering increase in the global supply of oil. This phenomenon has been reinforced by sluggish global economic growth and weak demand for oil (see Table 1 Re, pp. 33-37).

In the case of international prices for coal, sharp reductions occurred recently due to less demand for this raw material. This is mainly due to the slowdown in global economic activity and lower oil prices, which facilitate its substitution.

Coffee prices on the international market were down by about 13%, compared to the relatively high level observed during the third quarter of 2014. The prospects for an increase in supply, now that the adverse weather conditions affecting production in Brazil have subsided, explain much of the drop in price registered in recent months.

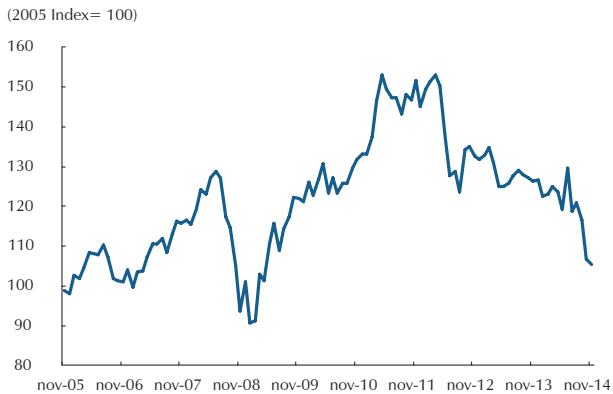
Graph 6
International Food Prices



Source: Food and Agriculture Organization of the United Nations.

As for international food prices, the reductions that began three months ago continued during the fourth quarter, as reflected by a further annual drop in the United Nations Food and Agriculture Organization (FAO) food price index (Graph 6). In this case, the downward trend would also be the result of a large global supply, which has allowed a significant increase in inventories. This behavior is also driven by lower oil prices, which reduce transportation costs and some production inputs, and favor the substitution of plant-based fuels for those derived from petroleum.

Graph 7
Terms of Trade Index for Colombia
(Commerce methodology)



Note: See Box 2 in the September 2013 edition of the Inflation Report for more information on the methodology used.
Source: Banco de la República

November figures, according to the commerce methodology ³(Graph 7), show that the country's terms of trade are on a clear downward trend as a result of the collapse of crude oil prices. As the prices of Colombia's commodity exports continued to drop in December and during the first weeks of January, it is estimated this indicator will decline further.

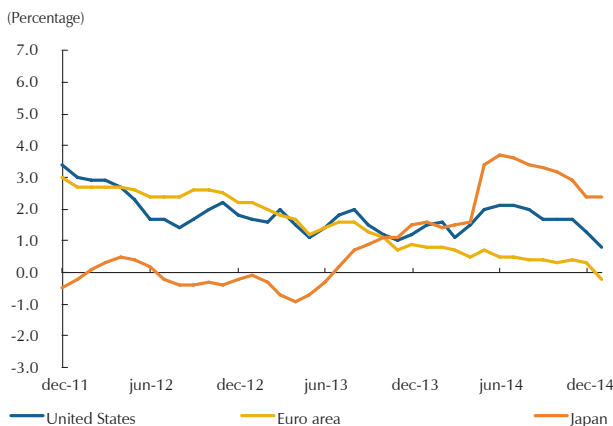
Lower commodity prices explain most of the reductions observed in the consumer price index of the developed countries in recent months. The euro area is the most obvious case, where annual inflation reached negative terrain in January (-0.6%), having dropped sharply from the September figure (0.3%).

Annual inflation excluding food and energy declined less (20 basis points [bp]) and was 0.6%.

In the United States, annual inflation dropped sharply to 0.8% in the last month of 2014, although that country's core inflation rates have remained relatively stable. The consumption deflator, which is the measure followed most closely by the United States Federal Reserve (Fed), also posted a lower annual variation during the fourth quarter, compared to the previous three months (from 1.4% to 0.7%), and is still below the long-term target set by the central bank (2.0%).

Annual inflation in Japan also declined, but remained high due to the consumption tax hike that took effect as of April (Graph 8).

Graph 8
Annual Inflation in Several Developed Countries



Source: Bloomberg.

With respect to US monetary policy, the Fed kept its benchmark rate at 0.25% and no increases are anticipated before the second half of this year. In the euro area, deflation and weak economic performance prompted the European Central Bank (ECB) to adopt additional stimulus measures. Accordingly, at its meeting in January, the ECB announced it would increase its financial assets buying program by EUR 50 billion per month and

³ (Note 3) In the commerce methodology, terms of trade are measured using administrative records as a source of data on exports and imports (DIAN and DANE). As per international recommendations (on the volatility of the series, the standardization of unit values, etc.), implicit prices are calculated for each tariff item, then weighted in a chained Paasche-type price index.

The ECB raised the amount of its financial asset-buying program and expanded the list of eligible securities to include sovereign bonds. The program would be extended at least until September 2016.

expand the list of eligible securities to include sovereign bonds. This program would be extended until at least September 2016.

The outlook for inflation in the Latin American economies has been heterogeneous, as has their monetary policy responses. In Brazil, inflation and its expectations remained above the target range set by the central bank. So, at its January meeting, the central bank decided to raise its benchmark rate for the third time since September, placing it at 12.25%. This represents an accumulated increase of 125 bp. Meanwhile, in Chile, the upward pressure on prices that emerged early last year began to subside, mainly because of depreciation of the Chilean peso. This fact, coupled with inflation expectations anchored near the central bank's target and an economy that remains weak, allowed the central bank hold its interest rate at 3.0%, following the reductions observed in the previous quarter. Some of the price shocks in Peru that kept inflation high during the first half of 2014 have disappeared, permitting this indicator to decline during the fourth quarter. As a result, and given the slowdown in real activity during the year, the Central Reserve Bank of Peru continued to reduce its interest rate, which went from 4.0% in June to 3.25% in January. Additionally, between October and January 2015, the Peruvian monetary authority registered approximately USD 4,600 m in net sales of foreign currency.

Finally, with respect to emerging Asia, annual inflation fell in China, Korea, India, and Taiwan. Accordingly, the Central Bank of India cut its intervention rate by 25 bp to 7.75%. The Central Bank of China also adopted a more expansionary stance by reducing its benchmark interest rate from 6.0 % to 5.6%.

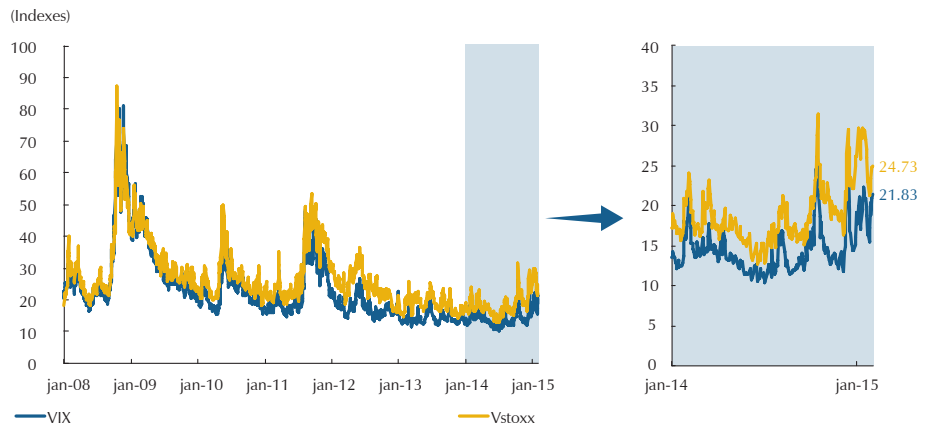
3. Financial Markets

The volatility indexes for international financial markets remained high throughout most of the fourth quarter, in an atmosphere of heightened risk aversion (Graph 9). This was due to heightened uncertainty about further monetary policy decisions the ECB might take in view of the potential impact of the outcome of the Greek elections on that country's fiscal sustainability and to address the generalized drop in commodity prices that has affected exporters of these resources.

The interest rates on 10-year US treasuries continued to decline in recent months and stayed below the levels observed in December 2013, when the Fed began to wind down its bond purchase program (Graph 10). As the drop in short-term rates was less pronounced than the decline in long-term rates, the yield curve flattened, which is consistent with the fact that financial

Financial volatility indices remained relatively high throughout most of the fourth quarter, in a context of added global risk aversion.

Graph 9
Financial Volatility Indexes



Source: Bloomberg.

Graph 10
Interest Rates on 10-year United States Government Bonds

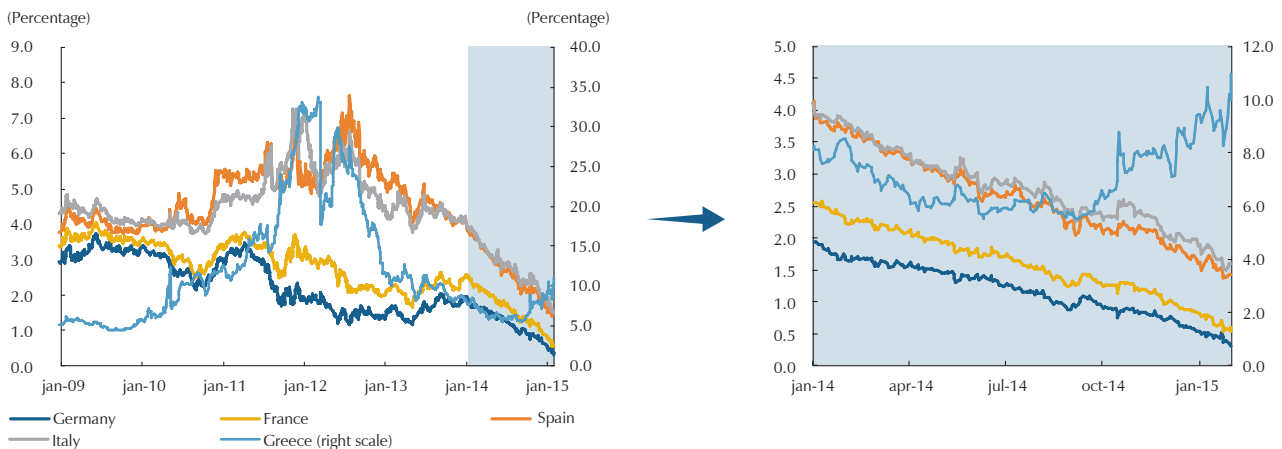


Source: Bloomberg.

market agents do not expect an interest rate hike in the US economy until the final quarter of 2015.

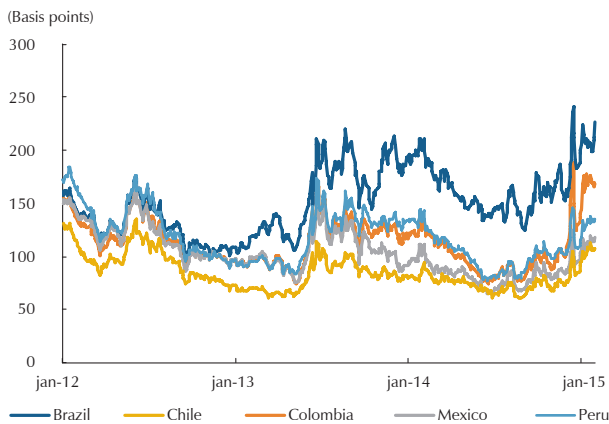
The rates on 10-year sovereign bonds in the euro area remained low in the case of Germany, Spain, Italy, and France, despite the hikes on Greek bonds (Graph 11). In the case of the latter, the increase was explained by the special elections called for January 2015 that brought the Syriza Party to power. Syriza openly opposes the austerity plans Greece adopted in 2012, raising doubts on financial markets about the country's fiscal sustainability. However, so far, there has been no contagion to other countries in Europe; in con-

Graph 11
Interest Rates on 10-year Government Bonds of Several Countries in the Euro Area



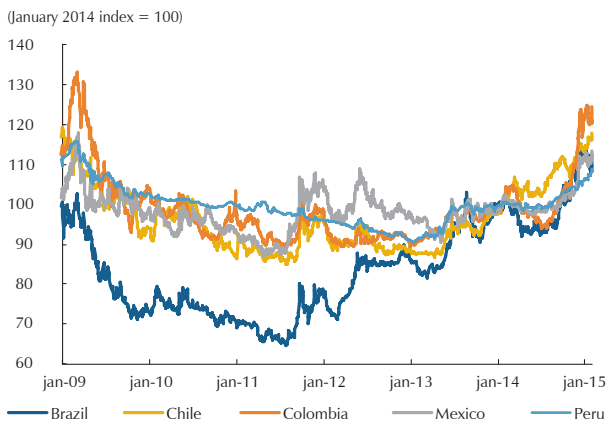
Source: Bloomberg.

Graph 12
Five-year Credit Default Swaps (CDS) for Several Latin American Countries



Source: Bloomberg.

Graph 13
Exchange Rate Indexes for Several Latin American Countries



Source: Bloomberg.

trast, they showed lower funding costs, thanks to the ECB's announcements on quantitative easing.

In the case of Latin America, risk premia increased during the fourth quarter due to several factors: namely, lower prices for the commodities exported by the countries in the region, economic weakness and increased global risk aversion. Accordingly, five-year credit default swaps (CDS) were higher compared to those in the third quarter, reaching levels not seen since 2011 (Graph 12). At the same time, Latin America's currencies continued to depreciate sharply during the period from October to January 2015, with respect to what was observed at the beginning of last year. Against September 2014, the currencies of Colombia and Mexico weakened the most, posting 20.5% and 11.5% depreciation, respectively (Graph 13).

4. Forecasts by *Banco de la República's* Technical Staff

The growth forecasts for Colombia's trading partners were revised downwards with respect to the estimate presented in the previous edition of the *Inflation Report*. This is due to the possible effect that lower commodity prices might have on some of the Latin American economies that export raw materials, and to the weaker economic activity observed in the euro area. Consequently, the country's major trading partners (non-traditional trade-weighted) are expected to see 1.7% growth in 2014 and 2.0% this year. This is less compared to three months ago, when the forecast was 2.0% and 2.6%, respectively (Table 1). However, most of these countries are expected to see higher growth in 2015, compared to the rates observed the year before.

Across countries, good economic performance in the United States during the fourth quarter was consistent with the forecast presented in the September edition of the *Inflation Report*. However, GDP growth figures for the third quarter of the year were revised upward, from 3.5% a.q. to 5.0% a.q.,

Table 1
Growth Forecasts for Colombia's Major Trading Partners

Growth forecasts for Colombia's trading partners	2013	Forecasts for 2014			Proyecciones para 2015		
		Scenario			Scenario		
		Minimum forecast	Baseline forecast	Maximum forecast	Minimum forecast	Baseline forecast	Maximum forecast
Main partners							
United States	2.2	2.3	2.4	2.5	2.4	3.0	3.6
Euro Area	(0.5)	0.7	0.8	0.9	0.2	0.9	1.6
Venezuela	1.3	(5.0)	(4.0)	(3.0)	(6.0)	(4.0)	(2.0)
Ecuador	4.5	3.4	3.8	4.2	2.0	3.0	4.0
China	7.8	7.2	7.3	7.4	6.4	7.0	7.5
Other partners							
Brazil	2.5	(0.1)	0.1	0.2	0.0	0.7	1.2
Peru	5.8	2.6	2.8	3.0	3.0	4.7	5.5
Mexico	1.4	2.0	2.2	2.4	2.3	3.3	4.0
Chile	4.1	1.5	1.7	1.9	2.5	3.0	3.5
Total trading partners (non-traditional trade-weighted)	3.0	1.4	1.7	2.0	1.1	2.0	2.8
Developed countries^{a/}	1.3		1.8			2.4	
Emerging and developing countries^{a/}	4.7		4.4			4.3	
Total worldwide^{a/}	3.3		3.3			3.5	

a/ IMF forecasts at January 2015
Source: Calculations by Banco de la República

allowing an increase from 2.1% to 2.4%⁴ in the whole year forecast 2014 annual growth.

For 2015, lower oil prices are expected to provide an additional boost to disposable household income. If so, consumption in the United States should continue to grow at relatively high rates and become the primary driver of that country's economy. Additionally, investments other than those in the oil sector would remain at favorable levels and, in this way, the persistent surplus capacity in the job market would continue to be eliminated. Foreign trade would contribute little to the increase in real activity, because of a lower global demand and the appreciation of the dollar against the major currencies. In this context, the forecast for 2015 would be 3.0%.

4 (Note 4) Figures on economic growth in the United States during the fourth quarter were not available when these forecasts were made.

The Fed is likely to raise its benchmark rate in the second half of 2015. However, these hikes would be gradual due to low inflation.

In terms of monetary policy, these projections assume the Fed would raise its benchmark rate during the second half of 2015. However, these hikes would be more gradual than anticipated in the last edition of this report, since inflation will remain low due to a stronger dollar and lower commodity prices. In fact, the gradual withdrawal of monetary stimulus is not expected to increase volatility significantly in financial markets and should pass through appropriately to market rates.

In the euro area, growth has been low, as anticipated in the previous *Inflation Report*. The significant deterioration of business and household confidence witnessed in recent months reduces the prospect of seeing a relevant positive increase during the latter part of 2014. Long-term refinancing operations and bond purchases by the ECB had an important impact in the final quarter. Consequently, the forecast for the whole 2014 is still 0.8%.

Lower fuel prices to some extent favor household consumption in 2015. However, as in Europe these prices are more rigid and the continent is not as oil-dependent, the positive impact would be smaller than in the United States. The action taken by the ECB at the beginning of the year allows the euro to depreciate against the dollar and the British pound, giving an additional boost to the region's foreign trade. According to some analysts, the quantitative easing program might not have a major effect on the credit channel in the region, given the high indebtedness. Likewise, some countries, such as France and Italy, could continue to stagnate because of structural problems that hold back competitiveness. In this context, 0.9% growth is forecast for 2015.

Chinese real activity in China would continue to slowdown during 2015, as its financial markets open up and its economy continue to rebalance towards private consumption. In this context, fixed assets investment and lending are expected to continue to decline gradually, with respect to the momentum exhibited in past years, and to contribute less to the country's economic growth. However, this slowdown in economic activity would be gradual, thanks to the government and the central bank efforts to continue providing stimulus during the year, and due to lower commodity prices, which help reduce production costs.

The Chinese economy would continue to slow during 2015. In contrast, most of the economies in Latin America are expected to show some recovery, though less than was forecast three months ago.

Economic performance in Latin America in 2015 is expected to be heterogeneous. On the one hand, Peru and Chile would recover somewhat, because of lower oil prices and the stimulus that is expected to affect the public sector. Mexico would be helped by the added momentum in the US economy. In contrast, economic recovery in Brazil would be weak because of the fiscal consolidation that is underway and the low levels of business and consumer confidence. The Venezuelan economy would continue to

The prices forecast for Colombia's commodity exports, especially oil, were revised downward following the reductions witnessed in recent months.

shrink due to the structural problems it faces, which have been aggravated by low international oil prices.

As for raw materials, weak global demand, especially from China and the euro area would continue to pressure commodity prices downwards. In the case of oil, the members of the Organization of Petroleum Exporting Countries (OPEC) are expected to try to preserve their market share by refusing to make cutbacks in supply. Therefore, prices would stay at current levels throughout the first half of the year, thus forcing a decline in investment and production of unconventional deposits, with higher marginal costs, by the second half of 2015. Consequently, some price increases would be observed in the second half of the year, but well below levels registered in past years. In this context, the average price of oil in 2015 would be US\$ 50 per barrel, which is far less than the US\$ 95 forecast in the last edition of the *Inflation Report* (Box 1).

Price reductions for all other commodities exported by Colombia are expected as well. On the one hand, coal prices continue to fall as a result of worldwide substitution of coal by natural gas or petroleum products to generate energy. Furthermore, the price of coffee would be lower than the average in 2014, due to the recovery of production in Brazil and the supply in Asian countries, which would remain high (Table 2).

As in previous quarters, the central forecast continues to show non-negligible downside risks, which are now higher than those evaluated three months ago. On this occasion, the main risk comes from a possible underestimation of the impact that falling commodity prices could have on emerging economies that export these resources. Should this be the case, there might be a contagion among countries through their financial markets, with potential negative effects on confidence and global growth.

Table 2
Benchmark Price Forecasts for Colombian Commodity Exports

Major products	2014	Forecasts for 2015		
		Scenario		
		Minimum forecast	Baseline forecast	Maximum forecast
Colombian coffee (ex dock; dollars per pound)	1.97	1.60	1.85	2.10
Brent crude (dollars per barrel)	99.2	35.0	50.0	65.0
Coal (dollars per ton)	75.2	50.0	58.0	65.0
Nickel on the London exchange (dollars per ton)	16,898	13,465	15,484	17,504
Gold ^{a/} (dollars per troy ounce)	1,266	1,250	1,150	1,050

a/ This is assumed to be a haven value, because the price of gold increases when there is more uncertainty (a pessimistic scenario).
Sources: Bloomberg; calculations by Banco de la República

The risk of the euro zone entering a deflationary spiral persists, with major consequences for economic growth.

Another important risk is the possibility that the euro area will enter a deflationary spiral that adversely affects the balance sheets agents with high levels of debt and that defers their consumption and investment decisions. Likewise, there also might be quite an increased uncertainty about Greece's fiscal sustainability, leading further increases in the cost of funding for that economy and even, in an extreme scenario, to the possibility of a Greek exit from the euro area. This situation would affect other economies in the region and have a negative impact on confidence.

Finally, monetary policy normalization in the United States could have an adverse impact on financial markets and on business and household confidence worldwide. This would affect consumption and investment decisions, as well as capital flows to emerging markets.

B. BALANCE OF PAYMENTS

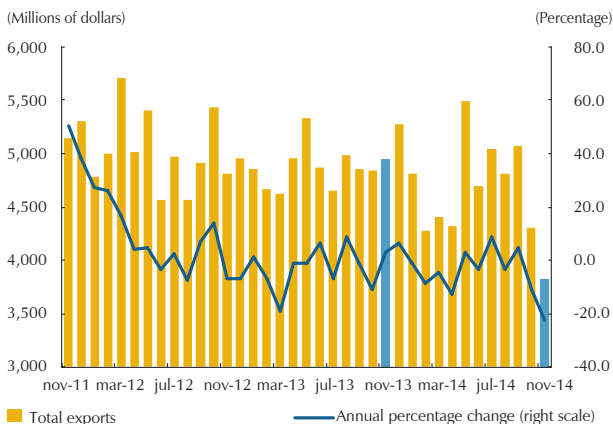
1. Third-quarter Figures

The current account deficit for the first three quarters of 2014 came to 4.6% of GDP (USD 12,855 m), more than during the same period last year (3.3% of GDP, USD 9,210 m). This increase evidences deterioration in the country's external balance, mainly because of the drop in oil prices, the supply shocks that affected the coal sector and petroleum products during the year, and the momentum in imports. Colombia's trade balance of goods showed an accumulated deficit of USD 1,340 m by September, having registered a surplus by the third quarter of 2013. This is the result of an annual decline in total exports equal of 1.1% by the third quarter of 2014, compared to a 7.8% import growth during the same period. This outcome for the trade balance was accompanied by a slightly higher deficit in services, pressured in particular by net outflows for travel and transportation, and by lower net income from current transfers, mostly due to the sharp decline in worker remittances from Venezuela. Net outflows of factor income continue to decline in relation to the levels observed in 2013, given reduced remittances of profits from direct investments in the country, especially those associated with the mining-energy sector.

The current account deficit was financed between January and September 2014 with USD 12,789 m in net income from the capital and financial account (4.5% of GDP). This represents an increase with respect to the previous year (USD 8,480 m or 3.1% of GDP). By September, foreign portfolio investment was the main funding source, with USD 10,934 m in net inflows. This reflects a sizeable increase in flows to the market for local government debt (an effect of rebalancing the JP Morgan emerging market bond

The deteriorating external balance in 2014 was associated with the collapse of oil prices, the supply shocks that affected coal and refined products, and the momentum in imports.

Graph 14
Total Exports (Monthly)



Sources: DANE; calculations by Banco de la República

index) and the sale of government bonds on international markets. In net terms, this was partially offset by the constitution of portfolio foreign assets by the private sector. Foreign direct investment (FDI) was down 4.8% in September 2014, compared to same period last year. This reduction reflects a sharp annual decline in third-quarter direct investment in certain sectors, such as mining and quarrying (-80.2%), manufacturing (-53.8%), and transport, storage and telecommunications (-18.7 %), among others. The third quarter also showed strong outflows of resources for other investments, primarily to establish deposits abroad. In September 2014, the total of other investments accumulated net outflows of USD 3,725 m, compared

with a net income of USD 1,114 m observed in the same period a year earlier. In the third quarter of 2014 alone, the current account deficit reached 5.0% of GDP (USD 4,976 m); this represents an increase with respect to the same period the year before (3.9% of GDP: USD 3,663 m).

2. Forecasts

It is estimated that the trade deficit continued to increase during the fourth quarter of 2014, with exports being affected the most by the accelerated decline in oil prices during recent months. The available information on foreign goods trade during October-November 2014 shows a further trade deficit of USD 2,568 m. During this period, total exports in dollars were down by 16.9% over the previous year (Graph 14), reflecting a major reduction in the value of exports of oil and petroleum products, and in mining products at large. On the contrary, the value of imports FOB (free on board)⁵ remained dynamic during that two-month period, with an 8.0% annual increase (Graph 15), which raises the trade deficit observed up to now (see the shaded section on page 28).

The trade deficit negative results might be partially offset by fewer outflows of factor income from the mining-energy sector, which would continue to decline along with the lower income for the sector. On the other hand, net income from current transfers could improve slightly during the latter part

The figures witnessed during the fourth quarter of 2014 show the trade deficit continued to widen.

5 (Note 5) Unlike the balance-of-payments measurement, which takes into account imports FOB (free on board), the GDP calculation, based on the national accounts, considers imports CIF (cost, insurance and freight), which include the value of freight and insurance. The average total value of the latter, in dollars, came to US \$ 5,601 million in October-November 2014, which represents an annual decline of 7.9%.

EXPORTS AND IMPORTS IN DOLLARS DURING THE THIRD QUARTER OF 2014 AND PART OF THE FOURTH

Total exports rose 3.1% during the third quarter of 2014 with respect to the same period of the previous year. This was due to more exports of agricultural and industrial goods, which posted respective annual increases 21.5% and 7.2%. In the first group, foreign sales were bolstered by strong growth in the volume of banana exports and by higher prices for coffee. Industrial exports were favored primarily by increased sales of food, beverages, and chemical products. It is worth noting that industrial exports increased to all destinations, especially to Venezuela, where 16.7% annual growth was registered in the third quarter. The annual variation in mining exports was 0.3% due to positive figures for items such as coal and ferronickel, which offset the drop in exports of refined petroleum products¹ and gold. The oil exports volume increased; however, this growth was offset by a lower sale price, resulting in an export value similar to the one on record for the same period a year earlier.

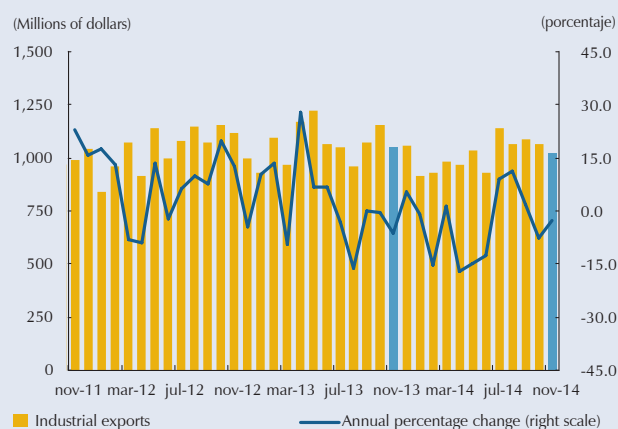
Imports were up 10.4% annually during the same period, fueled largely by foreign purchases of consumer goods (17.4% annually) and, to a lesser extent, by imports of capital goods (14.5% annually). Imports of intermediate goods also grew during this period, although more moderately than other types of goods (4.0% annually).

Exports in dollars plunged during October-November 2014 (-24.4%), owing to a general reduction in foreign sales of mining products, especially oil and its derivatives (-23% and -55.7%, respectively). This was associated with the collapse of international prices for crude oil. There also were fewer exports of coal (10.2%), ferronickel (-0.2%) and gold (-17.6%).

Industrial exports² were down 5.4% between October and November (Graph A). This decline is a reflection of fewer non-traditional exports to all destinations, except

the United States, where an annual increase of 9.7% (Graph B) was observed. Sales to the United States during these two months came to USD 278 m, accounting for 13.3% of industrial exports in that period.

Graph A
Industrial Exports and Others^{a/}
(Monthly)



a/ Excluding oil and petroleum by-products, coal, ferronickel, gold, coffee, bananas and flowers. The chart does include other mining and agricultural goods.
Source: DANE; calculations by Banco de la República

The annual increase in agricultural exports during October-November was 24.9%. Exports of coffee and flowers were a high point, with 60.9% and 11.2% growth, in that order. In contrast, banana exports fell 40.4% during this period.

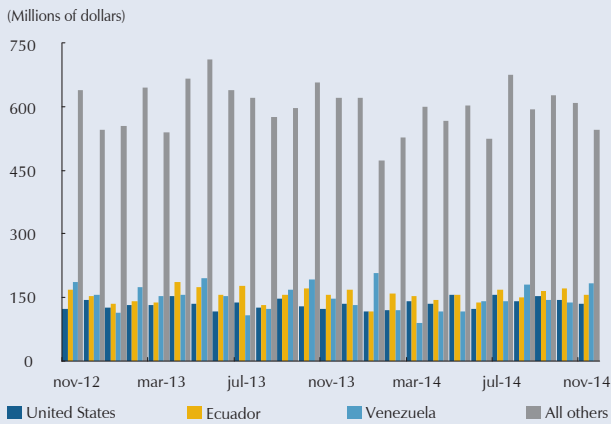
During this same period, annual growth in FOB imports in dollars was 8.0%. This increase is due mainly to more foreign purchases of capital goods, which increased 18.0% annually, driven by a 49% rise in imports of transportation equipment. Added to this is the positive change in imports of intermediate and consumer goods: 1.1% and 6.5%, respectively (Graph C).

1 (Note 1 Shaded Section pg. 28) Part of the decline in exports of refined petroleum products is explained by the shutdown of the Cartagena Refinery in early 2014.

2 (Note 2 Shaded Section pg. 28) These exports do not include petroleum or derivatives thereof, coal, ferronickel, gold, coffee, bananas or flowers, and account for 26% of total exports

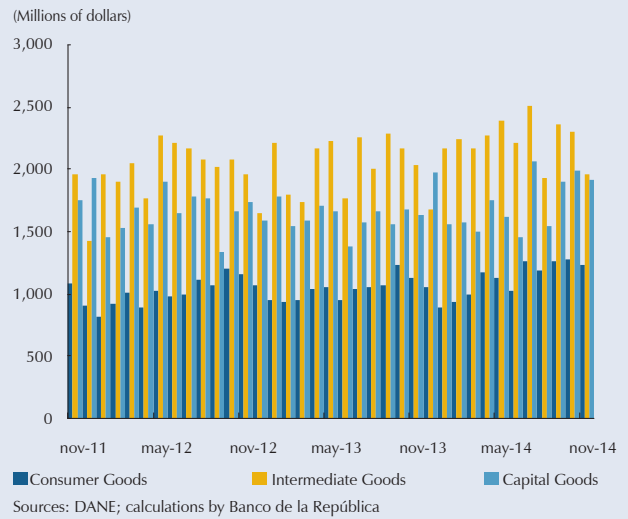
during that period. Industrial exports make up 96% of this group.

Graph B
Non-commodity Industrial Exports to the United States, Ecuador, Venezuela and All Other Countries^{a/} (Monthly)



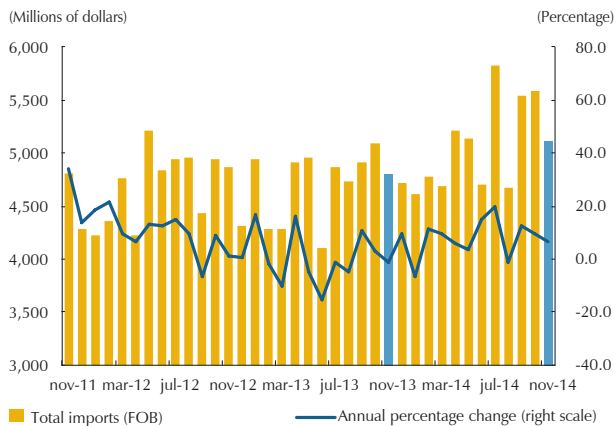
a/ Does not consider coffee, petroleum by-products, ferronickel, gold, bananas or flowers. Sources: DANE; calculations by Banco de la República

Graph C
Imports, by Type of Goods (FOB)



Sources: DANE; calculations by Banco de la República

Graph 15
Total Imports (FOB) (Monthly)



Sources: DANE; calculations by Banco de la República.

of the year, compared to previous quarters, driven by the economic recovery in the United States and Spain.

The available information on capital flows, taken from the foreign exchange balance,⁶ indicates FDI flows declined during the fourth quarter of 2014 with respect to those observed in the same period last year and compared to the third quarter. In the final months of the year foreign portfolio investment continued to flow into the country. Although the amounts were lower than those observed during gradual adjustment period in the JP Morgan emerging market bond index, they are significantly higher than those registered a year earlier.

In view of the foregoing and given the anticipated outcome for commerce, the current account deficit for all of 2014 is estimated between 4.8% and 5.2% of GDP, with 5.0% being the most likely figure. This surpasses the deficit in 2013 (3.3% of GDP) (Table 3).

⁶ (Note 6) Although the capital flows registered in the exchange balance do not correspond exactly to what is entered in the balance of payments, since the former refer to the entry and outflow of foreign exchange, they do offer some idea of the trend.

Table 3
Balance of Payments
Annual Flows

	2010	2011	2012 (pr.)	2013 (pr.)	2014 (proj.)
	(Millions of dollars)				
Current account (A+B+C)	(8,666)	(9,713)	(11,298)	(12,511)	(19,132)
Percentage of GDP	(3.0)	(2.9)	(3.1)	(3.3)	(5.0)
A. Goods and services	(1,887)	950	(843)	(2,748)	(10,262)
B. Primary income (factor income)	(11,227)	(15,497)	(15,034)	(14,179)	(12,819)
C. Secondary income (current transfers)	4,448	4,834	4,579	4,416	3,949
Financial account (A+B+C+D)	(8,921)	(8,844)	(11,264)	(11,744)	(19,066)
Percentage of GDP	(3.1)	(2.6)	(3.0)	(3.1)	(5.0)
A. Direct investment (ii-i)	(947)	(6,228)	(15,646)	(8,547)	(11,319)
i. Foreign investment in Colombia (FDI)	6,430	14,648	15,039	16,199	14,754
ii. Colombian investment abroad	5,483	8,420	-606	7,652	3,435
B. Portfolio investment	(973)	(6,090)	(5,690)	(6,978)	(14,516)
C. Other investments (loans, other types of credit and derivatives)	(10,144)	(267)	4,665	(3,165)	2,476
D. Reserve assets	3,142	3,742	5,406	6,946	4,293
Errors and omissions	(255)	869	34	768	66

(pr.) preliminary
(proj.): projected

Observation: The figures presented in this table are consistent with the recommendations outlined in the sixth edition of the Balance of Payments Manual proposed by the IMF. For additional information and changes in methodology, see <http://www.banrep.gov.co/balanza-pagos>
Source: Banco de la República

Unlike previous reports, this one considers other forecast scenarios for the 2015 balance of payments with respect to the terms and availability of foreign financing for the local economy, which have been an additional uncertainty source in recent months. On this occasion, this factor determines the forecast range width for the current account deficit. Three forecasts for country's current balance are proposed, conditional to different estimates of the financial account, while the central assumptions for the external context, as outlined in the previous section, are maintained.

Specifically, capital flows in the baseline forecast are expected to be somewhat lower than in 2014, due to fewer FDI resources and a lower influx of foreign portfolio investment, as explained in detail later in this section. In this environment, a correction in the current account deficit as a percentage of GDP is expected. This forecast includes the effect that the drop in oil prices would have on the different accounts in the external balance;

Capital flows are expected to be somewhat less in 2015 than those forecast for the year before, which assumes a slight correction in the current account deficit.

namely, i) the goods trade deficit would increase, due to a sharp decline in traditional exports, which would be offset, to some extent, by a recovery in non-traditional exports and a sizeable drop in imports; ii) the service trade deficit is expected to decline, and iii) net outflows of factor income would decrease in response to fewer profits remitted from the mining- energy sector, given the drop in its operating revenue.

Exports performance would be primarily affected by lower forecast for the oil and coal international prices forecast for, rather than by a sizable decline in the volume of these products exported. This situation would be offset, to some degree, by improved prospects for agricultural products and by a partial recovery in exports of petroleum products when Reficar resumes operations at the end of the year. Moreover, the growth in external demand should accelerate slightly, largely because of the United States economy expected performance. An additional boost to non-traditional exports would be provided by the forecasted depreciation for the Colombian peso. It is assumed all commodity exports will increase in volume, in line with the forecasted expansion in their production. Oil production, in particular, is expected to average around 1,020,000 barrels per day in 2015.

Accordingly, the baseline forecast points to a 32% drop in the main Colombian exports (in dollars), while total exports would be down by about 21%. Imports (in dollars) would fall sharply compared to 2014. There are several factors that would be associated with this behavior. Namely, a sharp drop in imports of capital goods for the mining-energy sector, a less dynamic domestic demand, and a generalized decline in international prices for imported items, especially intermediate goods.

FDI resources are expected to be less in 2015 than in 2014, given the anticipated cutback in investments by companies in the mining-energy sector, and a slowdown in investments in other sectors due to lower prospects for domestic demand.

As for financing, the baseline forecast anticipates less net direct investment with respect to the year before, mainly due to fewer FDI resources for the oil and mining sectors, coupled with reduced flows to other sectors, given the anticipated domestic demand slowdown. Investment directed towards oil, in particular, is expected to decline (by around 25%) given the announcements by several companies on plans to cut back their annual investment programs. This would be offset, to some extent, by lower outflows of Colombian investment abroad, compared to what was anticipated in 2014. Less net financing with resources from portfolio investment is expected, compared to past years, owing to a lower influx of foreign capital to the local government debt market and fewer bond issues on international markets by the nonfinancial public sector. This situation would be compensated somewhat by added revenue from other investments (loans and deposits).

For the forecast scenario with a larger current account deficit, it is assumed there will be greater access to funding sources in foreign markets. This would occur in a context with stability in the risk premia differentials and

On this occasion, the forecast range for the current account deficit in 2015 is wider, given added uncertainty about the availability of foreign financing.

financing costs, accompanied by a moderate reaction from FDI in non-oil sectors, that would support a current account deficit similar or higher than the one expected in 2014, consistent with domestic demand that would be somewhat affected by the oil shock. On the contrary, a scenario that contemplates more costly foreign financing, due to low confidence in emerging markets, could lead to a sharper adjustment in the external accounts and added constraints on the growth of domestic demand.

Given the above, the forecast range for the current account deficit in 2015 is between 3.3% and 5.5% of GDP, with a downward bias due to the balance of risks weighing on the international situation.

The abovementioned forecasts for the three scenarios described in this section took into account international prices Colombia's raw material exports and the growth of our trading partners, as contemplated in the baseline forecast presented in section A of this chapter. However, as noted earlier, the current situation poses additional risks to global growth and to raw material prices. These risks were not considered, in this report, within the range of forecasts for the external accounts, but do constitute an extra framework of uncertainty that could affect the forecasts outlined herein.

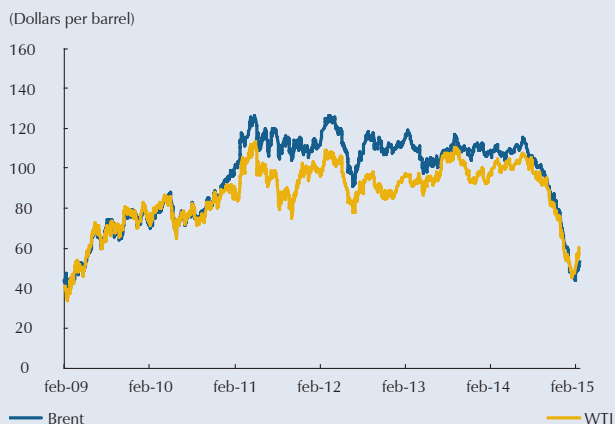
Box 1 DETERMINANTS OF THE RECENT DECLINE IN OIL PRICES, FORECAST EVALUATION AND OUTLOOK*

Aarón Garavito
Juan Sebastian Rojas
Jhon Edwar Torres**

The price of Brent crude oil remained relatively stable between early 2011 and the first half of 2014, averaging USD 110 per barrel (bl). However, after late June 2014, when it reached a record high for the year (USD 115.5 / bl), the price plunged 60% to USD 45.8 / bl in January 2015, followed by a partial recovery in mid-February (USD 61 / bbl) (Graph B1.1). This unexpected reduction was considerable in scope and originates from a combination of factors, including demand and supply shocks, and possible financial markets' reactions.

Cutbacks in worldwide oil demand forecasts¹ began to be observed during the second half of 2014, in response to weaker global growth prospects (IEA, 2014b). Added

Graph B1.1
International Oil Prices (Brent and WTI)



Source: Datastream.

* This section was developed with figures up to early February 2015, which are more recent than those used in the rest of this report.

** The authors are part of the staff of the Programming and Inflation Department. Mr. Garavito is a specialized economist; Mr. Rojas and Mr. Torres are also economists. The opinions expressed in this section imply no commitment on the part of *Banco de la República* or its Board of Directors.

1 (Note 1 Box 1) The forecast for the demand for crude oil worldwide in 2015 as a whole was cut from around 94.1 million barrels per day (mbd) to 93.3 mbd between mid-2014 and early 2015 (IEA, 2014A and 2015).

to this was the build-up in alternate energy sources implementations and more efficient fuel use observed during the past decade (Kemp, 2015).

According to the World Bank (2015), a stronger dollar is another factor that can adversely affect oil prices, since crude oil demand expectations can decline due to loss of purchasing power of oil-purchasing countries' currencies. In fact, the dollar appreciated 9.7% between the start of the drop in oil prices and their lowest level in January 2015.

As Kilian points out (2014), fluctuations in the real price of oil since 1973, and including the sustained growth episode between 2003 and 2008, were primarily the result of demand shocks. During the latest episode, Hamilton (2014) attributed approximately 47% of the price decline to this type of factors, while Arezki and Blanchard (2014) suggest that 20% to 35% of the drop could be explained by the unexpected reduction in demand.

Additionally, global supplies of oil rose at an annual rate of 2.1%² in 2014, surpassing the increase in demand (0.7%), and it is expected to remain abundant in 2015. This, coupled with the prospect of a low global demand, has lowered agents' price level expectations.

The greater global supply was mainly the result of an increased production in the United States since 2011³ due to the growth in unconventional crude extraction. This phenomenon was driven by high oil prices seen in previous years, which made possible to cover the high costs associated with technologies such as hydraulic fracturing and horizontal drilling, used to extract these resources (Kemp, 2015).

The large 2014 supply also benefited from stable production in Russia and in the member states of the Or-

2 (Note 2 Box 1) Global supply increased from 91.4 mbd in 2013 to 93.3 mbd in 2014. At the same time, demand went from 92.4 mbd to 91.8 mbd (IEA, 2015).

3 (Note 3 Box 1) While the global supply of oil rose from 88.6 mbd in 2011 to 93.3 mbd in 2014 (an increase of 4.7 mbd), the supply in the United States was up by 3.1 mbd, having gone from 5.6 mbd to 8.7 mbd during the same period (IEA, 2015, ISA, 2015).

ganization of Petroleum Exporting Countries (OPEC), despite the presence of internal conflicts in some of them.⁴ In fact, Libya registered a partial recovery in production, while production in Iraq reached historically high levels in late 2014, all of which contributed to the growth in global supply (OPEC, 2015). This was contrary to forecasts of possible supply problems, which led to a correction in price expectations when they did not materialize (World Bank, 2015).

Moreover, at its meeting in late November last year, OPEC decided to maintain production levels despite the drop in prices observed up to that point. This changed expectations about future oil supply and contributed to the price decline (Arezki and Blanchard, 2014). Some analysts say the leading OPEC members adopted a strategy to maintain market share by not cutting production back and even lowering prices (IEA, 2015). This tactic also intended to affect the growing supply of unconventional crude, which is costly to extract and could cease to be profitable as sale value declines (Arezki and Blanchard, 2015). As a result, companies that extract unconventional oil would face cash flow constraints and borrowing restrictions in order to maintain investment levels (*The Economist*, 2014).

Finally, hedge funds and other market agents drastically reduced their net long positions in crude oil futures and options, possibly provoking further downward pressure on oil prices. In this regard, Kolodziej and Kaufmann (2013) find evidence that would support the assumption of a two-way adjustment link between agents' positions and oil prices.

Forecast Analysis

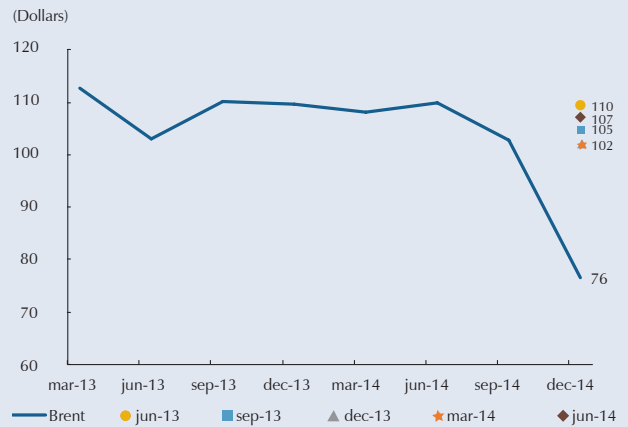
The recent price decline was both considerable and unexpected. In fact, analysts' forecasts and those implied by futures contracts were way off mark compared to the end of 2014 actual situation.

As of June 2013, analysts and futures contracts anticipated prices above USD 100 / bbl by the end of 2014⁵

4 (Note 4 Box 1) The OPEC supply in 2014 remained above 30 mbd, similar to what it was the year before. Russia, another major oil producer, also maintained hefty levels above 10 mbd (OPEC, 2015).

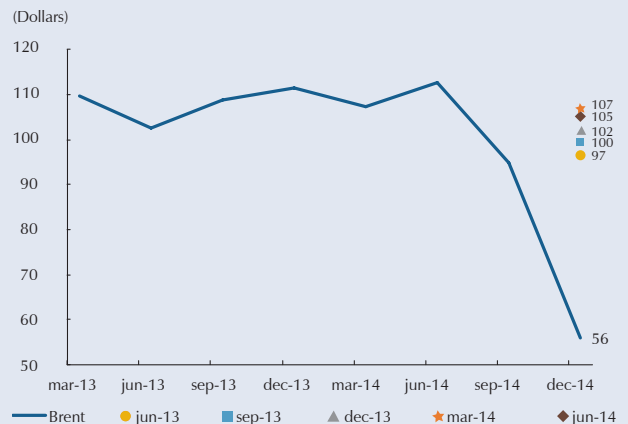
5 (Note 5 Box 1) The analysts' forecasts refer to the quarterly average; the futures contracts refer to the quarter average in the Bloomberg survey.

Graph B1.2
Observed Brent Crude Price and Forecasts in the Last Six Quarters for the Average Price in the Fourth Quarter of 2014 (Quarterly average)



Source: Bloomberg.

Graph B1.3
Observed Brent Crude Price and Futures Contracts in the Last Six Quarters for December 2014 (On the last day of the quarter)



Source: Bloomberg.

(Graphs B1.2 and B1.3). This expectation was maintained even into the second quarter of 2014.

A statistical analysis of the forecast errors⁶ points to the existence of an upward bias, plus an increase in error as

6 (Note 6 Box 1) The accuracy of forecasts made by market analysts (quarterly averages) and those implied by futures contracts (end-of-quarter) is evaluated. This assessment relied on quarterly data from the five periods prior to the change in trend and up to the forecast horizon listed the tables. The periods of price decline in the final quarter of 2008 and 2014, and the partial recovery at the end of 2009 were employed as points of reference. Four standard measures were used; namely, i) the mean

soon as the forecasts for the end of 2014 were taken into account, at which point the change in the trend in crude prices became more pronounced (Tables B1.1 and B1.2).

Table R1.1
Forecast Error Analysis: Market Analysts' Forecasts (2013-2014)

Date	Steps Forward	MFE	MAD (USD)	MAPD (%)	MASE
Mar-13	5	-	3.04	2.85	3.22
Jun-13	5	-	2.60	2.47	4.67
Sept-13	5	-	8.13	9.73	4.42
Dec-13	5	-	7.74	9.09	4.21
Mar-14	4	-	8.77	10.57	2.98
Jun-14	2	-	18.95	23.56	1.45

Source: Authors' calculations.

Table R1.2
Forecast Error Analysis : Futures Contracts (2013-2014)

Date	Steps Forward	MFE	MAD (USD)	MAPD (%)	MASE
Mar-13	5	+	4.04	3.73	4.07
Jun-13	5	+	5.57	5.11	6.07
Sept-13	5	+	8.50	7.78	5.64
Dec-13	5	-	12.70	19.95	3.82
Mar-14	4	-	17.63	27.73	3.39
Jun-14	2	-	30.91	50.86	1.59

Source: Authors' calculations.

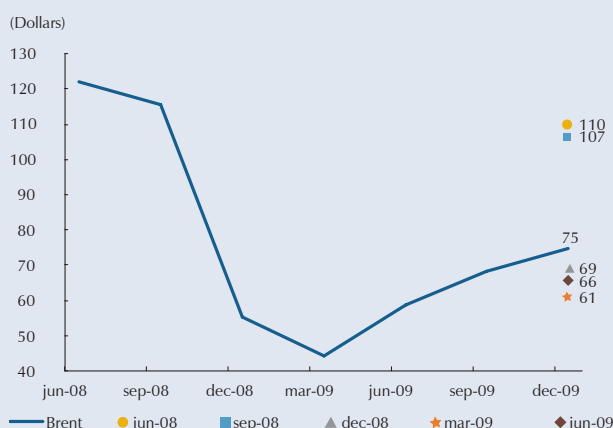
forecast error (MFE), which indicates if the forecast errors, on average, were above or below observed values (a positive sign shows a downward bias in the forecast and a negative sign, an upward bias); ii) the mean absolute deviation (MAD), which is the mean deviation of the forecast in dollars (absolute value); iii) the mean absolute percentage deviation (MAPD), which is the mean percentage deviation of the error and, finally, iv) the mean absolute scaled error (MASE). This last measure is the ratio of the sum of the forecast errors to the average of the errors shown by the naïve forecast, which is equal to the value actually observed in the immediately preceding third quarter. If it is less than 1, the forecast in question is better than the naïve forecast; if it is above 1, it is worse.

The plunge in oil prices at the end of 2008 was analyzed as well. For that period, analysts forecast that the price would not remain above USD 100 / bbl as of the end of 2008 and would return to the levels observed in the second half of 2007; namely, between US \$ 75 / bbl and USD 90 / bl. However, the price dropped far more than expected.⁷ The forecast errors showed larger deviations than those pertaining to the event in 2014, since the drop in 2008 was preceded by sharp hikes in the price of crude.⁸

What agents expected one year forward, after the drop in oil prices during late 2008, was examined as well. On that occasion, the forecasts in December 2008 and in March and June 2009 captured the subsequent recovery in prices, but underestimated its magnitude. While the average price in the final quarter of 2009 was USD 75/bbl, analysts expected between USD / bl 61 and \$ 69 / bbl (Graph B1.4). This underestimation was even larger in the futures contracts (Graph B1.5).⁹

The forecast error analyses show that projections made by analysts and those implied in futures contracts are

Graph B1.4
Observed Brent Crude Price and Forecasts in the Last Five Quarters for the Average Price in the Fourth Quarter of 2009 (Quarterly average)



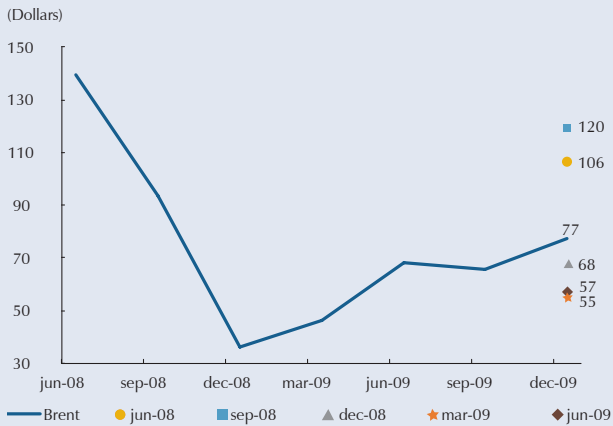
Source: Bloomberg.

7 (Note 7 Box 1) The gap in the future contracts was even greater, since the price at the end of the year was US 36/bl as opposed to USD 131/ bl anticipated six months earlier.

8 (Note 8, Box 1) Neither analysts nor futures contracts anticipated the sharp rise observed between March 2007 and June 2008 or the subsequent drop at the end of last year.

9 (Note 9 Box 1) The assessment shows a significant forecast error, which is corrected later to some degree, once agents included the actual decline.

Graph B1.5
Observed Brent Crude Price and Futures Contracts in the
Last Five Quarters for December 2009
(On the last day of the quarter)



Source: Bloomberg.

less accurate than a naive forecast. The difficulty in anticipating major changes in oil prices highlights the importance of macro-prudential policies in oil-exporting countries, since they need to cushion the impact of unexpected variations can have on their economies (Mas-son, 2014).

The Outlook for 2015

As discussed in previous sections, trend changes in oil prices are unexpected, can be significant, and are influenced by a number of time varying factors (Killian, 2010). Furthermore, when the recent high volatility is accounted for, it is difficult to determine how this variable will behave.

A great deal of the dynamics in international oil prices during 2015 depend on the persistence of shocks that provoked its decline in recent months. Accordingly, there are be factors that could drive a partial recovery in price with respect to the lows reached in mid-January of this year (USD 45.8 / bbl), but at levels below the average observed between 2011 and the first half of 2014 (USD / 110 bl).

A partial improvement in prices would be consistent with what leading market analysts expect.¹⁰ However, it as-

10 (Note 10 Box 1) The Bloomberg analysts, on average, expect the mean price in 2015 to be USD 62.2 / bl, while the United States Energy Information Administration (EIA) forecasts an average of USD 57.6/ bl.

sumes that much of the downward shock to prices would persist throughout the current year.

In this partial recovery scenario, global demand is expected to recover somewhat in 2015, largely due to the positive impact that lower fuel costs will have on the disposable household income and on the production costs of oil-importing countries. The effect on growth for these economies could be greater than the slowdown observed in oil-producing countries, originated in a lower oil-sector investment, a decline in terms of trade, and added pressure on fiscal accounts.

Accordingly Arezki and Blanchard (2015), the Institute of International Finance (IIF, 2014) and the World Bank (2015) estimate that the collapse of international prices for crude oil would add between 0.2 and 0.9 percentage points (pp) to worldwide GDP growth. The International Energy Agency (IEA, 2015) estimates the average demand for oil in this environment would increase from 92.4 million bpd in 2014 and 93.3 mbd in 2015.

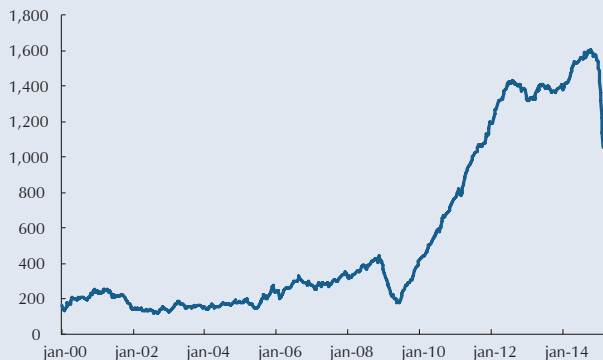
On the supply side, the extraction of unconventional oil, mostly located in North America, would decline in this scenario, since in some cases their marginal costs would be above current prices. According to the consulting firm Rystad Energy (2014), the marginal costs for shale oil are between USD 40 / bbl and US65 / bbl, while those for oil sands are on the USD 50-85/bbl range.

The cutback in unconventional oil exploration would come in the second half of the year, since the initial investment in many of these wells has been made already. Consequently, extraction would continue in an effort to recover some of the sunken costs and to meet acquired financial obligations.¹¹ Additionally, production levels on these wells declines relatively quickly. So, if low oil prices prevent new investments, the extraction of these resources may decline. The recent decline in the number of rigs for crude oil exploration and extraction in the United States (Graph B1.6) may be signaling the onset of that scenario.

Accordingly, there are announcements by the major oil companies of a lower investment worldwide, which suggest a decline in oil production in the medium term.

11 (Note 11 Box 1) The production of unconventional oil likely has more price elasticity than estimated initially. If so, the rise in production would begin to slow during the early months and would be faster than anticipated, thereby contributing to a quicker increase in price.

Graph B1.6
Number of Drilling Rigs Used for Oil Exploration and
Extraction in the United States



Source: Baker Hughes Incorporated.

This might affect agents' expectations about future supply and pressure upwards oil prices.

As for geopolitical risks, interruptions in oil supply as a result of conflicts in the Middle East or North Africa cannot be ruled out and could spark a larger recovery in price.

However, there are factors that could prevent such a recovery or cause additional reductions in price. On the demand side, for example, if any of the downside risks to global growth (Chapter 1) were to materialize (especially those related to the euro area and China) the demand for crude oil would weaken and an increase in its international price would be delayed.

As for supply, OPEC will not cut its production during 2015, aiming to maintain its market share.¹² Another factor is the accumulation of oil inventories, which will keep the supply high during the coming months. In geopolitical terms, an agreement with Iran over its nuclear program might be achieved. If this is the case, it could allow the removal of sanctions imposed by the United States and the euro area, thereby giving Iranian oil access to international markets.

Ultimately, technological advances and efforts to improve efficiency might have lowered the marginal costs of unconventional reserves below those estimated initially. If so, supply at current prices could remain large. If true, this

12 (Note 12 Box 1) By having lower costs, OPEC is in a better position than unconventional crude oil producers to withstand lower prices. However, it is important to remember the economies of OPEC member countries are highly dependent on oil exports and may not be able to tolerate low prices for a prolonged period of time.

would imply a structural change in the world oil market and a factor that could trigger a persistent decline in prices.

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II. DOMESTIC GROWTH: CURRENT SITUATION AND SHORT-TERM OUTLOOK

Colombia's annual GDP growth during the third quarter of 2014 was 4.2%. This was at the bottom of the forecast range presented in the previous edition of the *Inflation Report*.

During the fourth quarter, the economy expanded at a slower pace than the rate posted for the third quarter. Domestic demand, especially in investment, performed well.

Manufacturing was affected between October and December 2014 by a drop in refined petroleum goods production, due to the temporary shutdown of the Cartagena Refinery.

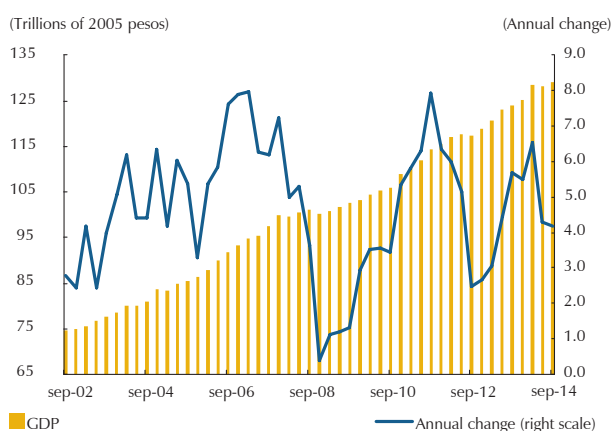
Investment in buildings construction and on civil works continued to fuel growth towards the end of 2014, as did government consumption.

A. GDP: THIRD QUARTER 2014

The Colombian economy during the third quarter grew 4.2% with respect to the same period of 2013 (Graph 16), according to the latest gross domestic product (GDP) bulletin issued by National Bureau of Statistics (DANE). This figure, which represents a slight reduction compared to the second quarter (4.3%), was at the bottom of the forecast range presented in the previous edition of the *Inflation Report* (between 4.0% and 5.2%, with 4.6% as the most likely figure). The increase between quarters was 0.6%.

Across GDP components, domestic demand growth (6.6%) slowed down as a result of a less dynamic aggregate consumption, especially the aggregate government consumption. Private consumption also registered a lower annual growth rate, although its momentum was above the aver-

Graph 16
Gross Domestic Product
(Seasonally adjusted)



Sources: DANE; calculations by Banco de la República.

Durable goods consumption continued to be the most dynamic item of private consumption during the third quarter.

age on record since 2000. This decline was not offset entirely by the improved performance of investment and exports.

According to figures published by DANE, the best performing segment of private consumption was durable goods, driven by sales of motor vehicles during that period. There were no significant changes in growth of non-durable goods compared to the rate observed in the second quarter of 2014, while the slowdown in private consumption was due mainly to low growth rates for semi-durable goods and services (Table 4).

With respect to investment, the items with the largest share (machinery and equipment, transport equipment, construction of buildings and civil works) grew at annual rates on the double-digits, in some cases even above the average since 2000. As a whole, these components contributed 3.6 percentage points to GDP growth during the period.

The foreign trade accounts combined outcome contributed negatively to GDP growth, since the strong recovery in exports in real pesos was ac-

Table 4
Real Annual GDP Growth, by Type of Spending

	2013				2013	2014			Contributions to Growth
	I Qtr.	II Qtr.	III Qtr.	IV Qtr.	Full year	I Qtr.	II Qtr.	III Qtr.	III. Qtr. 2014
Total consumption	3.7	4.3	4.5	4.9	4.4	5.8	5.6	4.7	3.8
Household consumption	3.5	4.2	4.4	4.8	4.2	5.4	5.3	4.5	2.9
Non-durable goods	2.9	4.5	4.1	4.8	4.1	5.6	4.9	5.0	1.1
Semi-durable goods	3.7	6.5	6.1	7.3	5.9	6.0	4.7	3.5	0.2
Durable goods	1.1	1.2	8.3	4.6	3.8	6.8	9.2	8.2	0.3
Services	4.0	4.1	4.1	4.5	4.2	4.5	5.0	4.0	1.3
End government consumption	5.4	5.5	6.0	6.2	5.8	8.1	6.5	5.4	0.9
Gross capital formation	(0.3)	(3.3)	14.7	10.6	5.1	18.5	14.3	12.3	3.4
Gross fixed capital formation	3.9	0.6	12.2	8.1	6.1	15.2	11.2	12.7	3.5
Agriculture, forestry, hunting and fishing	(2.2)	(5.6)	(9.7)	(13.9)	(7.9)	3.7	26.4	6.6	0.0
Machinery and equipment	3.2	2.6	1.4	4.2	2.9	12.8	6.5	11.2	1.0
Transport equipment	(14.6)	(14.7)	1.6	9.7	(4.9)	3.6	16.1	17.9	0.6
Construction and buildings	12.2	12.5	31.8	(3.6)	12.0	8.2	2.2	14.9	1.0
Civil works	7.8	(1.4)	21.4	23.0	11.9	25.5	17.7	11.1	1.0
Services	4.4	(3.2)	13.5	2.8	4.2	7.5	7.2	1.3	0.0
Domestic demand	2.7	2.7	7.1	6.4	4.7	9.6	7.1	6.6	7.2
Total exports	(1.6)	14.4	1.5	7.4	5.4	3.2	(9.7)	5.3	0.9
Total imports	1.9	4.2	4.5	7.5	4.5	14.1	9.6	14.2	(3.9)
GDP	3.0	4.5	5.7	5.5	4.7	6.5	4.3	4.2	4.2

Sources: DANE; calculations by Banco de la República.

accompanied by a build-up in imports. In the case of exports, several supply shocks that affected the coal sector in the third quarter of 2013 were reversed during the same quarter of 2014, while the good performance of imports was due to larger quantities of capital goods and transport equipment purchased abroad. Refined petroleum products imports remained high, since the Cartagena Refinery (Reficar) was still closed for refurbishing.

On the supply side, the sectors that contributed the most to growth of the Colombian economy were construction (mainly civil works), financial services, and social, community and personal services, in that order (Table 5). The only branches posting an annual decline were mining and, to a lesser extent, industry. Tax revenue continued rising, in line with the economy's momentum during the current year.

Civil works and building construction performed much better than the economy as a whole. For the first, an increase of 11.1% was observed between July and September. It is important to note that this performance continues to be led by highways, streets, and bridges construction, which was up by 13.9% and contributed 4.8 percentage points to the total variation. For the

Table 5
Real Annual GDP Growth, by Branch of Economic Activity

Sector	2013				2013 Full Year	2014			Contribution to annual growth (III Qtr. 2014)
	I Qtr.	II Qtr.	III Qtr.	IV Qtr.		I Qtr.	II Qtr.	III Qtr.	
Agriculture, forestry, hunting and fishing	3.1	7.6	5.3	5.9	5.5	6.1	1.5	3.4	0.2
Mining and quarrying	0.8	4.5	6.7	7.8	4.9	5.7	(2.2)	(1.0)	(0.1)
Manufacturing industry	(4.7)	1.1	(0.4)	0.1	(1.0)	3.2	(1.4)	(0.3)	(0.0)
Electricity, gas and water	4.2	5.8	4.1	5.6	4.9	4.7	3.7	3.9	0.1
Construction	12.6	4.9	21.3	10.5	12.0	18.2	10.2	12.7	0.9
Buildings	10.3	9.8	30.0	(0.4)	11.4	7.7	1.6	14.1	0.4
Civil works	12.8	2.2	17.4	20.0	12.7	26.0	17.6	11.1	0.4
Commerce, repairs, restaurants and hotels	2.9	4.3	4.6	5.5	4.3	5.5	4.9	4.8	0.6
Transport, storage and communication	2.2	3.3	3.4	3.4	3.1	4.6	4.4	4.3	0.3
Financial, real estate and company services	3.8	4.5	6.1	5.8	5.0	6.1	6.1	4.4	0.9
Social, community and personal services	4.9	5.1	5.0	6.2	5.3	6.8	5.8	4.7	0.7
Subtotal – aggregate value	2.8	4.2	5.5	5.4	4.5	6.4	3.9	4.0	3.6
Taxes minus subsidies	3.7	4.6	5.8	4.5	4.7	7.5	7.7	6.1	0.6
GDP	3.0	4.5	5.7	5.5	4.7	6.5	4.3	4.2	4.2

Sources: DANE; calculations by Banco de la República.

Economic growth in Colombia is still being led by the non-tradable sectors. Expansion in the tradable sectors remained at low annual rates.

second, the outcome surpassed expectations, with an annual increase of 14.1% as opposed to 1.6% in the previous quarter.

In the financial sector, overall growth in the loan portfolio was lower in third quarter versus the second, having gone from 13.7% to 12.6%. Although intermediation margin remained roughly the same, the annual increase sectorial GDP during July and September 2014 was lower than it was three months earlier (having gone from 6.1% to 4.4%). This item is still one a major contributor to the economy, given its large GDP share (19.9%).

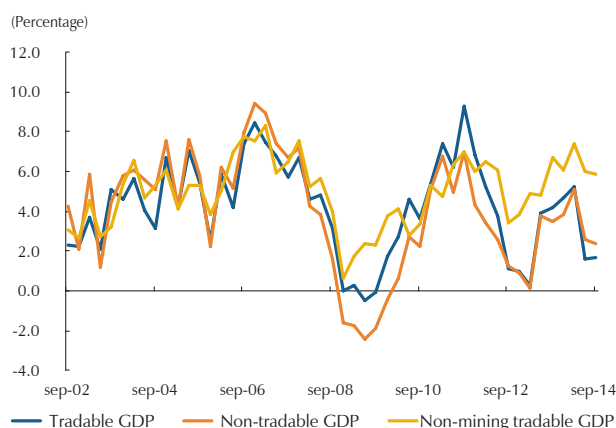
Other of the best performing sectors was social, community and personal services. This branch remained buoyant and rose 4.7%, thanks to the sustained growth in public administration and defense (5.4%) and in social and health services (6.3%).

In contrast, branches associated with mining and industry performed negatively during the third quarter. In mining, the production increase of coal (2.3%) and minerals, both metallic (0.8%) and non-metallic (13.0%), was offset by the decline in oil production (-2.8%). Industry posted an annual decline of 0.3%, suggesting a slight improvement after contracting 1.4% three months ago. The main sub-branches that contributed negatively were

those related to oil refining, publishing and printing, and wood products. It is important to note the temporary closure of Reficar affected the production of refined oil products throughout most of 2014.

As mentioned in the last edition of this report, Colombia's economic growth continues being led by non-tradable sectors. These sectors' annual increase came to 5.8%, which is similar to the rate observed during the previous quarter (6.0%). Annual GDP growth in the tradable sectors remained low, similarly to the previous quarter (going from 1.6% to 1.7%). The other tradable sectors, aside from mining, exhibited stronger growth (2.3%) (Graph 17).

Graph 17
GDP in the Tradable, Non-mining Tradable and Non-tradable Sectors
(Annual growth)



Sources: DANE; calculations by Banco de la República.

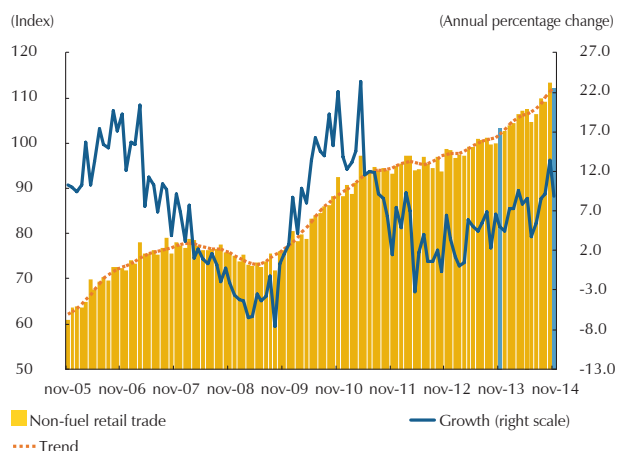
B. FOURTH QUARTER GDP GROWTH FORECASTS

The GDP growth forecast for the fourth quarter includes in its information set figures for business and opinion indicators available at the time of writing this report. These variables suggest that the Colombian economy

expanded at a pace that was slower than the one observed during the third quarter. The forecasts presented in this section indicate that domestic demand continued to perform well throughout the year, driven by private consumption and investment. However, government consumption is expected to have played a lesser role. The fourth quarter of 2014 also would have seen a smaller contribution from the foreign trade balance.

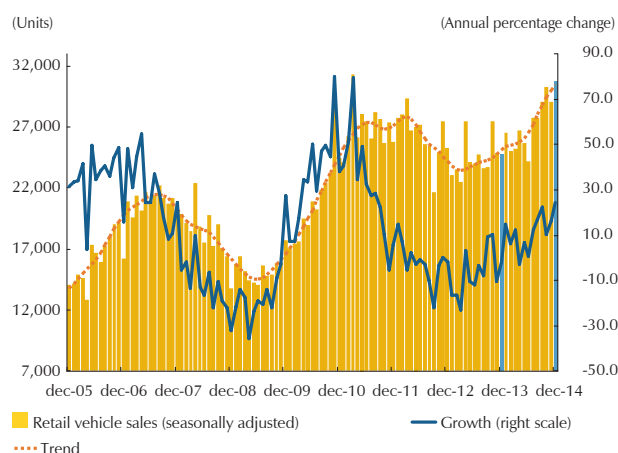
For private consumption, the latest DANE monthly retail trade survey (MRTS) shows an annual increase in retail sales of 8.8% by November (Graph 18). This figure puts the growth of the October-November two-month period at 11.0% with respect to the same period of 2013. It also represents an acceleration compared to the third quarter. Subtracting vehicle sales, the annual increase by November was 8.1%, and 10.5% for the two-month period.

Graph 18
Monthly Retail Trade Survey (Total non-fuel retail trade, seasonally adjusted)



Sources: DANE; calculations by Banco de la República.

Graph 19
Automobile Retail Sales (Seasonally adjusted series)



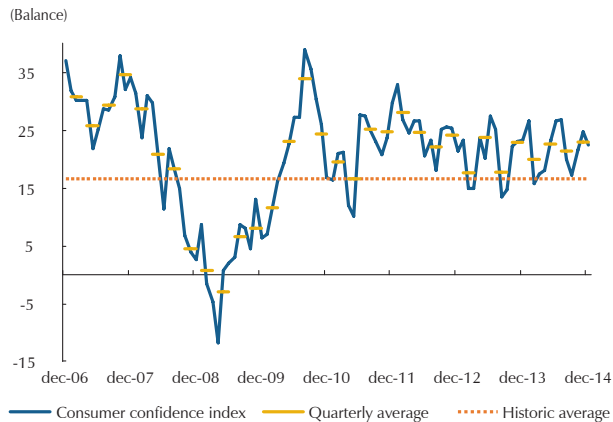
Sources: ANDI, Fenalco and Econometrics; calculations by Banco de la República

month period. Therefore, household consumption growth during the fourth quarter was positive due, particularly, to the services and durable goods performance.

As for durable goods, the positive momentum in vehicle and automobile sales strengthened during the fourth quarter. According to the MRTS, retail automobile sales were up 12.0% annually by November (15.2% in October-November). These figures for retail vehicle sales are confirmed by data published by the National Business Association of Colombia (ANDI), the National Federation of Merchants (Fenalco) and Econometría. The annual increase in December was 24.7%, which represents a 17% annual growth during the fourth quarter (Graph 19). Also, the 14th Automobile Exhibit was held in Bogotá towards the end of November. This biennial event usually encourages automobile sales, as did the consistently low price of the dollar throughout the year. Importantly, 2014 was a record year for number of vehicles sold: approximately 330,000 units. This figure represents around 4,000 units more than in 2011, when sales also hit a record high. Consequently, durable goods consumption is expected to perform well in the fourth quarter, as has been the case all year.

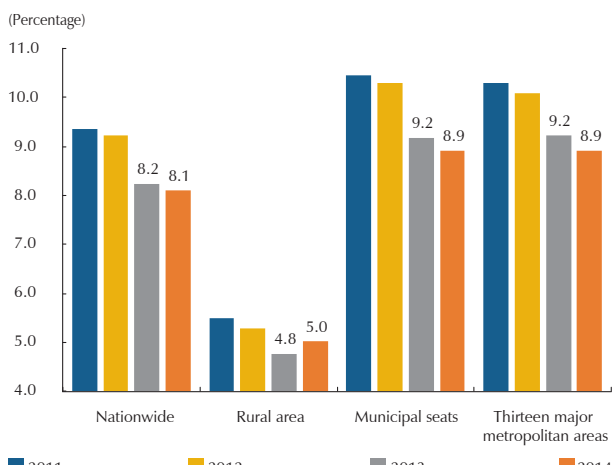
Other indications of good growth in private consumption are provided by the consumer confidence

Graph 20
Consumer Confidence Index and Quarterly Average



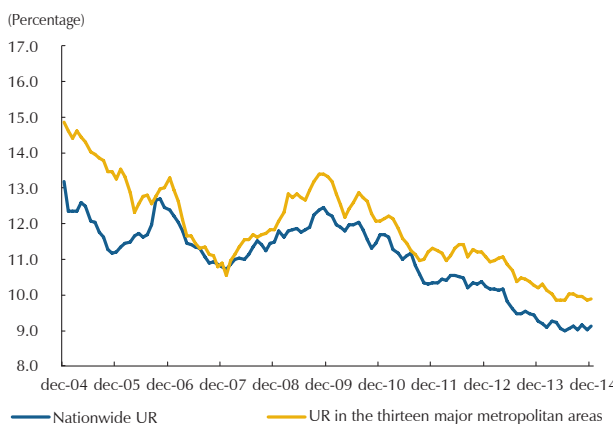
Source: Fedesarrollo.

Graph 21
Unemployment Rate (UR)
(October-November-December moving quarter)



Source: DANE (GEIH); calculations by Banco de la República

Graph 22
Unemployment Rate Nationwide and in the Thirteen Major Metropolitan Areas
(Seasonally adjusted moving quarter)



Sources: DANE (GEIH); calculations by Banco de la República.

index published by Fedesarrollo. December data for the fourth quarter average was slightly higher than the third quarter level, but similar to the 2014 whole year average (Graph 20). It should be noted this indicator exceeded, yet again, the historical average since 2001.

Job market performance continued to favor growth in household consumer spending. The data up to the moving quarter ended in December, shows that the unemployment rate (UR) was down again, reaching 8.1% nationwide, 5.0% for rural areas and 8.9%, for both urban centers and the thirteen major metropolitan areas (Graph 21). Discounting seasonal effects, the UR series maintains during the fourth quarter the low levels reached in previous months (Graph 22).

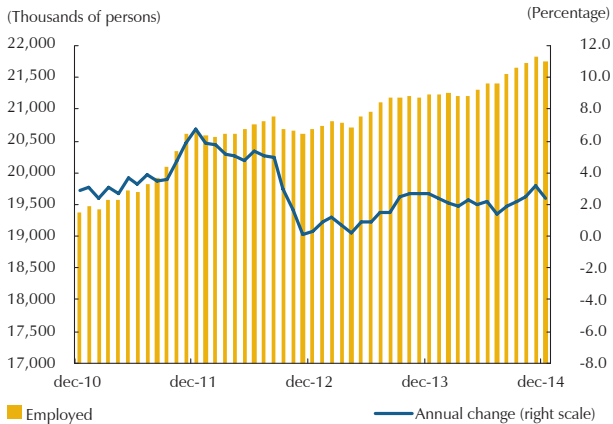
Recent UR behavior is explained primarily by employment momentum. This is shown by the increase in the number of occupied persons, which rose at an annual rate of 2.4% nationwide and 3.7% in the thirteen major metropolitan areas during October-December (Graph 23).

Employment growth, in turn, is attributed to the situation with salaried jobs, which increased at an annual rate of 5.2% in the thirteen major metropolitan areas during the moving quarter ended in December, while the annual rise in non-salaried jobs was 2.1% for the same period and domain (Graph 24).

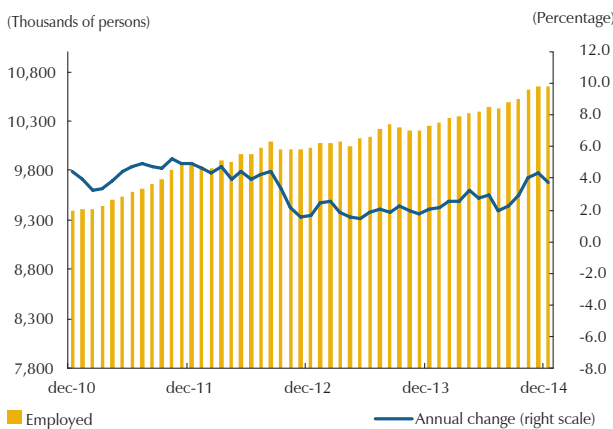
Finally, fourth-quarter consumer loan portfolio nominal growth shows a build-up, suggesting that private consumption increased at a good pace during that period. This portfolio posted a 13.0% annual growth rate during October-December, as opposed to 11.8% in the third quarter. When analyzing credit access cost, it is apparent that household loans' real interest rates continued on a downward trend during the fourth quarter (Graph 25). This was largely due to rising prices towards the end of the year and was not offset by movement in the nominal rates on financial markets.

Graph 23
Number of Employed Persons and Annual Change

A. Nationwide total

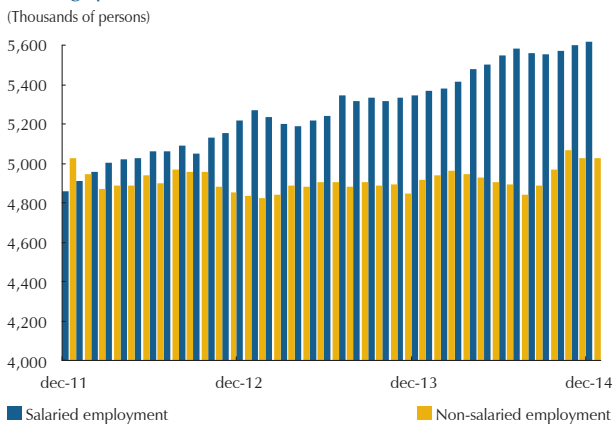


B. Thirteen major metropolitan areas



Sources: DANE (GEIH); calculations by Banco de la República .

Graph 24
Employment, by Type of Occupation
(Thirteen major metropolitan areas, seasonally adjusted moving quarter)



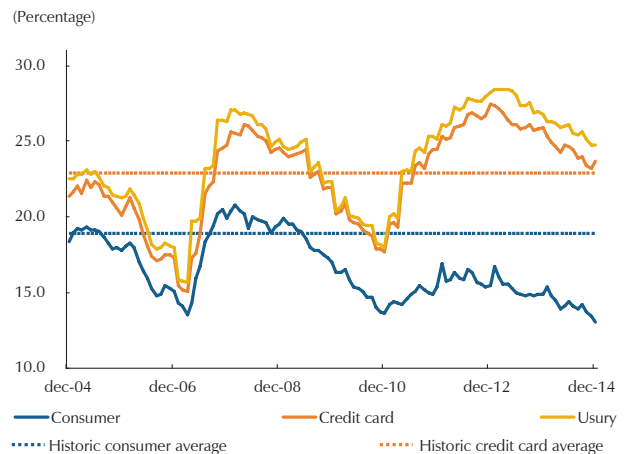
Sources: DANE (GEIH); calculations by Banco de la República .

As for fourth quarter gross fixed capital formation, recent momentum in capital goods imports point to a rapid expansion in investment in machinery and equipment and in transport equipment. In fact, the annual increase in this segment of imports, in dollars, was 17.6% during October-November, which indicates a significant increase for this item in real terms, consistent with positive prospects for fixed capital investment (excluding building construction and civil works), similar to what was seen in previous quarters (Graph 26).

Foreign trade performance during the fourth quarter is expected to be heterogeneous. The momentum in exports, in real pesos, would have slowed compared to the figure recorded in the third quarter. According to the latest data, the export volume index showed a setback with respect to the third quarter. This situation is further complicated further by a high base of comparison for the same quarter in 2013. As for imports, real peso figures indicate that this aggregate increased slightly less than during the third quarter.

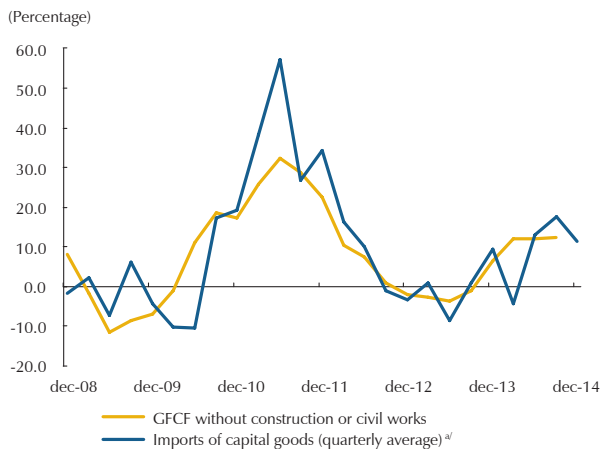
On the supply side, most indicators at hand suggest relatively good performance, but slightly less so than during July-September. These forecasts take into account that refined oil derivatives production continued declining due to the temporary

Graph 25
Real Household Interest Rates
(Non-food CPI deflated)



Sources: Office of the Financial Superintendent of Colombia; calculations by Banco de la República

Graph 26
Imports of Capital Goods (Real) and GFCF Excluding
Building Construction and Civil Works
(Annual change)



GFCF: Gross fixed capital formation
a / Figures expressed in real terms
Sources: DANE (national and foreign trade accounts); calculations by Banco de la Republica

closure of Reficar.⁷ However, this was offset by favorable news in commerce and by the forecasted performance for civil works and buildings construction.

Certainly, construction continued playing an important role in Colombia's economic growth during the latter part of 2014. In the case of civil works, payments by both national and territorial agencies for interurban road construction, maintenance, repair and upgrading should remain favorable. Consequently, civil works' growth rate is expected to surpass that of the economy as a whole, but would be below the increase observed in the first three quarters (18.3%).

Growth in buildings construction would be similar to that of the previous quarter, as the effects of government stimulus ("priority interest" housing program) should continue. This considers the fact that the actually built area measured by DANE's building census increased considerably in the third quarter. According to data available by December, cement production and sales rose 6.4% and 7.3% during the fourth quarter, in that order. This kept expansion above historical averages for these variables (3.0% and 3.8%, respectively), but below figures observed three months earlier (10.2% and 12%). Nevertheless, observed levels and trend component confirm that this sector will continue to contribute to economic growth (Graph 27).

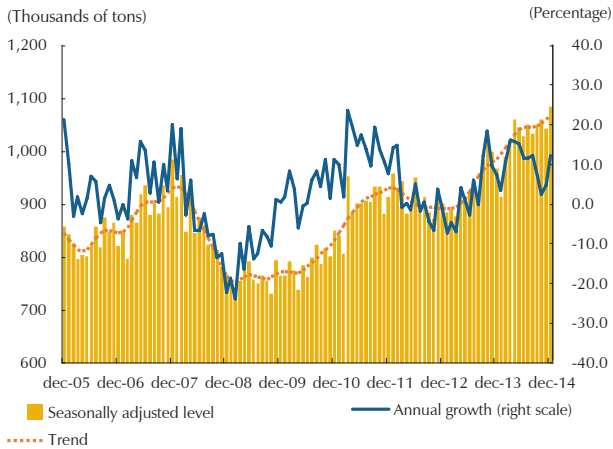
As mentioned earlier, commerce still exhibits high momentum, as shown by the notable performance of retail sales. The amount of employment generated in commerce by November 2014 was consistent with this fact, increasing annually 4.8% as opposed to 2.9%, on average, for the third quarter. This growth was due to the recruitment of more permanent staff (4.4%) and an increase in direct temporary workers (6.0%).

Construction would continue to play an important role Colombia's economic growth during the latter part of 2014.

The forecast for agricultural sector growth is lower because of slowdowns in coffee production and cattle slaughter. For the first case, figures released by the National Federation of Coffee Growers show production growth going from 21.5% in the third quarter to 1.2% in the fourth (Graph 28). This is due to a high base of comparison with respect to the fourth quarter of 2013, since production - measured in 60 kilo sacks- generally remained

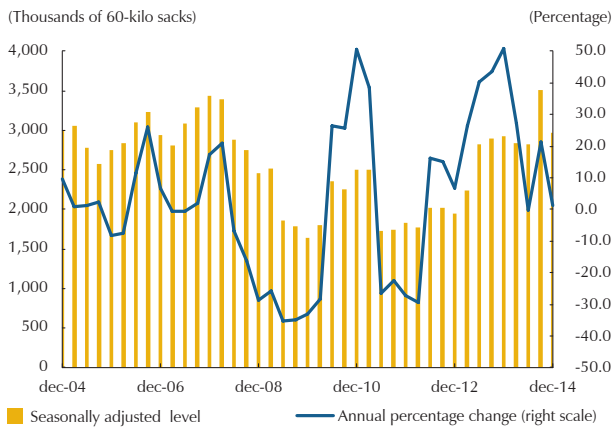
7 (Note 7 page 45) See Box 2, "Nueva Refinería de Cartagena: impacto en la producción y balance comercial del país," *Informe sobre Inflación*, September 2014.

Graph 27
Cement Production
(Seasonally adjusted, trend component and annual growth)



Sources: DANE; calculations by Banco de la República.

Graph 28
Coffee Production
(Quarterly and annual growth)



Sources: National Federation of Colombian Coffee Growers; calculations by Banco de la República.

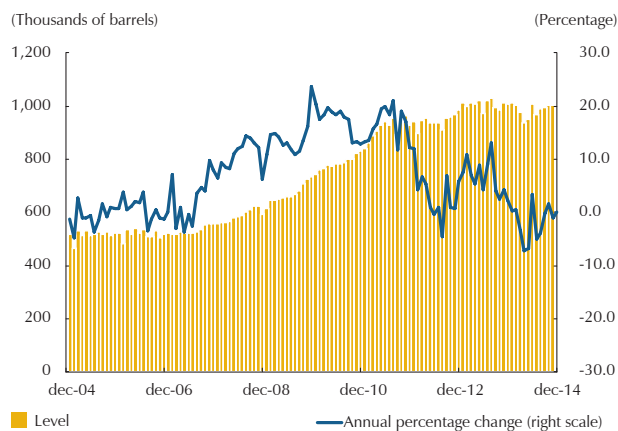
above one million (1,101,000 on average) during the final three months of 2014. Also, the September 2014 figure was uncommonly high, suggesting the coffee harvest season came a month early. Consequently, the October figure was significantly lower than the observed in 2013. Cattle slaughter was down 4.8% during October-November, after declining 1.1% in the third quarter. The Colombian cattle industry is still in a retention phase that would have begun in recent months and could continue for several more quarters.

Mining is expected to recover somewhat from the previous quarter, although annual growth in the sector would be extremely limited or nonexistent. Oil production during the fourth quarter continued to average around 1,003,000 barrels per day (mbd). This implies low annual growth at 0.2% for the period, following a decline three months earlier (-3.1%) (Graph 29). About coal, the figures on export volume, published by DANE, show a growth slowdown, going from 28.6% in the third quarter to 2.0% in October-November.

According to DANE's Monthly Manufacturing Sample (MMM) data, the non-coffee industrial production index (IPI) declined 0.9% in November 2014, bringing the accumulated reduction in October-November to 0.4%. This figure includes the drop in petroleum refining caused by Reficar's closure, as explained earlier. When excluding this item, the industrial sector showed approximately -0.4% annual growth by November and 0.0% in October-November.

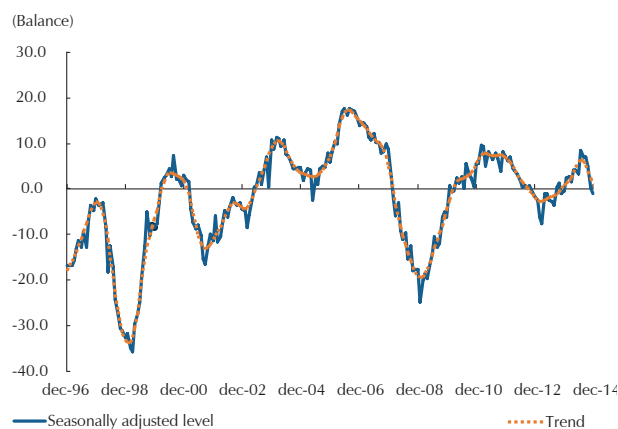
Nevertheless, there are important downside risks in this sector, as concluded on the basis of several industrial surveys. According to ANDI, industrialists believe competition from imports on the domestic market has increased throughout the year, although there has been some improvement in the demand for their products. On the other hand, the FEDESARROLLO business opinion survey for December indicates industrial orders and inventory have deteriorated compared to the third quarter. Expectations for the next three months show a similar situation. As a result, industrial confidence is down compared to what it was three months ago (Graph 30).

Graph 29
Oil Production
(Level and annual growth)



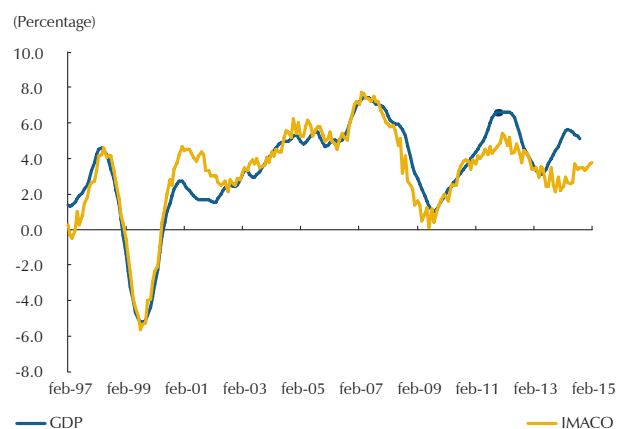
Sources: National Hydrocarbon Agency; calculations by Banco de la República

Graph 30
Balance of the Industrial Confidence Index



Sources: Fedesarrollo; calculations by Banco de la República

Graph 31
IMACO: Leading Indicator Anticipating GDP Five Months in Advance^{a/}



a/ Annual growth accumulated at twelve months
Source: Calculations by Banco de la República

Considering all these factors, GDP growth in Colombia during the fourth quarter of 2014 would be between 3.3% and 4.7%, with a most likely scenario being near the midpoint of that range. As for the branches of economic activity, the most dynamic would continue to be construction, social, community and personal services, financial services and commerce. The forecast range contemplates a fair amount of uncertainty about the performance of public works investment and government consumption. The IMACO leading indicator (Graph 31), calculated using several sectorial variables with data up to November, points to a twelve-month cumulative growth below the central forecast. When preparing the Chapter IV this was taken into account, specifically on the GDP forecast fan chart. The IMACO method does not contain data for sectors such as construction and social services, which contribute significantly to growth. However, this information is considered in the baseline forecast shown in the fan chart. Therefore, this indicator may be underestimating future GDP growth in Colombia.

According to the Tracking Indicator for the Economy (ISE), published by DANE, the average for October-November of the seasonally adjusted series rose 3.5%. This is slightly less than the average increase during the third quarter. However, although this measure is highly correlated with GDP, it is not an accurate reflection of the gross domestic product momentum, since its component series are subject to revisions.

Considering the fourth quarter outcome, the technical staff at *Banco de la República* expects GDP growth in Colombia for all of 2014 to be somewhere between 4.5% and 5.0%, but most likely in the middle of that range (4.8%). If this were the case, aggregate consumption would have increased at good pace, more so than during the previous year. Both private and government consumption would have contribute to this item's growth during 2014. Investment also would have accelerated with respect to 2013. Spending on

GDP growth in Colombia during 2014 as a whole is expected to be between 4.5% and 5.0%, with the midpoint of that range being the most likely scenario.

machinery and equipment and on transport equipment was particularly predominant in 2014. Construction, including buildings and civil works, also would have been more dynamic than the rest of the economy, although it would have grown less than during the previous year.

Overall, domestic demand played an important role in GDP growth, while the foreign trade accounts did not. Exports have shown lackluster performance, partly because of oil sector supply shocks and the Reficar's closure (to modernize and expand its facilities). Imports accelerated largely due to the need to shore up the domestic supply of refined petroleum products, and purchases of capital goods were boosted by the positive investment performance.

As for the branches of economic activity, a high data point was marked by the momentum in construction throughout 2014, which grew at double-digit rates for the second year in a row. The growth in commerce and transportation versus 2013 was important as well, while financial and personal, social and community services posted annual variations similar to those witnessed the previous year and grew more than the economy as a whole. In contrast, mining would have contributed significantly to the slowdown, having reported very little growth in 2014. Moreover, the increase the industry would be near to zero, halting the declines witnessed in 2012 and 2013.

III. RECENT DEVELOPMENTS IN INFLATION

Consumer price inflation continued to climb during the fourth quarter of 2014 and ended the year above the midpoint of the target range (3.0%) set by the Board of Directors of *Banco de la República* (JDBR).

Core inflation also tended towards acceleration, although less so than total inflation. Most of its increase focused on the fourth quarter.

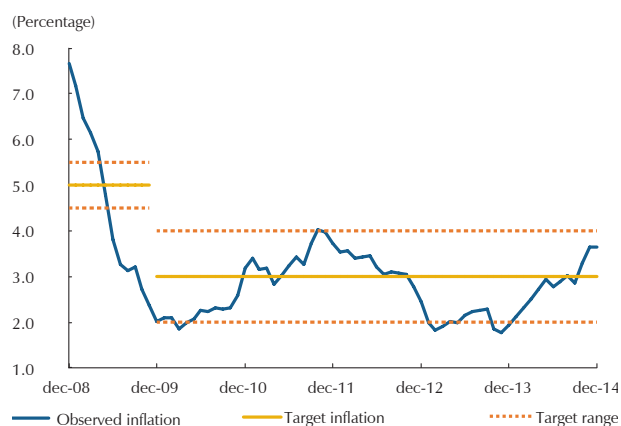
The rise in inflation during 2014 was due, in some measure to the reversal of downward shocks that occurred a year ago.

Both tradable and non-tradable goods, excluding food and regulated components of the CPI, posted relatively moderate adjustments in the fourth quarter.

The pass-through of peso depreciation to the CPI has been limited and lower than expected.

In 2014 there was little demand-side pressure on prices.

Graph 32
Total Consumer Inflation



Sources: DANE and Banco de la República.

Annual consumer inflation was 3.66% by December. This is 80 basis points above the figure in September and far more than the previous year rate. This indicator's trend was upward throughout 2014, even in the fourth quarter, after declining to a record low in November 2013 (1.76%) for the first time in 58 years (Graph 32 and Table 6). From October 2014, inflation began to trend above the midpoint of the target range set by the Board of Directors of *Banco de la República* (JDBR); something that did not happen in the previous 24 months.

The acceleration in annual inflation during 2014 was due largely to a reversal of downward supply shocks that affected prices for food and regulated

Table 6
Consumer Inflation Indicators
(At December 2014)

Descripción	Dec-13	Mar-14	Jun-14	Sept-14	Oct-14	Nov-14	Dec-14
Total	1.94	2.51	2.79	2.86	3.29	3.65	3.66
Non-food	2.36	2.62	2.66	2.70	2.91	3.18	3.26
Tradables	1.40	1.65	1.94	1.59	1.66	1.68	2.03
Non-tradables	3.76	3.55	3.45	3.26	3.26	3.23	3.38
Regulated items	1.05	2.21	2.14	3.25	4.07	5.32	4.84
Food	0.86	2.23	3.11	3.25	4.27	4.88	4.69
Perishables	(0.16)	3.17	8.92	7.61	15.14	17.61	16.74
Processed	(0.24)	0.92	1.44	2.14	2.13	2.65	2.54
Meals outside the home	3.26	4.13	3.52	3.23	3.43	3.55	3.51
Core inflation indicators							
Non-food	2.36	2.62	2.66	2.70	2.91	3.18	3.26
Core 20	2.72	2.86	3.04	2.89	3.02	3.09	3.42
CPI excluding perishable foods, fuel and public utilities	2.19	2.53	2.53	2.39	2.53	2.57	2.76
Inflation excluding food and regulated items	2.74	2.74	2.81	2.55	2.58	2.57	2.81
Average of all the indicators	2.51	2.69	2.76	2.63	2.76	2.85	3.06

Sources: DANE; calculations by Banco de la República.

items in 2013. Consequently, inflation fell in that year, especially in the fourth quarter, generating a very low statistical base of comparison, which explains part of the increase in annual inflation during 2014, when price adjustments normalized.

In the case of regulated items, the downward shocks were related to local decisions to reduce certain public utilities and transportation fees. The same happened with the tax reform that took effect on the first day of 2013 and led to a reduction in indirect taxes on several items in the family basket, particularly fuels, raw materials, vehicles, and some foods. Also, a number of foodstuffs were in large supply during 2013, thanks to good weather.

However, several factors began to exert upward pressure on inflation during the second half of the year, especially in the fourth quarter. The most important one is the effect of peso depreciation as of July 2014. It began to pass through to consumer prices towards the end of the year, although rather weakly and less than anticipated in the previous edition of this report. Also, some local authorities raised public transportation rates during the fourth quarter, and November and December witnessed several sharp adjustments non-tradable basket. As will be explained later, most of these hikes would be temporary.

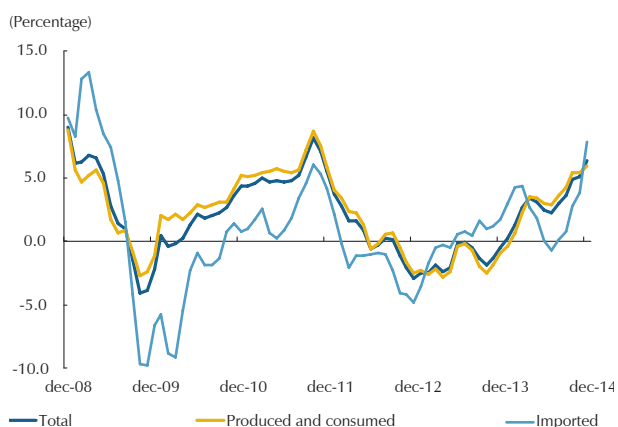
The rising dollar has had a major impact on non-labor costs. However, by the end of the year, they have yet to exert an impact on consumer prices. In effect, annual PPI inflation, which is a proxy for those costs, followed a clear upward trend since August 2014, going from 2.3% last July to 3.7% in September and 6.3% in December (Graph 33). As the prices of a large number of items in the producer basket are set in dollars, the impact of exchange rate changes usually is almost immediate.

The fourth quarter of 2014 PPI annual inflation acceleration centered on the imported goods sub-basket, going from a 0.7% annual increase in September to 7.9% in December. This upward trend is explained by agricultural products price hikes for items such as cereals, legumes and poultry, but also

for mining items, especially metallic products. However, the hikes also extended to the local PPI (from 4.3% in September to 6.0% in December), which is less affected by fluctuations in the exchange rate. In this case, the pressure came from higher prices for agricultural products (coffee, potato, banana and poultry, etc.) and extraction of precious metals.

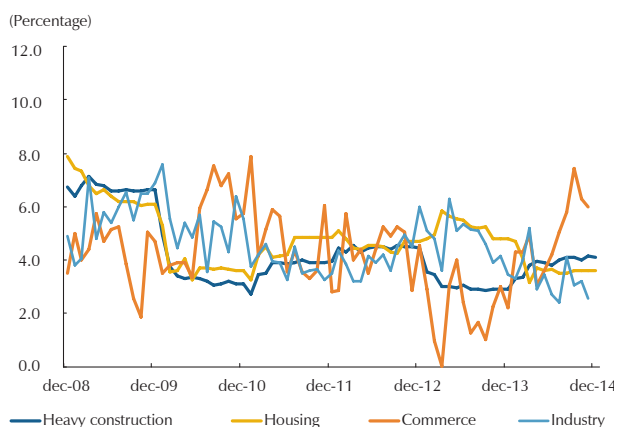
Wage costs inflationary pressures remained low, judging by available information. With data up to December, wages in heavy construction and housing continued to post annual adjustments near or below 4.0%, while up to November hikes in industry and commerce were 2.5% and 6.0%, respectively (Graph 3. 4). It is important to note that wage hikes in commerce were under 5.0% by the middle of last year, but the pace of that adjustment accelerated, surpassing 7.0% for a couple of months in the second half of 2014, due to recent methodological changes in the commerce survey. Overall, recent wage hikes do not pose a significant risk to the inflation target set by *Banco de la República* for 2014, particularly considering payroll costs were reduced at the start of the year, when the employers' mandatory contributions to healthcare were lowered.

Graph 33
PPI, by Origin
(Annual change)



Source: DANE.

Graph 34
Nominal Wages
(Annual percentage change)



Sources: DANE; calculations by Banco de la República.

The rise in core inflation during the second half of 2014 does not appear to be the result of demand-pulled pressures.

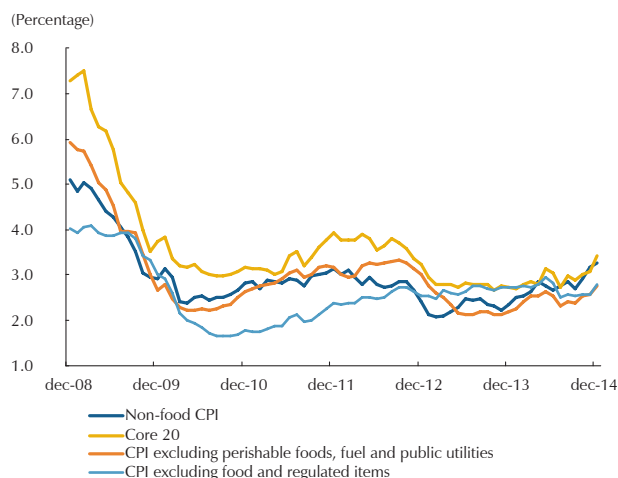
A. CORE INFLATION

As headline inflation, core inflation also exhibited an upward trend in 2014, especially during the second half of the year and particularly in the fourth quarter. The average of four indicators monitored regularly by *Banco de la República* increased from 2.5% in December 2013 to 2.6% in September and 3.1% in December 2014. With the exception of December, the average remained below the long-term target for inflation (3.0%), as was the case since November 2012 (Table 6). The greater stability of core inflation compared to total inflation confirms that a significant part of the increase in total inflation during 2014 was due to a reversal of temporary supply shocks, as noted earlier.

The highest among core inflation indicators was Core 20 (3.4%), as it also was throughout the year. Non-food CPI was second, with 3.3% in December 2014, which was in fact the one that accelerated the most in 2014. The CPI excluding food and regulated items (with 2.8% inflation by December) and the CPI excluding perishable foods, fuel and utilities (2.8%) were the most stable (Table 6, Graph 35).

It is worth noting that all core inflation indicators accelerated during the final quarter of 2014. This is an important point to bear in mind, associated in part with the peso depreciation. However, specific price hikes for regulated items and non-tradables also contributed to the increase in inflation. These specific hikes would have a temporary effect, as core inflation indicators do not fully discounted such events. The rise in core inflation during the second half of the year does not seem to be the result of demand pressures, as is apparent from the output gap estimates shown in Chapter IV of this report.

Graph 35
Core Inflation Indicators

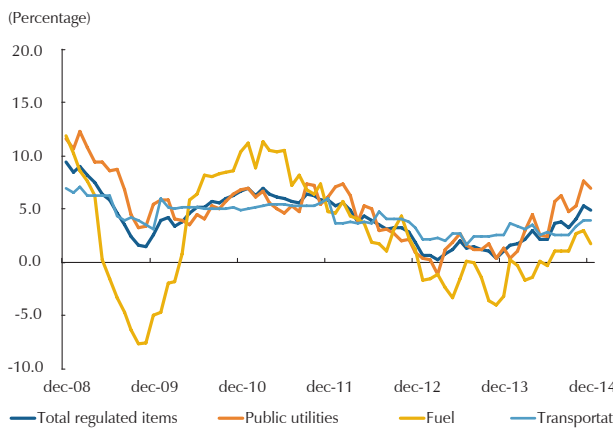


Sources: DANE; calculations by Banco de la República.

The acceleration in non-food CPI annual inflation during the final quarter of the year was determined, for the most part, by the performance of regulated CPI items and by the increase in the annual variation of the tradable and non-tradable goods CPI (Table 6).

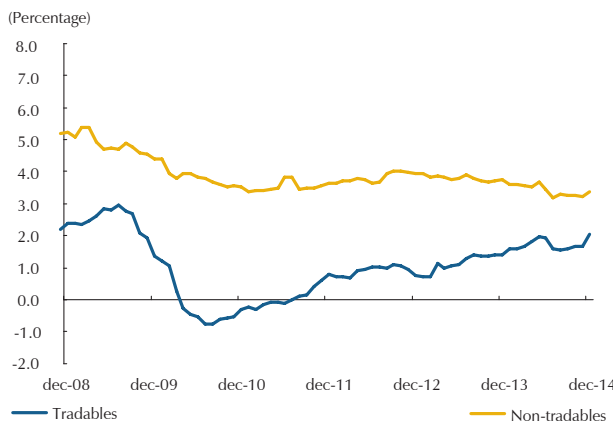
The regulated fraction of the consumer basket trended upward throughout 2014. However, this was partially reversed in December due to a decline in domestic gasoline prices (Graph 36). Nevertheless, gasoline CPI trended upwards throughout the year and ended 2014 with a 1.8% annual inflation.

Graph 36
CPI for Regulated Items and Components Thereof
(Annual change)



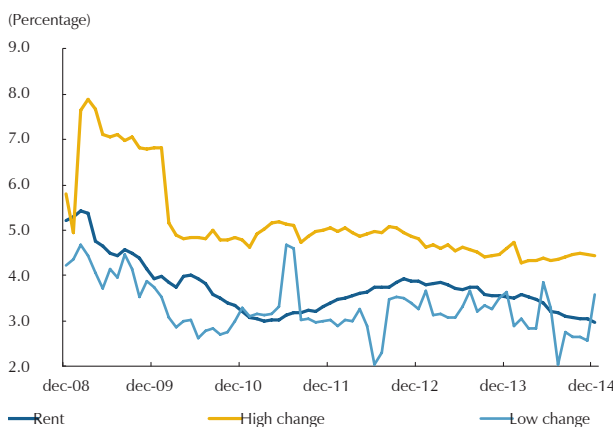
Sources: DANE; calculations by Banco de la República.

Graph 37
CPI for Tradables and Non-tradables, Excluding Food and Regulated Items
(Annual change)



Sources: DANE; calculations by Banco de la República.

Graph 38
Non-tradable CPI
(Annual change)



Sources: DANE; calculations by Banco de la República.

Within the regulated group, public utilities CPI also trended upward during the year, with a few sporadic interruptions. The annual increase went from 1.4% in December 2013 to 4.8% in September and 6.9 % in December 2014. This behavior was shared by all three utilities (power, gas and water), but was more pronounced in the first two, as by the end of the year their annual inflation was above 8.0%. Partial explanations of this behavior were transport problems in the gas sector, the exchange rate depreciation, and the energy price hikes. A portion of the upward pressure on the regulated CPI and total inflation in recent months came from readjustments in public transportation fares, specifically in Bogotá. By December, this sub-index had increased at an annual 4.0% versus 2.6% by September.

Although on a smaller scale than in the case of regulated items, tradable and non-tradable CPI components, excluding food and regulated prices, also contributed to the inflation acceleration during the fourth quarter (Table 6, Graph 37). The non-tradable segment of the CPI, excluding food and regulated items, remained on a downward trend throughout 2014. However, it was reversed later in the year, due to sharp price hikes in the sub-basket for entertainment, culture, and recreation; prompted by increases in tickets prices for the Colombian soccer final. This was a temporary phenomenon in previous years, mostly reversing early in the following year.

Besides this, non-tradables prices did not contribute to higher inflation in 2014. This signals a lack of upward demand side pressures on prices, even though domestic demand performed well. Rents were a stood out among non-tradable goods, excluding food and regulated items, as they continued on a downward trend that began in early 2012. As of that date, the annual change in real estate rental prices went from 4.0% to 3.1% in September 2014 and to 3.0% by the end of last year (Graph 38). This occurred in parallel to the

The effect of peso depreciation on the tradable component of the CPI excluding food and regulated items would not have begun to be apparent, to a significant degree, until late 2014.

housing prices slowdown, reflecting last year’s less active property market, due to a reduction in disbursements and property sales, summed to longer vacancy duration for the sale or lease of existing homes.

Annual inflation of tradable goods excluding food and regulated items trended upward during the first and second quarters, a behavior that eased somewhat in the third quarter, and resumed a in the fourth to close the year at 2.0% (Table 6, Graph 37). The peso depreciation that started in July 2014 only began in the end of the year to be reflected, with any significance, in the tradable CPI, excluding food and regulated items. In December, several items in this segment began to register monthly important price increases. This was the case of airfares (3.8%) and vegetables (1.6%), while others, such as clothing, watches and certain cleaning utensils, had not begun to show any effects. Vehicles are a particularly important case, in which prices have been trending downward for several years.

The peso depreciation has been relatively quick and considerable, compared to similar episodes during the past fifteen years. In fact, the peso depreciated 24.2% in all of 2014 and 27.2% between July and December. Everything seems to indicate that much of this depreciation would be permanent. Under these circumstances, a clear pass through to consumer prices can be expected, especially in tradables (including food). However, by the end of the year, prices for tradables had been affected less than in earlier periods of similar depreciation.

B. FOOD INFLATION

Annual food inflation followed an upward trend throughout 2014, going from 0.9% in December 2013 to 3.3% in September and 4.7% in December 2014 (Graph 39). An important part of this increase is due to the disappearance

of the effects of several temporary negative shocks that occurred the previous year and led the food CPI to accumulate less than 1.0% annual inflation during the final quarter of 2013. This was not repeated in 2014. These shocks include the presence of ideal weather conditions, an increase in agricultural supply, moderate adjustments, or a downward trend in international food prices, and a reduction in the value-added tax charged on some agricultural input, foods, and meals out of home.

Several other circumstances also brought upward pressure on food prices in 2014. The normal ag-

Graph 39
Food CPI
(Annual change)

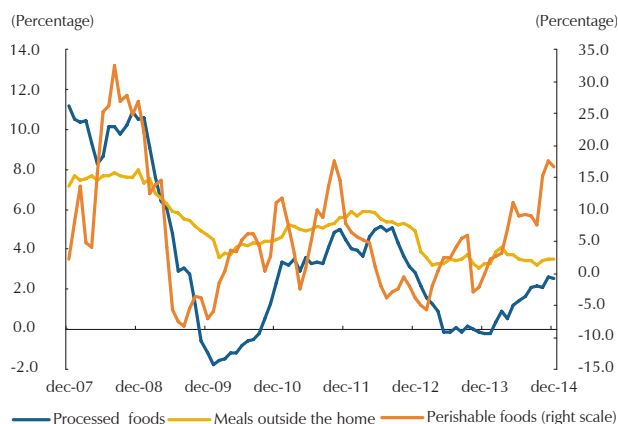


Sources: DANE; calculations by Banco de la República.

ricultural production cycle, with low prices for some perishables or semi-processed foods in 2013 and early 2014 discouraged planting and provoked higher than usual price increases during the second half of the year. In addition, the peso depreciation, which would be partly offset by declining international prices began to push up imported processed foods prices (flour, oil, beans, etc.); in December, this impact was still minor. Another source of upward pressure, although moderate in magnitude, came from the consolidation of a low meat supply phase, due to larger livestock retention. Finally, the possible appearance of *El Niño* weather during the final months of 2014 and in early 2015 might have led to a planting postponement and more price speculation in the second half of 2014.

Annual variations in processed foods trended upward throughout 2014, from negative terrain in December 2013 (-0.2%) to 2.1% in September and 2.5% in December 2014 (Graph 40). Although the annual adjustment is not significant, some items (eggs, cereals, oils, and flour) could have begun to include the effect of a stronger dollar. However, the pass-through of depreciation to these prices is still limited, possibly due to the decline in international prices.

Graph 40
Food CPI, by Groups
(Annual change)



Sources: DANE; calculations by Banco de la República.

On the other hand, perishable foods brought considerable upward pressure on the consumers' basket throughout 2014. The annual change in the CPI for perishables went from negative terrain in December 2013 (-0.2%) to positive territory in September (7.6%), with a major jump in December (16.7%). This momentum in the last few months is attributed mainly to the dwindling supply of potatoes, which experienced an annual price adjustment of more than 50.0% at the end of 2014.

The annual variation in the CPI for meals outside home had been close to 3.2% since December 2013, but climbed to 3.5% in December 2014. This adjustment during the final quarter would reflect the increased cost of perishable foods and, to some degree, a more expensive dollar.

IV. MEDIUM-TERM FORECASTS

The growth forecast for 2015 was reduced to 3.6%, within a range of 2.0% to 4.0%. It is dependent on different assumptions for foreign financing.

Construction investment and government consumption would be the two main growth drivers.

The annual consumer inflation forecast was raised for 2015 compared to the one outlined in this report September edition. Inflation is expected to increase up to March, before declining gradually in the months thereafter.

A. ECONOMIC GROWTH IN 2015

The 2015 economic growth forecasts presented herein were revised downwards with respect to those in the preceding *Inflation Report*. According to the projections developed by *Banco de la República*'s technical staff, the Colombian economy would slow more than expected. This growth reduction is consistent with the anticipated reduction for the current account deficit, as discussed in Chapter I. underscore noteworthy fact is the increased uncertainty surrounding the cost and availability of foreign financing, as well as the extent the potential impact of the drop in oil prices could have on national income and real activity. This is reflected in the forecast range and in the most likely growth scenario, both of which are described below.

For several reasons, this report is still forecasting high uncertainty regarding international developments. First, it is not yet clear when monetary policy in the United States will begin to normalize, although this is expected to begin gradually and well into the second half of the year. Also, the effect that

The economic growth forecasts for 2015 were revised downwards with respect to those outlined in the previous edition of the Inflation Report.

The current forecasts for growth in 2015 assume Brent crude prices will stay at around USD 50 per barrel throughout the year.

quantitative easing programs in Europe and in Japan will have on the Colombian economy are not certain, particularly with respect to capital flows into the country. There is also uncertainty surrounding our regional trading partners' growth and about the performance of the Chinese economy. Additionally, the impact felt when the JP Morgan emerging bond market index was rebalanced to contemplate a larger share of Colombian government debt would dissipate in 2015.

Current forecasts for 2015 growth assume low oil prices throughout the year, at around USD 50 per barrel, as outlined in the main forecast for the balance of payments presented in Chapter I. This forecast differs dramatically from the figure of USD 85 per barrel listed in the previous edition of this report baseline forecast. The nearly 60% plunge in crude oil prices since mid-2014 would have a negative impact on terms of trade and economic activity during 2015, considering how important this variable is to national income and the public sector balance sheet.

Even so, it is important to point out that the oil price drop and other raw materials Colombian exports (Chapter I) would be offset, to some degree, by price reductions for imported goods (especially those classified as petroleum products). This would mitigate some of the terms of trade decline, and impact economic growth positively via lower production costs.

Lower international oil prices in 2015 should trim down some exploration and development investment in the oil sector, as confirmed by announcements by companies in the sector to cut back on this type of spending. If so, FDI flows for mining would reduce significantly, as outlined in Chapter I.

Generally, a sizeable domestic demand slowdown is expected for 2015. Investment would be affected the most, especially private, which is expected to contract, as well as government and household consumption, which would exhibit lower growth. These forecasts imply a decline of around 25% in real investment in oil and mining. This is consistent with the anticipated FDI reduction. Growth in all other investment, apart from investment in building construction, civil works, and mining, is expected to be somewhat lower than the observed throughout 2014, due to low oil prices.

Domestic demand is expected to slow considerably in 2015, with investment being the component affected the most.

Investment in construction of buildings as well as civil works is expected to increase more than all other investment, but less than in 2014. In the first case, this is because of the low-income housing construction programs the national government has been promoting for several years are expected to continue to have an impact. In the second, growth would be due to the use of resources already earmarked for various projects for investment in highway and airport infrastructure that are now underway throughout the country (some are public-private partnerships: PPP). The civil works fore-

casts also contemplate initial expenditure in the first contracts awarded to develop the country's fourth generation (4G) road projects. These funds will be used to cover costs associated with the financial planning and technical studies phase.

Other important assumptions embedded in the 2015 economic growth forecast are related to a boost from government consumption. Despite the slow-down forecast for this item in 2015, government consumption is expected to perform well, largely because more resources would be paid out at regional and local levels, as 2015 is the last year of the current term for the country's mayors and governors.

This report assumes that an eventual reduction in public revenue, including royalties, as a result of lower oil prices, would have little effect on public sector spending this year, but would have more of an impact in 2016.

As for private consumption, the household income's purchasing power would be affected by declining terms of trade, the possible reduction of capital flows into the country, and the peso depreciation to date. In principle, lower terms of trade mean less momentum in national income, while the possibility of less financing jeopardizes, to some extent, the favorable growth in lending at the low rates observed throughout much of 2014. Furthermore, the depreciated exchange rate pass-through to consumer prices will tend to discourage household consumption of imported durable and semi-durable goods. Yet, despite all this, employment indicators have not declined in recent months, and confidence levels remain above the average on record since 2001. Therefore, there is still confidence on there being no sharp deterioration in private consumption.

As for the different aspects of foreign trade, accumulated depreciation of the nominal exchange rate is expected to have a positive impact on non-traditional goods exports.

The free trade agreements (FTA) signed by Colombia are a favorable factor, particularly the one with the United States, which should grow more in 2015, according to the external environment baseline forecast (Chapter I). Despite the recent drop in traditional exports prices, in particular those of mining and energy products, the produced quantities of these items would have increased. It is important to point out that reopening of the Cartagena Refinery would reduce crude exports, because domestic crude production would be used to supply the needs of the newly refurbished facility.

Imports would experience setbacks, mostly because of lower spending on machinery and equipment, and on transportation equipment. The assump-

The forecasts for civil works contemplate initial outlays for the first contracts awarded to construct several of the country's fourth generation (4G) road projects.generación (4G).

Construction would continue to be the best performing sector in 2015, thanks to progress in several 4G concession projects and the government's housing programs.

tion of a decline in gross fixed capital formation by companies in the mining-energy sector signals a context where there is very little momentum in imports of capital goods, given these goods' large share on this spending category. By the same token, the reopening of Reficar suggests new domestic production of refined oil products will replace a good portion of these imports. In addition, a weaker exchange rate is expected to cause some substitution, with domestically produced goods and services replacing imported ones.

On the supply side, construction would continue to be the best performing sector in 2015, thanks to progress in multiple 4G concession projects as well as the government's housing programs, as mentioned already.

For the mining sector, in particular, this report forecasts a continuing recovery in coal production during the remainder of 2015, after problems with transportation and law and order that complicated production 2013 and 2014. The new forecasts assume production in this sub-branch growing more than the Colombian economy as a whole in all of 2015. On the contrary, the forecast for average oil production in 2015 was reduced compared to the figure in the previous edition of this report, mainly because of the recent drop in oil prices and lower forecasts from a number of economic agents.⁸ However, despite recent oil and coal prices, previous years investments in facilities to transport these products should help improve these sectors growth rates. Nonetheless, their annual rate of expansion is not expected to be near the extraordinary two-digit growth rates observed between 2008 and 2011 (11.4% on average).

Industry is expected to recover in 2015. This forecast is based on investments made in recent years, the diversification of export products and foreign markets, and the increase in the sector competitiveness due to the peso depreciation. Moreover, this sector will have a low comparison base after three years of stagnation. Additionally, the reopening of Reficar in the second half of the year will imply a major leap forward in refined petroleum goods production, which account for approximately 12.5% of GDP.⁹ Thanks to all these circumstances, manufacturing industry is expected to grow at a higher rate in 2015 than the economy as a whole.

The depreciation of the peso should add to the competitiveness of Colombian industry.

8 (Note 8) At the start of 2014, the International Energy Agency lowered its oil production forecasts for Colombia to 930 barrels per day in 2015. Only a few months earlier, the forecast had been for 1.1 million barrels. Meanwhile, organizations such as Fedesarrollo and the Association of Colombian Oil Companies continue to predict over one million barrels per day. However, this is far away from the Finance Ministry's forecast on the medium-term fiscal framework published halfway through 2014 (1,029,000 bpd on average). It is important to clarify that the volume of oil produced would increase with respect to 2014, consistently with the balance of payments forecasts presented in Chapter 1.

9 (Note 9) In this respect, see Box 2 "Nueva Refinería de Cartagena: impacto en la producción y balance comercial del país," published in the September 2014 edition of the *Informe sobre Inflación*.

The reopening of Reficar will make an important contribution to expanding industrial GDP in 2015.

However, some industries would continue to face strong competition from imports. This according to the perception reported by employers in the ANDI surveys. In other cases, such as publishing, printing, and related industries, the deterioration possibly will continue, due to the profound structural changes affecting this sector worldwide.

Regarding social, personal, and community services, the momentum in public spending is expected to continue to be an important growth driver during 2015, especially in areas related to public administration and health and social welfare. However, uncertainty about tax revenue, sparked by the recent oil prices decline and volatility, points to a slowdown in this type of spending. On the other hand, financial services would continue to contribute actively to Colombia's economy growth. This is attributed to their high share within the sector (19.6%), and to the persistent momentum in financial system investments and loan portfolio growth in an environment of relatively low interest rates.

The performance of the agricultural sector in 2015 is expected to be heterogeneous. Coffee production would continue to contribute importantly to value added growth in the sector, although less than in 2014. However, cattle slaughter would offset this momentum, due to continuation of the cattle retention cycle. In the first case, according to the National Federation of Coffee Growers (Fedecafé), production would peak during these years, thanks to the plant renovation process carried out between 2008 and 2013.¹⁰ In contrast, there is a great deal of uncertainty about the cattle retention cycle and its impact during 2015, as trading patterns, especially with Venezuela, might have changed lately.

Based on the aforesaid, GDP growth forecast in the most likely scenario is around 3.6% for 2015, within a range of 2.0% to 4.0%. As indicated in the last report, the span of this range remains wide, since there is a great deal of domestic and foreign uncertainty. The forecast range's floor and ceiling are related to the low and high international context scenarios, outlined in Chapter I, and would be associated with greater or lesser access to foreign financing. So, unlike past reports, the scenarios outlined here assume the same international prices and the same growth for Colombia's trading partners as contemplated in the baseline scenario. On this occasion, the scope of the forecast ranges also reflects the effects that the drop in oil prices could have on national income.

Downside risks predominate in the GDP forecast exercise for 2015.

10 (Note 10) More than 546,000 hectares (2,900 trees) were renovated during this period. The result was better productivity, since 61% of the area under cultivation was planted with rust resistant varieties, planting density increased by 10%, and the average age of the coffee trees in Colombia declined from 12.4 to 8.2 years.

Downward biases predominate in the forecast exercise (Table 7), as evidenced by the risk balance shown in the growth fan chart (Graphs 41 and 42). The main downside risks are associated with lower domestic demand and more deterioration in the international context than was anticipated in the baseline scenario. The external impact could come through lower oil prices, loss of confidence, higher risk premia and lower demand for Colombian exports on our main regional trade partners in the region. Also, the risk of reduced inflows of foreign capital is considerable, as an eventual decline in FDI to different sectors of the oil industry might be more than was contemplated in the baseline forecast.

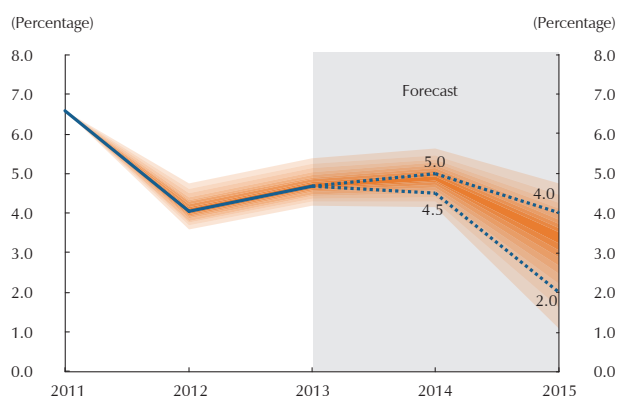
Considering these factors, the latest estimates of the output gap for the baseline forecast suggest it approached zero in 2014 and would be in slightly negative territory during 2015. Therefore, the models show lower numbers than those obtained for the September edition of this report, consistent with the forecast for lower growth in 2014 and especially in 2015.

Table 7
Probability Ranges in the Annual GDP Growth Fan Chart
(Percentage)

Range	2014	2015
< 3.0	0.0	48.9
3.0-4.0	2.6	34.0
4.0-5.0	57.5	15.3
5.0-6.0	39.2	1.7
6.0-7.0	0.7	0.0
> 7.0	0.0	0.0
Between 2 and 4		62.7

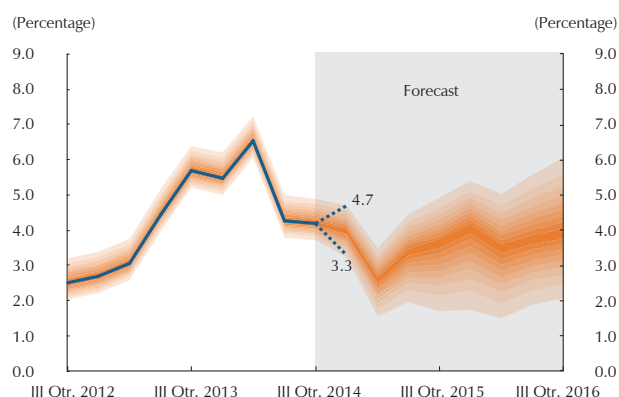
Source: Calculations by Banco de la República

Graph 41
Annual GDP Growth Fan Chart



Sources: DANE; calculations by Banco de la República.

Graph 42
Fan Chart of Quarterly Annual GDP Growth

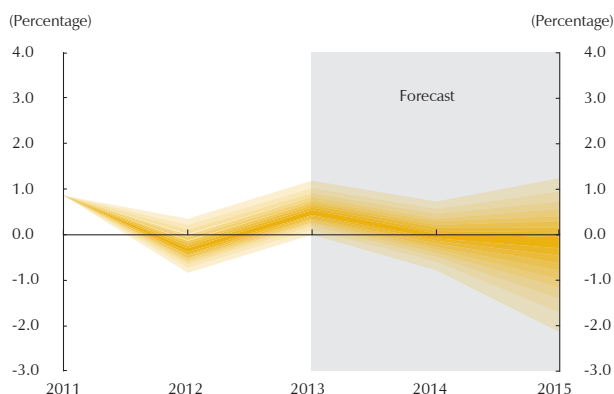


Sources: DANE; calculations by Banco de la República.

As always, there is a high degree of uncertainty associated with this estimate which must be taken into account. According to the risk balance shown in Graph 43, the gap in 2014 would have been between -0.8% and 0.7%, with high probability. This balance is more biased downwards than the outlined last quarter. The downward bias for 2015 also is more pronounced than the one in September, placing the gap within a range of -2.1% to 1.2%.

The models used by *Banco de la República* suggest unemployment in 2014 would be very close the non-accelerating inflation rate of unemployment (Nairu).

Graph 43
Fan Chart of the Output Gap



Sources: DANE; calculations by Banco de la República.

For these reasons, inflationary pressure originating on aggregate demand and the job market would have been low in 2014. It is expected that they will continue as such in 2015.

GDP FORECASTS USING A FAN CHART (PROBABILITY DISTRIBUTION DIAGRAM)

The GDP forecasts that are illustrated with a probability distribution associated with the baseline prediction - known as growth fan charts (Graphs 41 and 42) - are supplemented with a forecast range that involves two scenarios separate from the baseline forecast. Generally, the input used in these two scenarios involves different assumptions on external and macroeconomic variables that are associated with the low and high forecasts for the balance of payments. For example, in this report, one difference between the scenarios (2.0% and 4.0%), as discussed in Chapters I and IV, is related to greater or lower access to foreign financing for the Colombian economy.

Therefore, these scenarios are not part of a probabilistic exercise on the baseline forecast. However, the fan chart, or probability distribution, is part of that exercise.

A simple explanation of the features of these graphs (Graphs 41 and 42) is provided below to make it easier to understand and interpret them.¹

¹ (Note 1, Shaded section, pg 62) For technical details on how the fan charts were developed, see Draft 346 of August 2005 and Draft 468 of November 2007, along with Box 2 in the December 2003 edition of the *Informe sobre Inflación*, pp 56-57.

The probability distribution diagram (fan chart) consists of a set of confidence bands built on the basis of a probability distribution. The latter, in turn, represents a subjective assessment of the evolution of GDP over time. Its construction requires four main elements:

1. *A baseline forecast:* This prediction is developed with two policy simulation models (MMT and Patacon). Graphically, it pertains to the center line (not shown) around which the probability bands are constructed.

2. *An uncertainty assessment of the forecast:* This refers to the likelihood of the occurrence of events that are not contemplated in the model and can divert the predicted variable (GDP) from its central path. The probability distribution diagram tends to be wider when, for various reasons, the probability of the occurrence of rare events is thought to have increased.

3. *The risk balance:* This is how the technical staff at *Banco de la República* views the bias particular to the main determinants of the forecast. The asymmetry of the probability distribution around the central path expresses that bias, and indicates the probability of the occurrence of events above or below the central path.

4. *Revisions of historical data:* In the case of GDP, the historical data revisions by DANE constitute an additional source of uncertainty. This uncertainty is included in the GDP fan charts, maintaining a probability distribution, even for data already observed.

To interpret a fan chart properly, it is important remember the central path (not shown) generally passes through the range with the darkest color and each jump to a lighter color represents a probability of 5.0%. Therefore, the central path can be understood as the range within which the variable would occur ten out of one hundred times, while the furthest range or band of color (the lightest) is where the variable would occur ninety out of one hundred times (Table 7).

The GDP fan charts (the one showing the annual change in GDP and the chart on the annual change in quarterly GDP) include: a) a thick line representing the latest data published by DANE, and b) dotted lines that extend along the forecast. The latter represent the forecast range calculated by the technical staff at *Banco de la República*, as referred to in Chapters 2 and 4 of this report. These numbers should be seen as forecasting exercises that complement the fan chart and are linked to the low and high scenarios of the balance of payments, as described in Chapter I.

B. INFLATION

1. Forecasts

The drop in oil prices was more pronounced at the end of 2014, and the peso depreciation against the US dollar accelerated along with that decline, far beyond what was contemplated in the September edition of the *Inflation Report*. According to the two main models used by *Banco de la República*, these factors, coupled with circumstances such as a limited food supplies due to past low prices, led to an increase in the baseline inflation forecast in the coming quarters.

The inflation forecast for 2015 assumes oil prices will be far lower than they were three months ago.

At present, the inflation forecast exercises assume the price of oil price in 2015 will be substantially lower than it was three months ago (see Chapters I and IV in this report). These exercises, in turn, led to a change in the forecast for the exchange rate and for production and transportation costs, among others. In the case of oil, the low price levels observed in late 2014

The increase in the exchange rate is expected to be largely permanent.

and early 2015 are expected to continue during the first half of the year, with a slight recovery forecast for the second half. The new forecasts for the exchange rate are associated with a somewhat higher level in the coming quarters than was reached by the end of 2014, which implied 22.0% annual depreciation at the time. In this sense, it is assumed the jump observed in the exchange rate during the second half of last year is largely permanent.

According to the central paths of the two models used by *Banco de la República* (MMT and *Patacon*), inflation would peak in the first quarter, then descend slowly during the quarters thereafter, converging between 2016 and 2017 towards the midpoint the target range (2.0% to 4.0%) defined by the JDBR, depending on the model in question. Although inflation would approach the ceiling of the target range for several months, at no time would it surpass that limit, as illustrated by the central paths in the models.

As for core inflation measured with the non-food CPI, no further increases beyond those already observed by the end of 2014 (according to MMT) are expected. Core inflation should remain slightly above 3.0% during the first three quarters of 2015 then converge towards this point at the end of the year. It would fluctuate around 3.0% during 2016.

The most important upward pressure on inflation in 2015 and 2016 will come from accumulated peso depreciation, even though the baseline forecast predicts only limited pass-through to overall inflation (around 5.0%). A depreciation of ten percent, with all else being constant, would lead to a 50 bp in annual inflation on the medium term. As on previous occasions, the primary impact will be felt on prices for tradables, excluding food and regulated item, although some minor effect on prices for imported foods is expected as well.

Consequently, in this report, the baseline forecast for consumer inflation implies a major upward revision in the annual variation of the tradable goods CPI, excluding food and regulated items. It is now expected that the peso depreciation will continue to pass through to prices for tradables during 2015, especially in the first half of the year, since the lag in this effect is between one and three quarters and because the bulk of the rise in the exchange rate is thought to have occurred late last year. The annual change in tradables, excluding food and regulated items, should be above 3.0% throughout the year then ease upward towards 2016, but invariably with much higher levels than those witnessed in the last five years.

The most important upward pressure will come from accumulated depreciation of the peso.

Another source of upward pressure, which would operate more in the short term rather than on a medium and long-term basis, originates with the behavior of the supply of staples or semi-processed foods and its effect on consumer prices. The current forecast includes an increase in annual food

inflation, partly due to the dynamics of the agricultural supply cycle in Colombia. Specifically, the prices of several staple foods, such as potatoes, other tubers, some vegetables and rice, were relatively low between 2013 and 2014. This would have discouraged planting in recent months, which likely implies smaller harvests in the first half of 2015, which would lead to a high-price phase. Additionally, the effect of depreciation on some imported inputs used on agriculture can raise food production costs. However, a portion of this pressure would be offset by the decline in international prices anticipated for the raw materials in question, given the drop in oil prices.

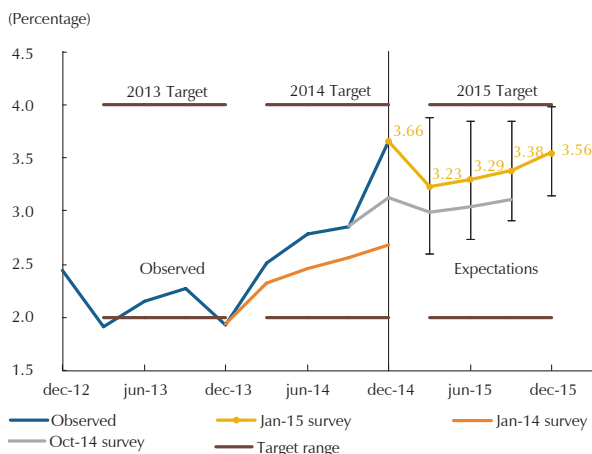
Annual food inflation would continue to rise in the early months of 2015, increasing slightly more than 5.0%. However, this trend should break late in the second quarter. This variable will remain above 4.0% during the second half of the year, but will decline gradually and is expected to converge towards the long-term target by early 2016.

The food supply shocks and the peso depreciation considered in the baseline forecast have a temporary effect on annual consumer inflation. This depends on inflation expectations staying more or less anchored to the long-term target. As it is mentioned below, a prolonged rise in inflation expectations above the long-term target could lead price and wage contracts to be revised inconsistently with that target.

By early January, available data showed an increase in expectations, with levels slightly above 3.0%. According to *Banco de la República's* monthly survey of financial market analysts, they expect inflation to be 3.3% in twelve months. This figure is 15 bps higher than the forecast three months ago (Graph 44).

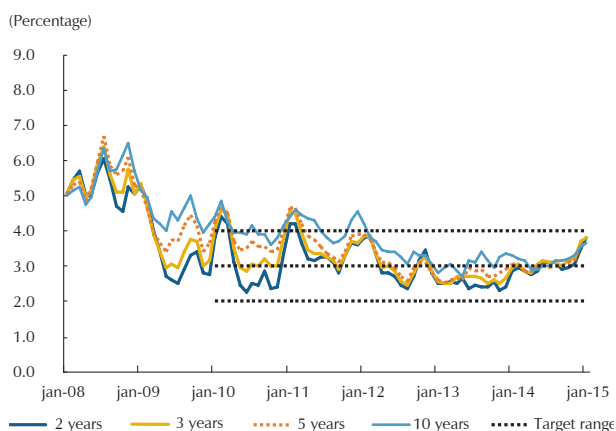
As of December, the survey also gathers information from analysts on what they expect inflation to be two years into the future. It shows inflation is expected to be 3.2% by January 2016. On the other hand, *Banco de la República's* quarterly survey of entrepreneurs indicates they expect inflation twelve months forward to be 3.6%, compared to 3.2% forecast in early October (Graph 44). Estimates derived from the TES yield curve at different maturities show larger increases at two, three, and five years: from 2.8% in October to 3.7% by the end of January (Graph 45). Yet, despite these hikes, the indicators are still below the target range's ceiling.

Graph 44
Observed Inflation and Inflation Expectations
(At three, six, nine and twelve months)
(Annual inflation)



Note: The respective standard deviation is presented for each expectation.
Sources: DANE and Banco de la República

Graph 45
TES-derived Inflation Expectations
(At two, three, five and ten years)
(Monthly average)^{a/}



a/ Nelson and Siegel method
Source: Banco de la República

As mentioned earlier, the collapse of oil prices led to a sharp depreciation that, in principle, should pressure inflation upwards. However, this report also considers the downward pressure exerted by the domestic price of fuel. The baseline forecast contemplates a significant decline in consumer gasoline prices throughout 2015, but mainly in the first half of the year. As a result, the annual change predicted for the regulated CPI declined with respect to the forecast in the September edition of this report. Currently, the regulated CPI is expected reduce its annual change in the first few months, in line with the drop in gasoline prices, posting rates below 3.0% for most of the year.

Nevertheless, this forecast still includes a major adjustment in the price of residential-use natural gas. This forecast considers the hikes announced for the year, which are related to bottlenecks in transport, fewer reserves, higher capital requirements, and price controls relaxation of for the fields in La Guajira, which were lifted several quarters back. For energy, the forecasts assume that the increase for the entire year would be less than in 2014 (9.0%), but still above the target range. This is because the hydroelectric generating system has very little surplus production capacity compared to the forecasts for demand, even after Hidrosogamoso began operating in 2014.

The downward revision of the GDP forecast for 2015 resulted in a new output gap estimate that is in slightly negative territory, as illustrated in the preceding section. Consequently, this report estimates very few demand-side pressures in 2015, and possibly even a downward pressure at horizons beyond one year. The new gap estimation considers the steady decline in oil prices as being akin to a downward shock to potential GDP.

The annual change in the variable most susceptible to variations in demand (i.e., the non-tradable CPI excluding food and regulated items) is expected to be slightly above 3.0%. This is similar to the forecast presented in the last edition of this report, but trending downward. In fact, the downward trend would continue towards 2016, along a lower path than the one obtained three months ago. Normally, it takes three to six quarter for demand shocks to affect consumer prices in Colombia.

Demand-pulled pressure is expected to be limited in 2015.

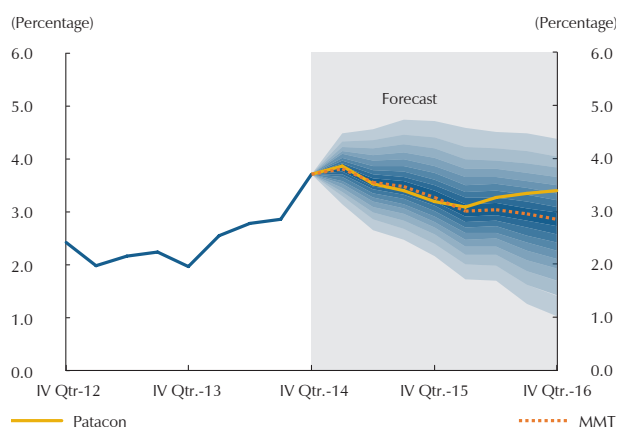
In the end, the new baseline forecast contemplates only limited labor and non-labor cost pressures. In the first case, the forecast for weaker economic growth in 2015 would imply a slower recovery in employment compared to the job gain rates in recent years. This, in turn, would limit wage hikes.

In terms of other costs, the prices of international raw materials imported or produced by Colombia are expected to decline or remain stable in 2015. This would offset any upward pressure coming from further depreciation of the exchange rate. The same can be said of shipping costs, especially those related to international trade.

2. Risk balance

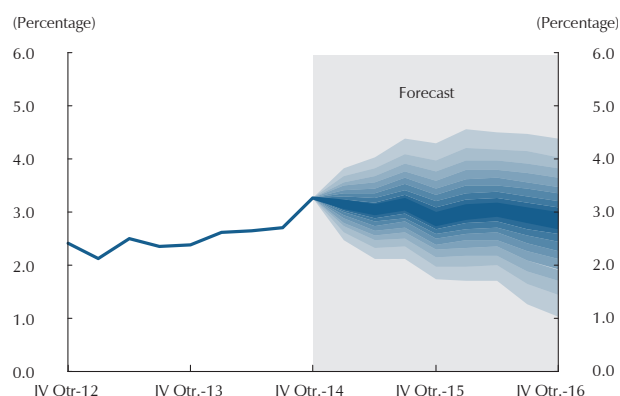
The fan charts (Graphs 46 and 47) show the risk balance estimated for total consumer inflation and non-food inflation. The width of the previous balance is maintained this time, since it takes into account a high degree of uncertainty. The balance is biased upward in 2015 and downward in 2016. This is because the main perceived risks to inflation are attributed to factors such as exchange rate performance and pass-through or supply shocks to food prices, the effects of which would be felt primarily in 2015. The downside risks would predominate the following year, given the impact of poorer macroeconomic performance among our trading partners and the impact of falling oil prices on national income and government expenditure, among other factors.

Graph 46
Total Inflation Fan Chart



MMT: Pass-through Mechanisms Model
Patacon: Policy Analysis Tool Applied to Colombian Needs (dynamic stochastic general equilibrium model)
Source: Banco de la República

Graph 47
Non-food Inflation Fan Chart



Source: Banco de la República.

The following are the main upside risks considered in this report:

-Un-anchoring of inflation expectations: Inflation at the end of 2014 was far beyond the figure posted the year before and surpassed the long-term target. Furthermore, as noted earlier, it will continue trending upward in early 2015, with some risk of being above the target range. Although the

There is a risk of major changes in capital flows to emerging market economies.

increases are the result of temporary shocks, market agents might see them as persistent and overreact by raising their expectations considerably. This would exert permanent upward pressure on prices, something not contemplated in this report's baseline forecast. Also, the mechanism that indexes annual inflation to last year's result is still relevant to price and wage formation in Colombia. This generates additional upward pressure on prices, given the relatively high inflation in 2014.

More peso depreciation than expected, due to a larger impact from interest rate hikes by the Fed or due to the drop in oil prices: The baseline forecast assumes the benchmark rate in the United States will be raised at some point towards the third quarter of 2015. This prediction is based on the prospect of favorable domestic demand in that country and on the recent decline in consumer inflation, due to lower energy prices. If this scenario occurs, capital flows to emerging market economies, including Colombia, could change dramatically, beyond the assumption in the baseline forecast in this report. This could weaken the Colombian peso more than anticipated. Although the Colombian economy did not appear to be highly vulnerable to this factor in the past, given the country's relatively low external imbalances and less reliance on external debt to finance them, the situation now could change due to the decline in oil prices. Coupled with possible contagion that might affect the country's risk premium, this could generate considerable uncertainty about the path of depreciation anticipated in the baseline forecast.

Moreover, the extent to which depreciation of the exchange rate is passing through to inflation might be underestimated, since depreciation is now more permanent than in the past. Therefore, the risk of the exchange rate exerting significant pressure on inflation is no small matter. If this happens, further depreciation will bring upward pressure on the cost of raw materials, imported foods, and tradable goods prices at large. The impact on overall consumer inflation could be aggravated as the exchange rate movements affect inflation expectations.

A drop in regulated prices smaller than anticipated in the baseline forecast: The sharp downward trend in oil prices since late June 2014, and the impact it could have on fuel prices led to the assumption that the fuel CPI would decline 10% during 2015 as a whole. This is because the anticipated drop in oil prices (which fell 51% between June and December 2014) would more than outweigh the upward pressure on the exchange rate, as forecasted in this report. This considers the fact that the domestic price of gasoline depends on international prices, which react, in turn, to changes in oil prices. However, there is now substantial uncertainty about the net effect changes in crude oil prices will have on domestic fuel prices, once the upward impact generated by exchange rate depreciation is discounted. Therefore, less

Further depreciation of the peso could exert more inflationary pressure than considered in the baseline forecast.

A less-than-anticipated decline in regulated prices for public utilities is not ruled out.

of a decline in these prices than is assumed in the baseline forecast cannot be ruled out. Bearing in mind that fuel accounts for about 3.0% of the consumer basket, and that it is also an important input for a number of sectors in the economy, a less-than-expected drop in the price of this item might raise the baseline forecast more than is anticipated in this report.

On the other hand, this risk could be balanced out by the reduction in water, garbage collection and sewer rates anticipated for 2015, when the new pricing framework for the sector takes effect. This is according to an announcement by the Ministry of Housing, City and Territory. The baseline forecast does not fully account for these reductions.¹¹

-The presence of food price shocks that are not included in the baseline forecast: The climate changes that could occur in the first quarter of 2015 and changes in supply conditions for certain agricultural products pose an upward risk to domestic food prices. The intensity of the developing *El Niño* weather¹² is expected to be weak or moderate. If so, its impact on prices would be minor. However, if it is combined with continuation of the cattle retention cycle and a lower supply of products such as rice and potatoes, there is a moderate risk of upward pressure on food prices that has not been taken into account. To begin with, the uncertainty about *El Niño* weather, and the subsequent decline in rainfall, might already have delayed planting. This would imply higher prices for a number of foods in the first half of 2015 that have yet to be considered. Secondly, an upward impact on prices originating with production shocks in the current agricultural supply cycle cannot be ruled out. For instance, the slaughter of livestock has declined in recent months; this is typical of a retention phase, which could extend into part of 2015 and lead to higher prices for beef and its substitutes. All these circumstances are only partly covered in baseline forecast. If these shocks materialize, they are expected to be temporary; however, depending on how they influence inflation expectations, their impact on consumer inflation could be more lasting.

The following are some of the downside risks considered in this report:

Eventual supply shocks can bring considerable upward pressure to bear on food prices.

- Less growth than predicted in the baseline forecast, due to internal factors: The baseline forecast for growth in 2015 assumes the momentum in government and private consumption will be good, although less than it was than last year. Even so, it still would provide considerable support

11 (Note 11) See CRA Resolution 643/2013.

12 (Note 12) The presence of *El Niño* weather is understood as five accumulated months of changes in the temperature of the Pacific Ocean by more than 5 degrees centigrade, on average. Up to now, there are three on record.

There is a perceived risk to domestic growth that would lead to less demand-pulled pressure than anticipated.

to economic growth. However, there is a downside risk looming over this scenario, because of two factors. To begin with, the drop in oil prices is having a dramatic effect on government revenue, which would decline dramatically and could mean budget cuts for a number of government projects. When coupled with the possible risk of less foreign financing, even with respect to the new assumptions on foreign investment included in the baseline forecast, this could make it difficult to obtain the anticipated resources. Furthermore, private investment also might decline more than predicted, due to the prospect of less domestic growth and an eventual shock to confidence indicators. Finally, it is important to consider there might be setbacks in execution, as has happened before with public works in Colombia and for various reasons, including delays in the approval of investment projects' environmental permits.

There might be less growth in domestic demand and a narrower output gap if all these risks emerge. This would do more to reduce demand-pulled pressure on prices, particularly for non-tradables, than anticipated in the baseline forecast.

Worldwide economic growth lower than predicted in the baseline forecast: The downside risk associated with poorer global economic performance, mainly in the emerging economies and the euro area, continues to be considered in this report.

The economic impact of plunging oil prices on some of Colombia's trading partners caused a sharp reduction in the 2015 growth forecasts for those countries. This is because of the high relative importance of oil-exporting countries for Colombia's exports.

On the other hand, although lower oil prices imply more growth for oil-importing countries, they continue to face downside risks. In the case of the euro area, the adverse effect the growing uncertainty sparked by fiscal instability in Greece can have on economic activity should not be ruled out. There also might be episodes of contagion derived from the financial crisis in Russia. In addition, there are potential disinflationary pressures in the region that would reinforce this risk. Downside risks are perceived in Asia as well, although to a lesser extent. Setbacks to production due to future deflationary pressures in Japan and China linked to financial stability problems that may affect investment and the housing market, cannot be ruled out.

The downside risk associated with a less global economic performance persists.

Global economic performance could be weaker than anticipated in the baseline forecast, if these risks materialize. In the case of Colombia, this would lead to weaker external demand and lower investors and consumers' confi-

We could see lower international raw material prices, which would lead to important disinflationary prices.

dence, thereby affecting domestic demand momentum and exerting downward pressure on consumer inflation.

- Lower prices for oil and other raw materials relative to the baseline forecast: In preparing the baseline forecast presented in this report, it was assumed much of the drop in oil prices had materialized already and, as noted in Box 1, the price of oil would begin to rise slowly during the second half of the year. However, there is still a relatively important downside risk on crude oil prices, because of progress being made in the United States to reduce the cost of oil extraction by unconventional means that would prevent the supply from diminishing and, as a result, the drop in price would be more accentuated and prolonged than anticipated.

Added to this is the possibility that prices for other raw materials might decline more than expected. Food is one example. Markets for food have been affected by ample supply, thanks to good harvests and larger inventories. However, they also have been hit by falling crude oil prices, which mean less demand for biofuel production. The market for other commodities could be affected as well by a return to normal in the stance of United States monetary policy. When this happens, it could reduce the speculative demand that has helped to keep food prices high in recent years.

All this poses an important downside risk to inflation that would imply deflationary pressures on several fronts, if it were to materialize. On the one hand, lower terms of trade mean less of an increase in disposable income. This could undermine consumer and investor confidence, punishing domestic demand. On the other, lower prices for oil and other commodities would reduce production and transportation costs, and exert pressure on the regulated price of gasoline for consumers, provided the exchange rate does not offset that pressure.

Considering the different risks in the fan charts, it is estimated there is a 75% probability of overall inflation being with a range of 2.0% to 4.0% in 2015; the likelihood in 2016 is 66% (Table 8). It is important to note the baseline forecast in this report assumes an active monetary policy, with interest rates that are adjusted to ensure the long-term target for inflation is met.

It is still quite likely that inflation will be between 2% and 4% in 2015 and 2016.

Table 8
 Probability Ranges in the Total Inflation Fan Chart
 (Percentage)

Range	Dec-15	Dec-16
< 2.0	2.8	24.6
2.0-2.5	8.8	16.9
2.5-3.0	19.3	19.3
3.0-3.5	25.3	17.6
3.5-4.0	21.7	12.1
> 4	22.1	9.5
Between 2 and 4	75.1	65.9

Source: Calculations by Banco de la República

Box 2 FORMATION OF INFLATION EXPECTATIONS IN COLOMBIA

Carlos Huertas
Eliana González
and Cristhian Ruiz*

For central banks that have adopted an inflation targeting strategy, measuring and understanding inflation expectations are important tasks when designing monetary policy, because they influence the dynamics of price increases in a number of ways. Therefore, if expectations are anchored to the target, it is less costly to keep inflation low, future developments in prices and wages are more predictable, and it is easier to implement monetary policy.

Several econometric exercises are presented in this section to evaluate whether or not expectations in Colombia are rational in a linear sense. How much the inflation target contributes to the formation of expectations is estimated as well, and we assess if agents who form their expectations adaptively, based on the inflation target, follow a learning process.

Five sources of information on inflation expectations are used in the exercises; namely, the monthly survey of economic analysts, the quarterly survey of economic expectations,¹ break-even inflation one year forward (BEI),² forward break-even inflation at two years,³ (FBEI two years), and the inflation target.⁴

* Mr. Huertas is Head of the Programming and Inflation Department. Ms. González is Officer of the Statistics Section, and Mr. Ruiz is a student intern. The opinions expressed in this section imply no commitment on the part of *Banco de la República* or its Board of Directors.

1 (Note 1, Box 2) The survey is a quarterly. The expectations one year forward were obtained for each month, through linear interpolation.

2 (Note 2, Box 2) These expectations are constructed on the basis of government bonds (TES). The break-even point is the difference between the spot rates on nominal and real bonds. In other words, it is the compensation required for the yield on both types of bonds to be the same for a given maturity.

3 (Note 3, Box 2) Constructed based on government bonds (TES). It indicates the one-year forward inflation expectations agents have during a particular a year.

4 (Note 4, Box 2) The mid-point of the target range was used. The monthly path of the inflation target one year forward was obtained through linear interpolation.

A. Are inflation expectations in Colombia formed rationally?

An initial step in understanding the development of inflation expectations is to know if they are formed rationally; that is, if agents use all the information at hand to predict how much consumer prices (CPI) will increase in the future. In this context, inflation expectations formed at time t for s periods in advance (π_{t+s}^e) can be defined as the expected value (E_t) of inflation (π_{t+s}) subject to all available data (Ω_t) (Equation 1). If that expected value were obtained with regression models, the expectation would be rational in a linear sense.⁵

$$\pi e_{t+s/t} = E_t [\pi_{t+s} / \Omega_t] \quad (1)$$

A first step in analyzing if there are inflation expectations in Colombia that match definition (1) is to evaluate whether or not a long-term relationship exists between the projections (π_{t+s}^e) and actual inflation (π_{t+s}). As illustrated in Table B2.1, all inflation expectations are cointegrated with registered inflation, a fact that allows for accepting the hypothesis of a long-term relationship.⁶

Table B2.1
Unit Root and Cointegration Tests

Inflation Expectation	Unit root	Cointegration with π
Analysts 1 year forward	Yes	Yes
Quarterly 1 year forward	Yes	Yes
BEI 1 year forward	Yes	Yes
FBEI 2 years forward	Yes	Yes
Target 1 year forward	Yes	Yes

Source: Authors' calculations.

Another desirable property to meet the definition in equation (1) is when the inflation expectation gener-

5 (Note 5, Box 2) With another type of model, such as a non-linear one, this would not necessarily be the case.

6 (Note 6, Box 2) The unit root tests proposed by Elliot, Rothenberg and Stock and Johansen's procedure for testing cointegration were applied using the BIC data criterion to select the optimal number of lags.

ates unbiased forecasts of the increase in the CPI. A linear regression model is estimated between expected and actual inflation to evaluate this property (Equation 2). In addition, the null hypothesis $H_0: \alpha = 0 \text{ y } \beta = 1$ was verified to assess if inflation expectations by themselves generate unbiased projections of actual inflation. As indicated in Table B2.2, the hypothesis is not rejected in any of the measurements, with the exception of expectations derived from government bonds

$$\pi_t = \alpha + \beta \pi_{t/j}^e + \mu_t \quad (2)$$

Table B2.2
Unbiasedness Tests
Inflation Expectations

Inflation Expectations	$H_0: \alpha = 0 \text{ y } \beta = 1$
Analysts 1 year forward	Unbiased
Quarterly 1 year forward	Unbiased
BEI 1 year forward	Not unbiased
FBEI 2 years forward	Not unbiased
Target 1 year forward	Unbiased

Source: Authors' calculations.

If an expectation is rational, it should not be possible to explain the forecast errors $(\pi_t - \pi_{t/j}^e)$ by means of any other variable (z_t). However, if it is, it would indicate the agents were not efficient because not all the data was used to form their expectation. To assess this, multiple models were estimated to explain the errors (Equation 3) and the set of explicative variables z_t was used, as described in Table B2.3. Then, hypothesis $H_0: c = \lambda = 0$ was tested. If accepted, it would indicate there was efficiency. In other words, variable z_t does not explain the error and it was included in formation of the expecta-

Table B2.3
Efficiency Tests

Inflation Expectations	Analysts 1 year forward	Quarterly 1 year forward	BEI 1 year forward	FBEI 2 years forward	Target 1 year forward
Inflation in t	Not rejected	Not rejected	Not rejected	Not rejected	Not rejected
Target I + h	Not rejected	Not rejected	Not rejected	Not rejected	n. a.
GDP GAP	Not rejected	Not rejected	Not rejected	Not rejected	Not rejected
IIR	Not rejected	Not rejected	Not rejected	Not rejected	Not rejected
F_prices	Not rejected	Not rejected	Not rejected	Not rejected	Not rejected
F-monetary	Not rejected	Not rejected	Not rejected	Not rejected	Not rejected
F-real activity	Not rejected	Not rejected	Rejected	Not rejected	Not rejected
F_nat.accts	Not rejected	Not rejected	Not rejected	Not rejected	Not rejected
F_external	Not rejected	Not rejected	Not rejected	Not rejected	Not rejected

n.a. Not applicable.
Source: Authors' calculations.

tion. As illustrated in the same table, the one-year forward BEI was the only "inefficient" expectation, since real activity (measured by a dynamic factor) can explain the forecast errors.

$$\pi_t - \pi_{t/j}^e = c + \lambda z_t + \eta_{t+s} \quad (3)$$

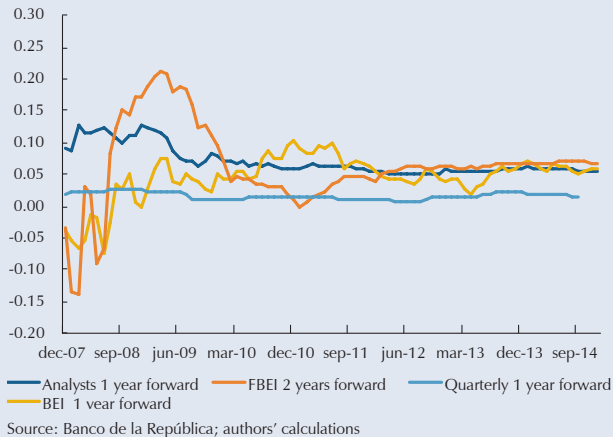
In short, the inflation expectations of analysts and those from the quarterly survey, as well as the expectations based on the inflation target have enough desirable properties to be considered rational expectations. Those derived from government bonds (the one-year forward BEI and the two-year forward FBEI), by themselves, do not generate unbiased forecasts of actual inflation. Furthermore, the one-year forward BEI has efficiency problems.

B. What is the importance of the inflation target when forming expectations?

As mentioned earlier, using the inflation target to predict inflation in the future can be considered a rational expectation. However, agents can correct that expectation adaptively by observing previous forecast errors. This is modeled in equation 4, where the coefficient c_1 represents the importance agents would give to the inflation target (π_{t+s}) . The complement $(1 - c_1)$ would be the weight of the projection made p periods earlier $(\pi_{t/j}^e)$, corrected by the error against actual inflation $c_2 (\pi_t - \pi_{t/j}^e)$.

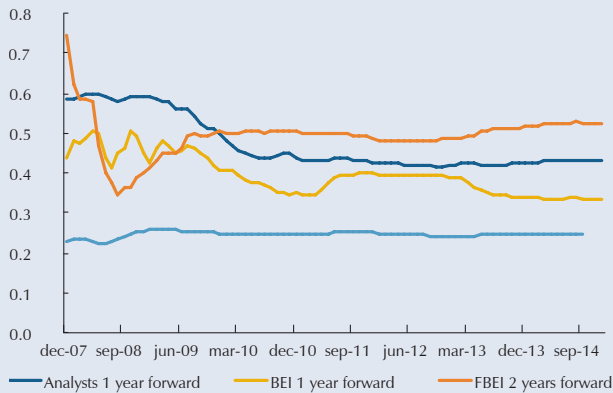
$$\pi_{t+s/t}^e = c_1 \pi_{t+s} + (1 - c_1) [\pi_{t/j}^e + c_2 (\pi_t - \pi_{t/j}^e)] \quad (4)$$

Graph B2.1
Evolution of the C1 Coefficient
Proxy for the Rational Expectation Variable:
Inflation Target t + 12
Correction with Forecast Error in t -1



Source: Banco de la República; authors' calculations

Graph B2.2
C1 Coefficient
Proxy for the Rational Expectation Variable:
Inflation Target t + 12
Correction with Forecast Error in t -p



Source: Banco de la República; authors' calculations

Graphs B2.1 and B2.2 show the results in terms of the importance agents give to the inflation target (c_1) when forming expectations about inflation one year forward ($s = 12$) and regularly correct their forecasts made one month ($p = 1$) or one year ($p = 12$) before. The first conclusion is that, when agents continually correct forecasts made one month before ($p = 1$), the weight of the target is low (for example, in 2014 $0\% \leq c_1 \leq 10\%$); the importance of the target increases when the correction is made using the forecast error from the projections made one year earlier (for example, in 2014 and ($p = 12$), $25\% \leq c_1 \leq 55\%$). Also, generally speaking, it was found that agents with more access to information (eco-

nomics analysts and stock brokers) apparently give more importance to the inflation target than other agents (quarterly survey).⁷

C. Is there adaptive learning with respect to the inflation target?

The adaptive learning hypothesis assumes agents do not know the structure of the economy and behave as econometricians to forecast the annual increase in the CPI (π^e). To do so, they create a prediction rule (Equation 5) and update its parameters ($\Phi_{0,t-1}, \Phi_{1,t-1}$) when they know the estimates error and use the newly available information. As agents learn about the structure of the economy, their expectations converge towards rational ones. Using econometric methods,⁸ the parameters that best explain inflation expectations are measured at each point in time, and it is determined if learning has occurred.

$$\pi_{t/t-j}^e = \Phi_{0,t-1} + \Phi_{1,t-1}\pi_t + \varepsilon_t \quad (5)$$

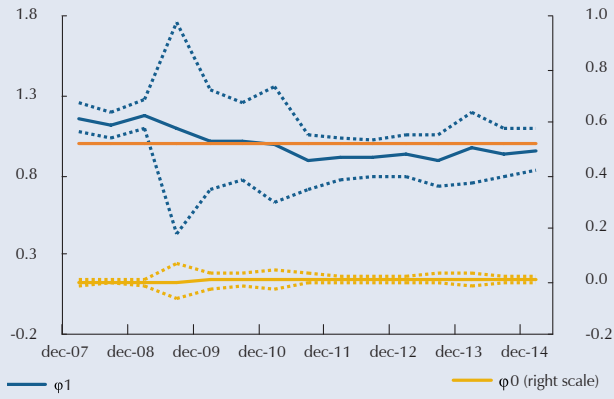
Graphs B2.3 through B2.6 show the estimated values for $\Phi_{0,t}$ and $\Phi_{1,t}$ for each of the expectations variables analyzed. In the case of analysts' expectations and the quarterly survey, these values indicate the adaptive law of motion that best explained the forecasts prior to 2008 pointed to inflation expectations above target ($\Phi_{0,t} = 0$ y $\Phi_{1,t} > 1$). Since then, parameter $\Phi_{0,t}$ has declined and currently, in statistical terms, it is not possible to reject that its value is ($\Phi_{1,t} = 1$). The latter is indicative, to some extent, of inflation expectations anchored to the target. In the case of inflation expectations derived from government bonds, parameter $\Phi_{1,t}$ has grown in the last five years and, considering the confidence intervals, it is statistically the same as 1.

7 (Note 7, Box 2) This survey is applied to commerce, industry, academics and consultants, transport and communications, the financial sector and labor unions.

8 (Note 8, Box 2) The parameters are updated as follows when using least squares.

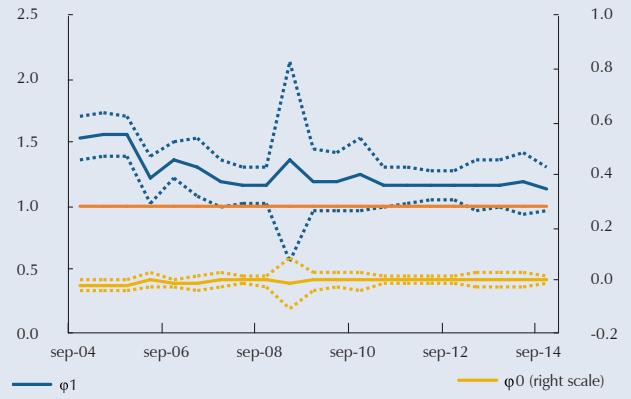
$\hat{\Phi}_t = \hat{\Phi}_{t-1} + vR_{t-1}^{-1} X'_{t-(2j+1)} (\pi_{t-j} - X'_{t-(2j-1)} \hat{\Phi}_{t-(j+1)})$, donde $X_t = [1, \pi_t]$ y $\Phi_t = [\Phi_{0,t-1}, \Phi_{1,t-1}]'$ $R_t = R_{t-1} + v(X'_{t-(2j-1)} X'_{t-(2j-1)} - R_{t-1})$. R_t is the matrix of second moments and v is the gain or learning. The method consists of simulating several series of π^e with different combinations of v and Φ . The objective is to find a combination of initial values and gain parameters to replicate each agent's inflation expectations as closely as possible.

Graph B2.3
Analysts Expectations 1 Year Forward



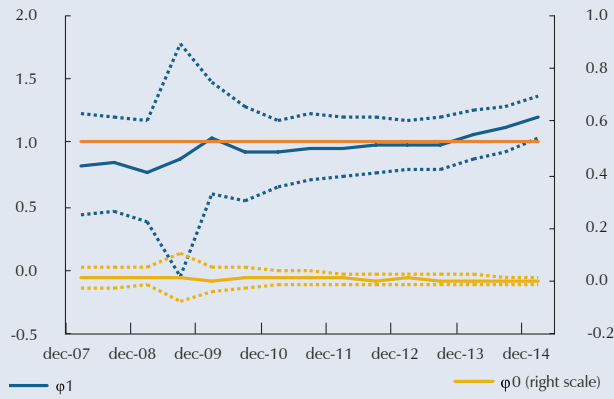
Source: Banco de la República; authors' calculations

Graph B2.4
Inflation Expectations in the Quarterly Survey 1 Year Forward



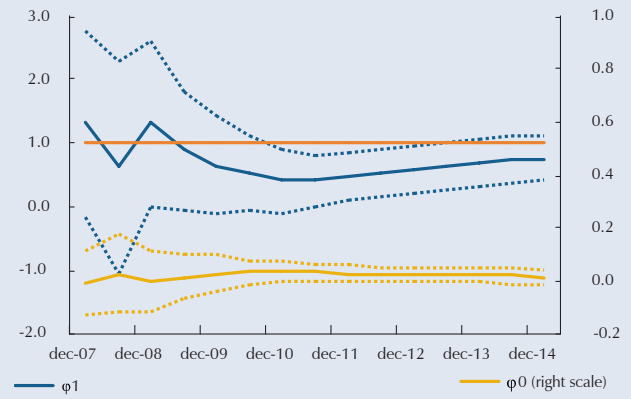
Source: Banco de la República; authors' calculations

Graph B2.5
Break Even Inflation – 1 Year Forward



Source: Banco de la República; authors' calculations

Graph B2.6
Forward Break Even Inflation 2 Years Forward



Source: Banco de la República; authors' calculations

V. MACROECONOMIC STABILITY RISKS

The drop in oil prices is a significant adverse shock that will have an impact on the country's macroeconomic performance.

Terms of trade deterioration, given the decline in crude oil prices, has a negative impact on national income and can make foreign financing more expensive. The flexibility of the exchange rate would help to ease the impact on output.

A less dynamic national income, coupled with excessive use of foreign financing, could make the economy more vulnerable in the medium term.

International oil prices have fallen by more than 50% since July 2014. A major portion of this drop likely will be permanent, as it responds to a long-lasting increase in the supply of oil worldwide and weaker demand for oil growth (see Box 1, pp. 33-37).

As various studies show,¹³ a lower oil price represents a positive stimulus for the global economy. However, for countries that are net exporters of this commodity, it constitutes an adverse shock with numerous direct effects, such as deterioration in national income and less incentives for investment in the oil sector. In the case of Colombia, exports of crude oil and petroleum by-products account for slightly more than half the value of exports overall and 8.0% of GDP, while the revenue derived from oil represents approximately 20% of national government tax revenue. These are important figures, although lower than those in other countries.¹⁴ Data up to the third quarter of 2014 show about 32% of FDI was directed to the oil sector.

The oil industry in Colombia has a major impact on the country's external balance and on government revenue.

13 (Note 13) For example, see Arezki, R. Blanchard, O. (2014). "Seven Questions about the Recent Oil Price Slump," IMF direct; Available in <http://blog-imfdirect.imf.org/2014/12/22/seven-questions-about-the-recent-oil-price-slump/>

14 (Note 14) According to the Institute of International Finance and considering the data by 2013, exports of crude oil and derivatives thereof equal approximately 30% of GDP in Venezuela and around 7% in Ecuador, while tax revenue associated with oil production accounts for about 45% of all government revenue in Venezuela and about 30% in Ecuador and Mexico. In the Middle East, these figures are above 40% and 50%, respectively.

Part of the drop in the price of oil is likely to be permanent.

A lower long-term level for oil prices and the likelihood that monetary policy in the United States will return to normal also could affect the cost of foreign financing for Colombia in the future. First of all, this is because the drop in national income and the decline in the value of wealth (oil reserves) could have an adverse impact on the Colombian economy's risk perception measures. Moreover, a rise in interest rates in the United States could discourage capital flows to emerging countries, including Colombia.

In a small open economy like ours, when faced with an adverse and persistent shock characterized by less national income momentum and more expensive foreign financing, growth in domestic demand should slow in order to maintain sustainable levels consistent with the new economic reality. In this process, the flexibility of the exchange rate would make it possible to absorb some of the adjustment, since there would be real depreciation that would help to reduce the current deficit and to shift resource allocation from non-tradable sectors to non-oil tradable sectors.

However, in an adjustment process of this sort, there is the risk that the cost of foreign financing will increase sharply due, for example, to an extremely negative reaction by the markets to the country's situation, which would affect risk premiums considerably. Domestic confidence can be lost as well, beyond what is coherent with the new income levels. Situations like these could cause a short-term dramatic deterioration in demand.

Nevertheless, there are some factors that reduce the likelihood of a negative scenario like the one described above. To begin with, the drop in oil prices reduces potential inflationary pressure in the United States, a fact that could delay an interest rate hike in that country or make it more gradual. In addition, the increase should occur in a context of economic recovery for Colombia's largest trading partner. Secondly, monetary expansion in Japan and the announcement by the European Central Bank (ECB) that it plans to significantly expand its asset-buying program¹⁵ are signs of broad global liquidity in the future and a lower risk of further reduction in net capital flows to emerging economies. Thirdly, Colombia's reduced dependence on oil, compared to that of other oil-exporting countries, and its good macroeconomic management during the last decade, make the Colombian economy less vulnerable than other oil-producing economies.

An increase in the cost of foreign financing is one possible direct impact of the drop in oil prices.

Despite the slump in oil prices and the other factors described earlier, ample foreign financing coupled with low interest rates could still be a feasible scenario for Colombia. In this type of situation, the rate of growth in domestic demand could outpace that of national income, in the short term,

15 (Note 15) From 10 billion Euros a month to 50 billion, at least until September 2016.

increasing the risk that macroeconomic imbalances will emerge and possibly intensify.

In fact, although foreign financing is needed to support growth, its excessive use can delay the adjustment in spending consistent with a lower increase in income. Generally, this kind of scenario is accompanied by high current account deficits, too much indebtedness, and a boom in assets prices. These imbalances make the economy more vulnerable to adverse shocks and raise the likelihood of an abrupt adjustment in aggregate spending and economic activity. The size of that adjustment would depend on the extent and type of foreign financing (FDI, portfolio, etc.) and how it is used (for investment or current spending), among other factors.

In terms of the type of financing, more than 50% of Colombia's foreign liabilities concern FDI resources, as mentioned in previous editions of this report. These tend to be more permanent than foreign borrowing¹⁶ or portfolio flows.¹⁷ As for use, if high levels of foreign financing are earmarked for the tradable sectors, an increase in net exports of these goods in the future could contribute to the current account balance. However, if they are used to finance consumption or investment in non-tradable sectors, they could encourage an excessive increase in asset prices or real currency overvaluation in the short term. In the event of the latter, paying external obligations in the future could be difficult or done under adverse conditions (e.g., with sharp real depreciation or during a period of contraction in aggregate spending and economic activity).

Excessive use of external financing increases the risk that macroeconomic imbalances will emerge and intensify.

Considering all the above, it is crucial to watch for signs of external and internal imbalances that might be forming and could place the country's macroeconomic stability at risk. For that reason, this chapter looks at how the current account, the real exchange rate, debt, and housing prices performed lately. These variables are identified in the literature as crucial to detecting possible macroeconomic imbalances. Therefore, a macroeconomic imbalance index (MII)¹⁸ is included as well. It combines the imbalances estimated for these variables into a single indicator.

16 (Note 16) It has to be rolled over into new debt.

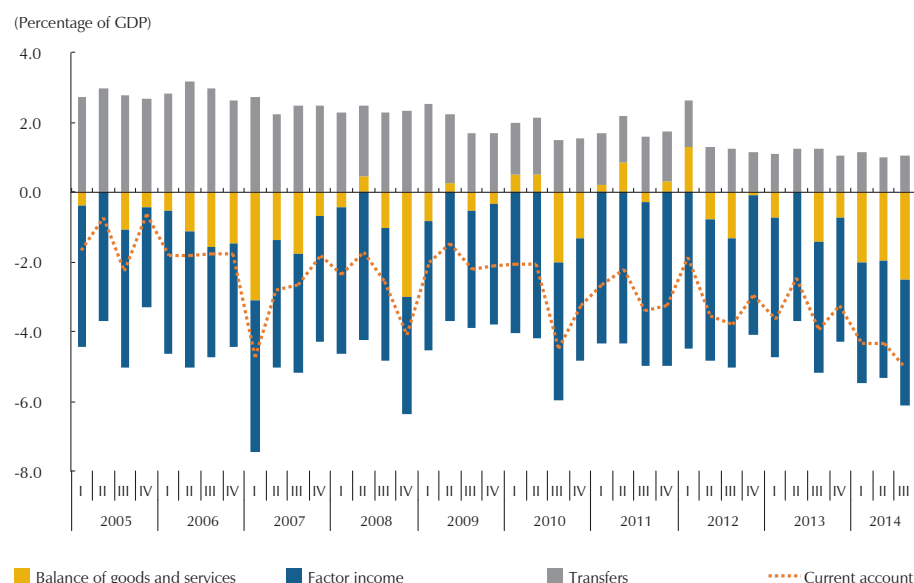
17 (Note 17) Being liquid assets, there is more of a likelihood of a withdrawal of foreign investment in this paper.

18 (Note 18) See Arteaga, Huertas and Olarte (2012). "Índice de desbalance macroeconómico," macroeconomic imbalances," *Borradores de Economía*, No. 744, Banco de la República

A. THE CURRENT ACCOUNT AND THE REAL EXCHANGE RATE

During the course of 2014 up to September, the current account deficit was 4.6% of GDP, which is 1.3 pp higher than the figure on record for the same period in 2013 (Graph 48). As for financing, the largest inflow of foreign capital was for portfolio investment¹⁹ (60% of the total) and, to a lesser extent, for FDI flows (40%). As shown in Graph 49, net portfolio investment, as a share of financing for the current account, has gained importance since late 2011, a trend that became more pronounced in 2014.

Graph 48
Current Account



Observation: The data are presented in accordance with the recommendations outlined in the sixth edition of the Balance of Payments Manual proposed by the IMF. For additional information and changes in methodology, see <http://www.banrep.gov.co/balanza-pagos>
Source: Banco de la República

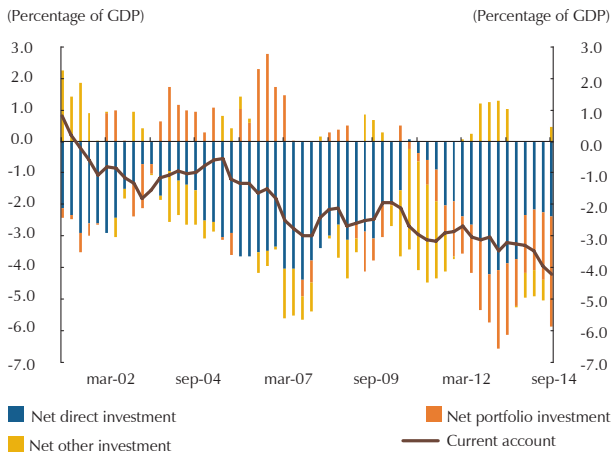
Coupled with the drop in oil prices, the current account deficit widened and there was sharp nominal and real depreciation of the Colombian peso.

As explained in Chapter I, the deficit is expected to grow even more during the fourth quarter, given imports momentum and the decline in exports. The downturn in the former is due mainly to the plunge in international oil prices observed at the end of the year. As for financing, portfolio investment would have made an important contribution to external revenue, while the contribution from FDI declined.

Along with the drop in oil prices, the Colombian peso depreciated sharply against the dollar (26%) between July and December 2014, and against the average of the currencies of Colombia's trading partners (20.1%), although to a less extent. The risk premium at five years increased (0.5 pp), and the real exchange rate depreciated between 14.4% and 19.3%, according to the

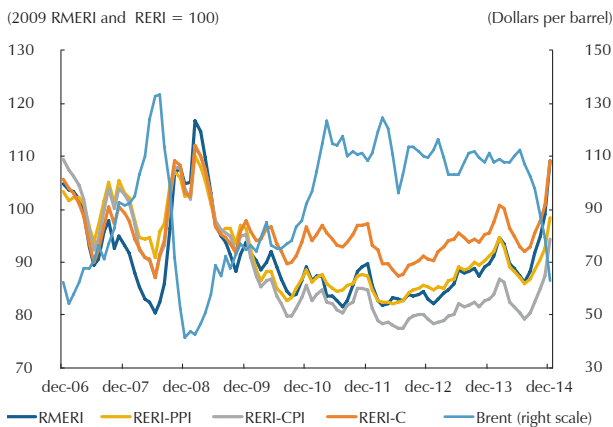
19 (Note 19) Primarily in government bonds.

Graph 49
Current Account and Financing Thereof



Observation: According to the sixth edition of the Balance of Payments Manual proposed by the IMF, the financial account is presented with the same sign as the current account; therefore, asset flows (constitution of assets abroad) are presented with a positive sign and liabilities with a negative sign. For additional information and changes in methodology, see <http://www.banrep.gov.co/balanza-pagos>
Source: Banco de la República

Graph 50
Representative Market Rate of Exchange, Real Exchange Rate and the Price of Oil



RMERI: Representative Market Exchange Rate Index.
RERI: Real Exchange Rate Index
PPI: Producer Price Index
CPI: Consumer Price Index
C: competitiveness
Note: The RERI -PPI and the RERI-CPI compare the purchasing power of the Colombian peso to the currencies of twenty of the country's major trading partners, using the PPI and CPI as deflators, in that order. With respect to the RERI-C for competitiveness, the comparison is to our main competitors in the United States in the markets for coffee, bananas, flowers and textiles.
Sources: Datastream, Office of the Colombian Superintendent of Finance and Banco de la República

indicator used.²⁰ As a result, by the end of 2014, the nominal exchange rate and the different real exchange rate indexes had returned to levels not seen since 2009 (Graph 50).

If much of the slump in oil prices were permanent, it would be consistent with a structural change in terms of trade, in the dynamics of national income, and in the cost of foreign financing. Moreover, when monetary policy in the United States returns to normal, it would imply higher interest rates worldwide, a scenario consistent with a higher real exchange rate and more expensive foreign financing than in recent years.

With respect to the current account, the drop in oil prices and the possibility of a medium-term decline in crude oil production²¹ are factors that would mean less revenue in the trade balance. However, much of this decline would be offset by reduced remittances of profits from the oil sector. On the other hand, real depreciation would encourage non-mining exports and reduce the imports demand, thereby contributing to an adjustment in the current account. The higher cost of foreign financing and the economic recovery of our largest trading partner (the United States) also would be factors that would help to lower the current account deficit.

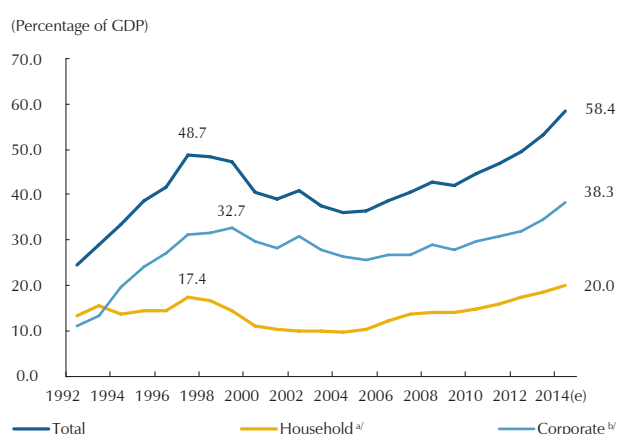
The risks in the medium term would be lower in a context where Colombia's external imbalances are adjusted. Nevertheless, considering the uncertainty surrounding international liquidity conditions, one cannot rule out the possibility that less

20 (Note 20) The real exchange rate indexes presented in this chapter are the RERI-CPI, the RERI-PPI and the RERI-C. The first two compare the purchasing power of the Colombian peso to that of the country's twenty major trading partners (non-traditional trade weighted). In the ITCR-C, the comparison is to our main competitors in the US market for coffee, bananas, flowers and textiles. See: i) "Tasa de cambio real (TER): definición y metodología de cálculo en Colombia", *Reportes del Emisor*; No. 40, 2002, Banco de la República; ii) "Actualización del índice de tasa de cambio real de competitividad (ITCR-C)," *Reportes del Emisor*. No. 65, 2004, Banco de la República.

21 (Note 21) Less investment in the oil sector can mean less oil production. The recovery rate can be slower as well, since the cost to operate some wells, plus the related risks, could exceed the revenue that would result from oil price levels as they now stand.

of an increase in national income would be accompanied by equal or higher costs for foreign financing. In that case, real depreciation would decline, along with the correction in the current account. In this type of scenario, external liabilities would continue to accumulate and the risk to the country's macroeconomic stability would increase. The Colombian economy would be more vulnerable to an adverse shock, which would force the country to repay external obligations at a higher exchange rate. In this case, the type of expenditure used to fund foreign savings would be a determining factor, as would the extent and speed of the adjustments that are made.

Graph 51
Private Sector Borrowing



Note: Includes the loan portfolio and leasing with lending institutions, the National Savings Fund (FNA), credit unions and employee funds; bonds issued by companies in the real sector; and direct foreign borrowing.

a / Pertains to consumption and mortgage lending, the conventional loan portfolio and leasing. Also includes mortgage securitizations and the FNA portfolio.

b / Pertains to commercial loans and micro-credit (all entities taken into account), direct foreign borrowing, and bonds.

Sources: Office of the Superintendent of Finance of Colombia, Office of the Superintendent of Solidarity, Fogacoop and Banco de la República

B. BORROWING

The private sector debt at the end of 2014 was estimated at 58.4% of GDP,²² which is a record high. Companies accounted for two thirds of this amount (38.3% of GDP) and households, the remaining third (20% of GDP) (Graph 51). The level of indebtedness rose by about 5 percentage points compared to 2013, with companies being responsible for most of the increase (3.7 pp).

Peso depreciation in 2014 (24% against the dollar, based on the closing data) affected debt in foreign currency and accounted for about half the increase in debt relative to GDP (2.2 pp).²³ The exercises conducted by *Banco de la República*²⁴ indicate the firms with these kinds of liabilities are generally large companies that have foreign capital and some kind of natural hedge (e.g., income or assets in dollars) or a financial hedge. Therefore,

recent depreciation would not have caused a generalized deterioration in their balance sheets that would jeopardize their stability. It is worth mentioning that the balance of obligations in foreign currency (expressed in

22 (Note 22) Includes loans and financial leasing with lending institutions, with Fondo Nacional del Ahorro (FNA), with credit unions and employee funds, bonds issued by companies in the real sector and direct foreign borrowing. It also includes estimates for GDP and for several components of the debt.

23 (Note 23) The calculation is done by converting the debt in dollars at the end of 2013 and 2014 at the same exchange rate and comparing the ratio of this value to GDP. One criticism of this approach is that borrowing in dollars might have behaved differently if the exchange rate had remained constant.

24 (Note 24) See Montes, E.; Child, J.; Restrepo, S. (2014). "Descalces cambiarios de las firmas no financieras en Colombia," *Borradores de Economía*, No. 805, Banco de la República.

Private sector debt at the close of 2014 was estimated at 58.4% of GDP.

dollars) increased by only 4.0%, which is well below the rate for other types of borrowing.²⁵

On the other hand, the momentum in household borrowing continued in 2014 and grew much as it did in 2013 (14%). The annual change in consumer loans was relatively constant throughout the year, while home mortgage loans slowed during the second half of 2014.

In the future, more costly foreign financing or limits to its availability could create incentives for big business to replace it with domestic sources of borrowing. In that case, unless the demand for credit declines, upward pressure would be brought on interest rates (both active and passive). Although lenders could use their own resources (equity or restructuring assets) to finance more lending, their capacity in this respect is limited, as they have been doing it since 2012.²⁶

However, if Colombia continues to enjoy abundant foreign financing at low cost, and if the demand for credit remains dynamic,²⁷ there is the risk the level of corporate and household debt will continue to rise. While this would contribute to the momentum in spending in the short term, it is not desirable in a medium-term horizon. A highly indebted economy makes it more vulnerable to adverse changes in economic conditions.

C. HOME PRICES

Home prices tended to slow, although they still rose more than consumer inflation by several points.

Home prices tended to slow in 2014. Even so, they still increased at a rate that was several percentage points above consumer inflation. Taking into account the data at September, new home prices (NHPI, calculated by DANE) rose 6.1% annually. Existing home prices (EHPI, calculated by *Banco de la República*) were up 7.6% annually, while new home prices in Bogotá (NHPI calculated by the National Department of Planning) increased 6.7% annually (Graph 52).

The slowdown in these aggregate indexes may be the result of a mixed situation in the housing market. The NHPI figures compiled by DANE show price changes vary significantly among cities and among income levels.

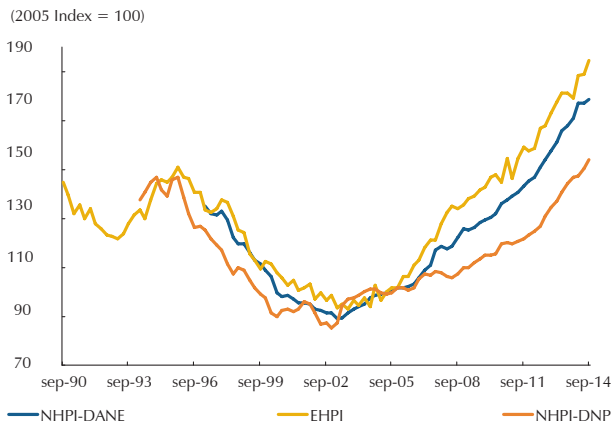
25 (Note 25) For example, the peso loan portfolio held by lending institutions, which accounts for almost 70% of all the borrowing considered in this exercise, was up by about 13%.

26 (Note 26) The balance sheets of lending institutions show the use of equity as a source of financing comes to almost COP 8 billion in each of the past three years.

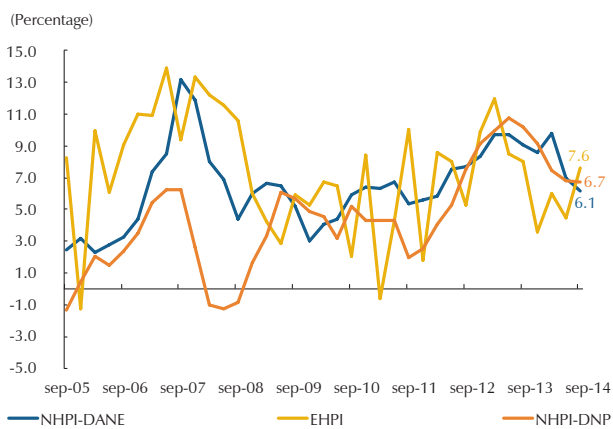
27 (Note 27) See *Reporte sobre la Situación de Crédito en Colombia*, December 2014, Banco de la República.

Graph 52
Home Prices in Colombia (Relative to the CPI)

A. Indexes



B. Annual change



Sources: DANE, DNP and Banco de la República

In Barranquilla and Cali, for example, the annual variations in this index were close to 9.0% (after discounting inflation). However, in Bucaramanga, which showed considerable momentum in past years, the annual adjustment was 1.0% above the CPI. As for income brackets, a look at the in Medellín, for example, shows a real annual increase of almost 1.0% for the NHPI in the high income bracket, and a negative rate for the low income brackets in Bogota and Barranquilla. Yet, the adjustments in the middle-income brackets in those cities are above 10%.

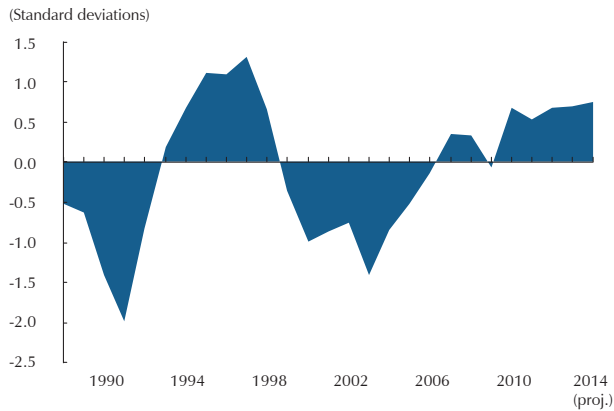
As mentioned in the last edition of the *Inflation Report*, a shortage of land in some cities places restrictions on the supply of new housing. However, several factors on the demand side might also be causing less momentum. To begin with, the government’s housing programs are narrower and more focused on vulnerable populations. In addition, the sharp depreciation of the peso increased the attractive of investments in foreign currency. The decline rents adjustment and housing prices also diminished the profitability of real estate. Nevertheless, in a scenario where external resources continue to be available, or where interest rates in the advanced economies have not yet returned to normal, the lure of investments in foreign currency would decline in favor of local assets, such as real estate.

D. MACROECONOMIC IMBALANCE INDEX (MII)

Available data show an increase in the external deficit in 2014, a correction in the real exchange rate during the second half of the year, acceleration in the pace of borrowing by the end of the year as a result of depreciation, and a slowdown in home prices.

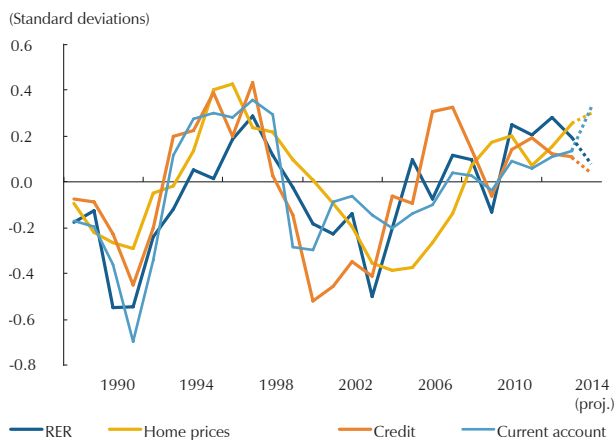
Accordingly, estimates developed by the technical staff at *Banco de la República* suggest the aggregate imbalance would have expanded slightly compared to 2013, mainly due to a larger imbalance in the current account and, to a lesser extent, in home prices. The corrections in the RER and

Graph 53
Macroeconomic Imbalance Index



Proj: Projected
Source: Calculations by Banco de la República

Graph 54
Gaps in the Current Account, Real Exchange Rate, Home Prices and Credit^{a/}



(Proj.) Projected
a / The gaps are calculated as the difference between the observed value and the estimated long-term value.
In the case of the RER, its negative is presented so that positive imbalances indicate gaps in all cases.
Source: Banco de la República

lending would have moved them towards their long-term levels (Graphs 53 and 54).

The scale of the negative shock caused by the slump oil prices has been considerable and will affect the country's macroeconomic performance. Although the flexible exchange rate in Colombia is a mechanism that helps curbing some of the negative impact generated by this product's lower prices, it is to be expected that deterioration in the momentum in national income and in risk premia might trim down the imbalances estimated in this section. However, if broad international liquidity and low external interest rates persist, that might not happen.

ATTACHMENT

MACROECONOMIC FORECASTS BY LOCAL AND FOREIGN ANALYSTS

The latest forecasts by local and foreign analysts for the major economic variables in 2015 and 2016 are summarized in this section. At the time they were consulted, the analysts had access to data up to January 20, 2015.

1. Forecasts for 2015

The local analysts expect 3.8% economic growth, on average. This is 80 basis points less than the estimate in the *Inflation Report* for the previous quarter. The foreign agencies who were consulted forecast 3.5% GDP growth, on average.

Table A1
Macroeconomic Forecasts for 2015 by Domestic and Foreign Analysts

	Real GDP Growth (Percentage)	CPI Inflation	Nominal exchange rate end of:	Nominal DTF (Percentage)	Fiscal deficit (Percentage of GDP)	Unemployment Rate in the Thirteen Major Metropolitan Areas (Percentage)
Domestic Analysts						
Alianza Valores	3.50	3.30	2,600	4.20	2.80	9.0
ANIF ^{a/}	3.80	3.20	n. d.	4.20	2.80	9.7
Banco de Bogotá ^{a/}	4.00	3.06	2,315	4.49	2.80	9.3
Bancolombia	3.90	3.41	2,350	4.20	2.60	8.1
BBVA Colombia ^{a/}	3.60	3.50	2,355	4.09	2.80	9.4
BGT Pactual ^{a/}	3.90	3.30	2,250	n. d.	2.80	8.0
Corficolombiana	4.80	3.20	2,000	4.75	2.80	n. d.
Corpbanca ^{b/}	4.30	3.17	2,250	4.75	2.30	8.7
Corredores Davivienda ^{c/}	3.00	3.62	2,475	3.90	n. d.	n. d.
Credicorp Capital ^{d/}	3.70	3.30	2,250	4.30	1.70	9.0
Davivienda ^{a/}	3.50	3.62	2,300	4.15	3.00	8.5
Fedesarrollo ^{a/}	3.90	3.40	2,400	n. d.	2.90	n. d.
Ultrabursátiles	4.00	3.14	2,480	4.70	n. d.	9.0
Average	3.84	3.32	2,335.4	4.34	2.66	8.9
Foreign Analysts						
Citi	3.80	3.30	2,500	4.50	2.90	9.5
Deutsche Bank	3.80	3.80	2,570	n. d.	3.00	n. d.
Goldman Sachs	3.20	3.50	2,317	n. d.	3.00	n. d.
JP Morgan	3.30	3.00	n. d.	n. d.	n. d.	n. d.
Average	3.53	3.40	2,462.3	4.50	2.97	9.5

n. a.: Not available

a/ The projected deficit pertains to the national government.

b/ Formerly Banco Santander

c/ Formerly Corredores Asociados

d/ Formerly Correval

Source: Electronic survey

Table A2
Forecasts for 2016 by Domestic and Foreign Analysts

	Real GDP Growth	CPI Inflation	Nominal Exchange Rate End of:
	(Percentage)		
Domestic Analysts			
Alianza Valores	2.00	2.30	2,900
ANIF	4.30	3.00	n. d.
Banco de Bogotá	5.00	3.00	2,400
Bancolombia	4.50	3.04	2,450
BBVA Colombia	4.00	3.30	2,235
BGT Pactual	n. d.	n. d.	n. d.
Corficolombiana	3.50	3.00	2,050
Corpbanca ^{a/}	4.30	3.00	2,200
Corredores Davivienda ^{b/}	2.80	n. d.	2,350
Credicorp Capital ^{c/}	3.00	2.90	2,200
Davivienda	3.20	3.69	n. d.
Fedesarrollo	4.50	3.30	2,300
Ultrabursátiles	4.20	3.00	2,650
Average	3.78	3.05	2,373.5
Foreign Analysts			
Citi	4.00	3.00	2,500
Deutsche Bank	3.40	2.70	n. d.
Goldman Sachs	3.40	3.00	2,363
JP Morgan	2.80	3.00	n. d.
Average	3.40	2.93	2,431.5

n.a. Not available

a/ Formerly Banco Santander

b/ Formerly Corredores Asociados

c/ Formerly Correval

Source: Banco de la República (electronic survey)

As for inflation forecasts, the local analysts expect inflation to be 3.3%, while the foreign analysts expect prices to be up 3.4% by the end of the year. These percentages are within the target range set by the Board of Directors of *Banco de la República* (JDBR) for 2015 (between 2.0% and 4.0%).

On the exchange rate, local analysts expect the representative market exchange rate (TRM) to end the year at COP2,335, on average, compared to the estimate of COP2,102 in the previous edition of this report. The foreign analysts anticipate a TRM to be near COP2,462 by the end of the year.

With respect to the interest rate on fixed term deposits (DTF), the local analysts forecast 4.3%, on average. They also expect a figure of 8.9% for the unemployment rate.

2. Forecasts for 2016

The local analysts expect to see 3.8% economic growth in 2016, while the foreign analysts are forecasting 3.4%. As for inflation, the local and foreign analysts are predicting 3.1% and 2.9%, respectively. On the nominal exchange rate, the local analysts expect it to average COP2,374; the average forecast by the foreign analysts is COP2,432.

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