
# INFLATION REPORT

December 2015*

* Submitted by the technical staff to the Board of Directors for its meeting on 29 January 2016.

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%. 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 prospects for the future, and on an assessment of the forecast for inflation in light of the 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 where the policy operates and that deviation would is not be due to temporary shocks, the BDBR modifies 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 after meetings of the Board of Directors. This is done through a press bulletin posted immediately on *Banco de la República*'s website (www.banrep.gov. co). Inflation reports are published quarterly and intended 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- 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 justifying 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 Decisions on Monetary Policy

Global growth remains weak and foreign demand for Colombian products will likely see more growth in 2016 than in 2015. The price of oil fell 33% between September 2015 and January 2016. This drop implies further deterioration in the country's terms of trade and national income. In this environment, and with the onset of monetary tightening in the United States, Colombia's risk premium increased and the peso devalued 6.9% against the dollar.

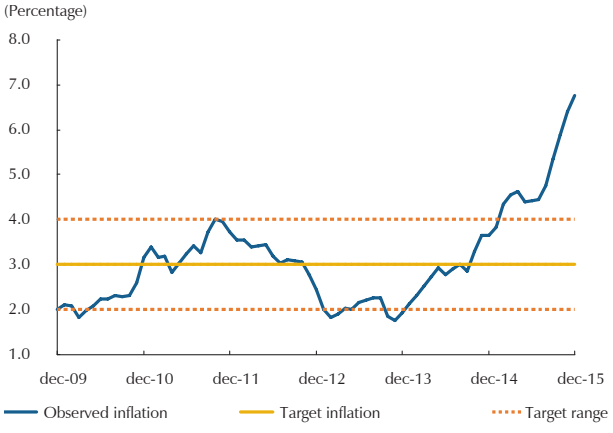
The behavior of foreign trade and the country's financial account reflect the weakness in external demand, the drop in oil prices and the higher exchange rate. Exports in dollars fell 34.9% annually during 2015, mainly because of the plunge in foreign sales of mining products (-46.5% annually). Between January and November of that year, the annual decline in the value of imports was 15%. The widening trade deficit in goods explains much of the current account deficit in 2015, which was close to USD 19 billion. This deficit is expected to be reduced to about USD 16 billion in 2016, given a forecast drop in imports of goods and services, fewer remittances of profits by foreign companies and the recovery anticipated for industrial exports.

The latest available figures suggest output growth during the fourth quarter of 2015 would have been similar to what it was in the third quarter. Domestic demand would have slowed, especially because of the projected standstill in investment and lower consumption of consumer durables. Net exports would have contributed positively to growth. The most likely forecast, for all of 2015, is 3% growth, within a range of 2.8% to 3.2%.

The Bank's technical staff expects output growth between 1.5% and 3.2% during 2016, with 2.7% being the most probable rate. This percentage reflects domestic demand that would continue to adjust to lower national income, due to average oil prices, which are expected to be 34% less in 2016 compared to their average for 2015. Added devaluation of the peso is expected to reduce imports in favor of local production and to encourage exports.

Annual consumer inflation was 6.77% in December 2015, and the average of the four core inflation measurements stood at 5.43%. The hike in infla-

Graph A
Total Consumer Inflation




Sources: DANE and *Banco de la República*.

tion during 2015 is explained largely by the partial pass-through of nominal depreciation to consumer prices and the cost of raw materials, as well as by the sharp increase in food prices due to *El Niño* weather. Analysts expect inflation to reach 4.5% and 3.7% at horizons of one and two years, while the expectations embedded in government bonds for two, three and five years place it above 4.5 % (Graph A).

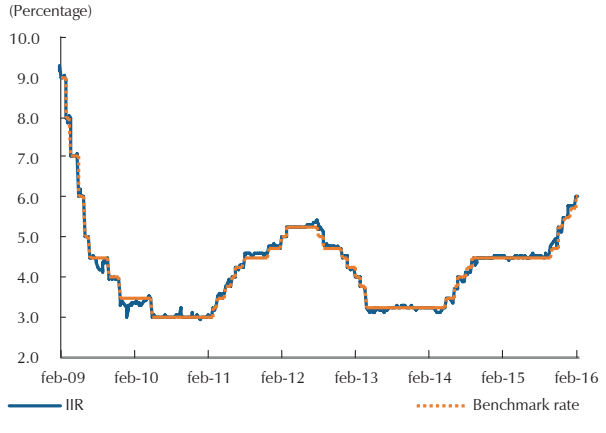
Although the pass-through of peso depreciation to consumer prices has been historically low, the current exchange rate is unusually high and persistent and could continue to have a lagged effect on prices for imported goods and services. Similarly, the decline in the supply of food is expected to continue up until the second quarter of 2016, when the weather should return to normal. In this context, and despite the fact that both are transitory shocks, they can continue to exert a direct negative impact on prices, affect inflation expectations and trigger unwanted indexation mechanisms.

In this environment, the forecasts developed by the technical staff, based on an active monetary policy, suggest annual inflation will continue to rise until mid-2016 and then begin to converge towards the target of 3.0%, which should be reached in 2017.

The new information indicates the larger-than-expected rise in food prices and the additional hikes in the exchange rate, mainly related to the more pronounced drop in oil prices in recent months, continue to exert upward pressure on inflation. At the same time, inflation expectations remain high, and there is still a moderate risk of a slowdown in domestic demand beyond what is compatible with the decline in national income.

Given this economic environment, the Board of Directors decided in October to raise the benchmark interest rate by 50 bp to ensure inflation will converge towards the target range in a two-year horizon. With additional increases of 25 basis points each at the Board meetings in November and December 2015 and in January 2016, the benchmark rate is now 6% (Graph B).

Graph B
*Banco de la República*'s Benchmark Interest Rate and the Interbank Interest Rate (IIR)
(2009-2016) [a/]




A/ The figures pertain to data for business days; the last figure is for 15 February 2016.
Sources: Financial Superintendence Of Colombia and *Banco de la República*

On 23 December 2015, in light of the liquidity conditions in the exchange market, the Board decided to lower the limit (from 7% to 5%) for activating call-option auctions on international reserves and exercising these options. The other conditions for this mechanism were left unchanged.

**José Darío Uribe**
**Governor**

# INFLATION REPORT

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# I. The External Context and Balance of Payments

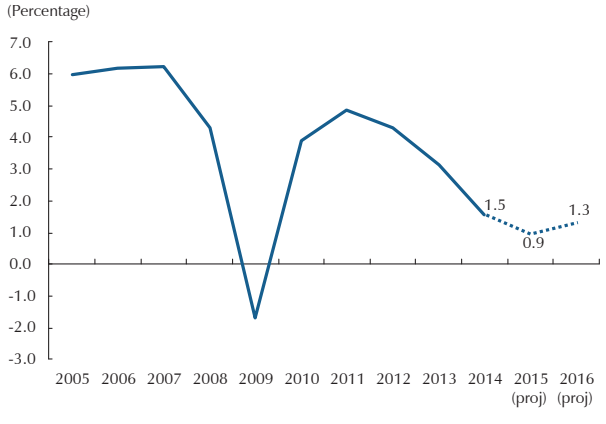
**The forecasts for growth of Colombia's trading partners in 2016 were reduced in this report.** Even so, some recovery is expected compared to the figures for 2015.

**The country's terms of trade suffered a** new shock in recent months, due to the additional drop in international oil prices. In January, these prices reached their lowest level since 2003.

**January also saw an increase in the volatility on financial markets**. The country's risk premiums rose as a result and the Colombian peso depreciated further against the dollar.

**The current account deficit as a share of GDP** would have gone from 5.2% in 2014 to 6.5% in 2015, although it would have declined in dollars by about USD 437 m. A correction in the deficit is expected for 2016.

Graph 1
Average Growth of Colombia's Trading Partners
(Non-traditional trade weighted)



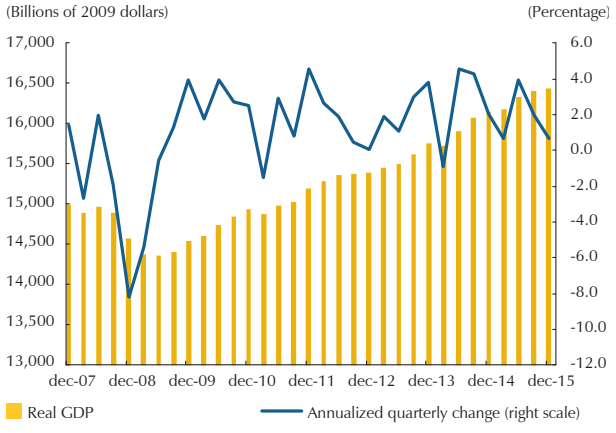

(Proj): Projected
Source: International Monetary Fund, *Banco de la República*'s calculations and forecasts

## A. THE INTERNATIONAL CONTEXT

### 1. Real activity, inflation and monetary policy

The figures for the fourth quarter of 2015 confirm that the economic growth of our major trading partners (Graph 1) has been weak, as was predicted in the September report. This remains an obstacle for Colombia's exports. The sluggishness has been more pronounced in the emerging economies, especially those of Latin America. Their output grew at historically low rates or contracted. Economic growth in the United States economy and the euro area was modest.

Graph 2
Real GDP in the United States




Source: Bureau of Economic Analysis.

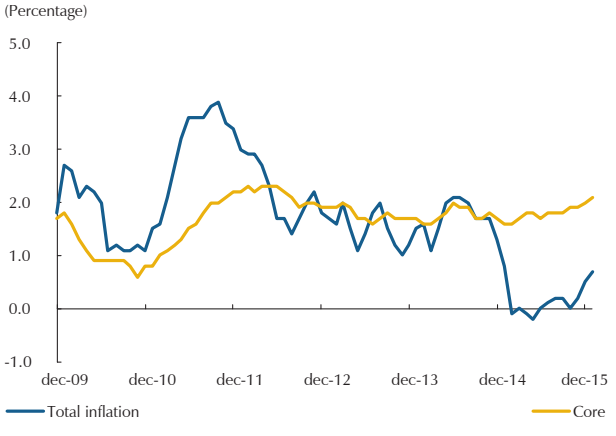
In the case of the United States, the first estimate of gross domestic product (GDP) for the fourth quarter shows moderate growth of 0.7% quarterly annualized rate (q.a.r), while three months earlier, it was 2.0% q.a.r. (Graph 2). Given this increase, growth for all 2015 came to 2.4%.

The slowdown in the US economy at the end of the year was mainly due to the decline in non-residential investment and in net exports, which would have been affected by the strong dollar and weak external demand. Other components of demand also registered less momentum, since the increase in private consumption and government spending between the third and fourth quarters went from 3.0% q.a.r. to. 2.2% q.a.r. and from 1.8% q.a.r. to. 0.7% q.a.r., respectively, while inventories were down once again. The only exception was residential investment, which rose at rates similar to those of the previous quarter (8.2% q.a.r.).

Despite the slowdown in real activity in the United States during the final quarter of the year, the job market continued to recover at favorable rates. Job creation is still dynamic. In fact, nonfarm payrolls increased at an average monthly rate of around 284,000 new jobs during the fourth quarter, which is significant improvement compared to an average of 174,000 new jobs registered three months earlier. Consequently, the unemployment rate fell to 5.0% and is close to the level analysts and members of the Federal Reserve (Fed) regard as long term for the economy.

As for the annual change in consumer prices, the indicator of total inflation showed some rebound during the fourth quarter compared to the situation three months earlier. This is because of a lower base of comparison in the cost of fuel. Even so, inflation remains low (0.7% in December), thanks to the sharp reduction in the commodity prices, especially for oil. Meanwhile, the annual core inflation indicator (which excludes food and energy) trended slightly upward and was somewhat above the Fed's target of 2.0% (Graph 3).

Graph 3
Annual Indicators of Total and Core Inflation in the United States




Source: Bloomberg.

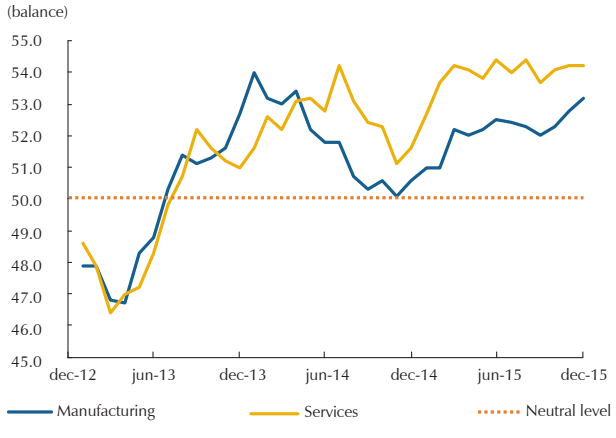
In this context, the Federal Open Market Committee (FOMC) decided to raise its policy rate by 25 basis points (bp) for the first time since the latest financial crisis. In addition, the FOMC members

announced they would continue to implement gradual increases over the next two years. However, at its January meeting, the Fed said the strong dollar, coupled with the difficult international situation and low inflation pose significant risks to the normalization of the country's monetary policy.

In the euro area, the figures at hand for the final quarter of 2015 on real activity and confidence show the economy would have continued to expand slowly. According to the records up to November on retail sales, industrial production and exports outside the euro area, growth by the end of the year would have been similar to what was it was in previous quarters. Confidence indicators and industry surveys up to December confirm this trend (Graph 4).

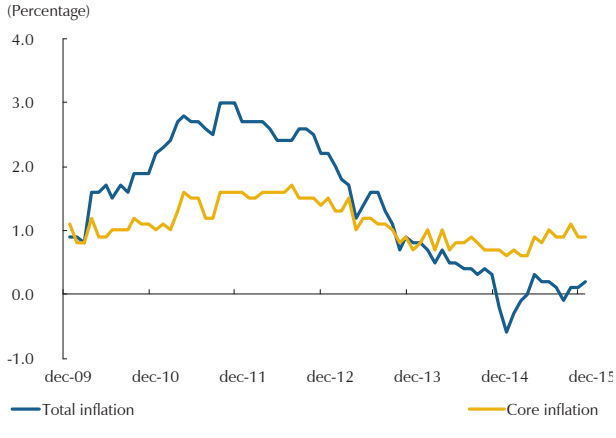
In this environment, total inflation (0.2%) and core inflation (0.9%) (Graph 5) have remained low and are still distant from the target set by the European Central Bank (ECB) (slightly below 2%). For this reason and because of limited demand-side pressures on prices, the ECB decided, at its December meeting, to reduce the rate on deposits and to expand the amount and maturity of its quantitative easing program. In addition, at its January meeting, the ECB indicated it might continue to increase its monetary stimulus, so as to further support the region's economic recovery.

Graph 4
Industrial Survey of the Euro Area
(PMI: Purchasing Managers Index)




Source: Bloomberg.

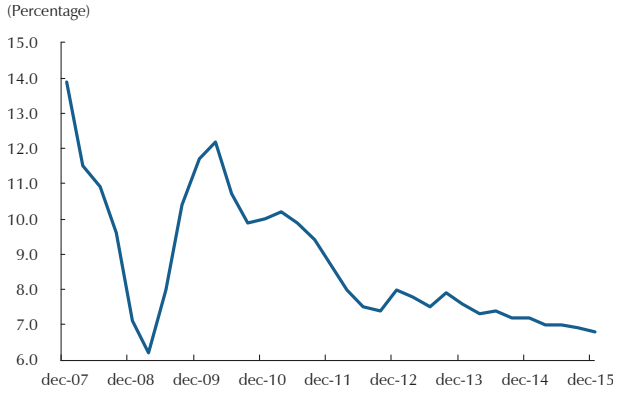
Graph 5
Annual Indicators of Total and Core Inflation in Europe




Source: Bloomberg.

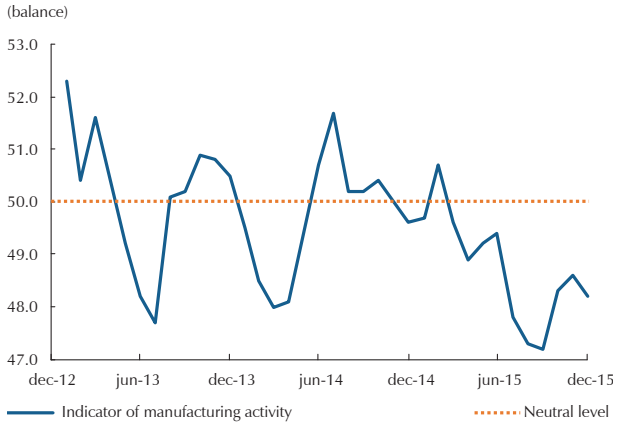
At the same time, most of the emerging economies are still exhibiting relatively limited momentum with respect to what was observed in previous years. In the case of China, annual GDP growth was 6.8% in the fourth quarter, bringing the increase for all 2015 to 6.9%. This is below the government's target (7.0%) and of the growth reported for the year before (7.3%) (Graph 6). The slowdown was largely the result of considerably less growth in investments in fixed asset, in exports and in industrial production (Graph 7), even though consumption accelerated compared to the rates observed in the first part of the year. Accordingly, it appears the Chinese economy is transitioning towards a more sustainable model of development in the medium term, one that depends less on external demand and investment, and more on private consumption. It is important

Graph 6
Annual Real GDP Growth in China



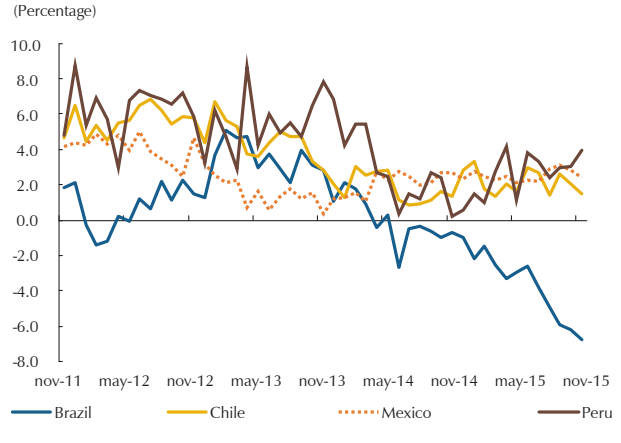

Source: Bloomberg.

Graph 7
Indicator of Manufacturing Activity in China
(PMI: Purchasing managers Index)




Source: Bloomberg.

Graph 8
Annual Growth in Monthly Economic Activity Indexes for Several Latin American Economies




Source: Datastream.

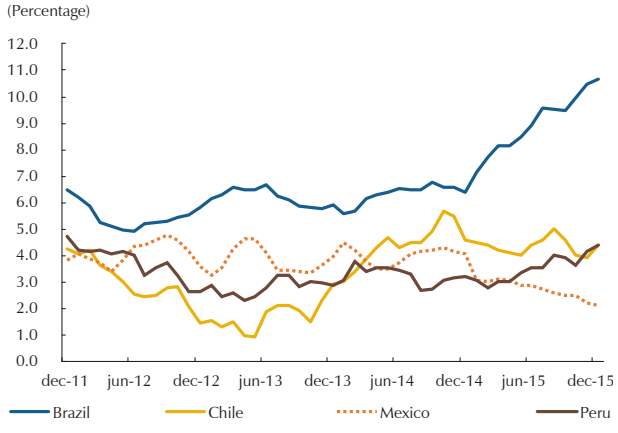
to bear in mind that this transition involves less growth in China's demand for commodities.

Recent indicators of real activity in Latin America show the countries in the region continued to display very little momentum in the fourth quarter (Graph 8). Overall, foreign sales remained weak as a result of low prices for major export commodities and slackening demand from the region's trading partners. Moreover, domestic demand in Latin America continues to adjust to the reduction in national income resulting from the shock to the region's terms of trade. Household and business confidence has also remained low and this, in turn, has affected decisions on investment and consumption.

It is important to point out that the annual decline in activity in some countries can be attributed to idiosyncratic factors. In Brazil, the loss of investment grade, the uncertain political situation and the need for fiscal consolidation that has yet to come about have affected the confidence of agents in the market and, hence, their decisions on investment and consumption. In Ecuador, the competitiveness of its exports has been affected by the sharp appreciation of the dollar, while low oil prices have adversely impacted the country's fiscal accounts and government spending. As for Venezuela, the low oil prices have only added to certain structural problems, deepening the recession in that country.

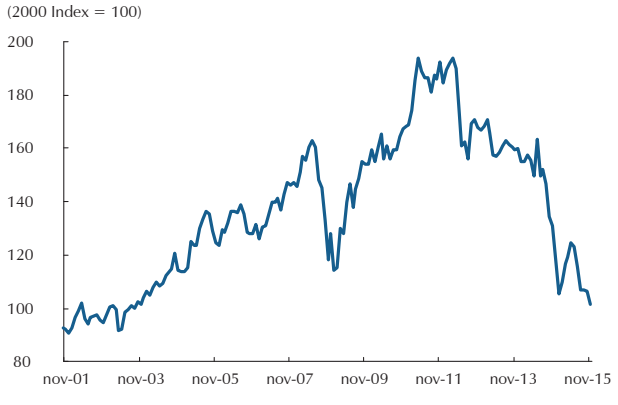
As to the level of prices, fourth-quarter figures for annual inflation in Latin America show a predominance of upward trends (Graph 9). Further increases were observed in Chile and Peru, where inflation remains above the target range set by the monetary authorities of those countries, which led to policy rate increases. Meanwhile, inflation in Brazil is still high and trending sharply upward. Mexico is the exception, with a moderate annual inflation that is still below 3% and within the target range set by its central bank. Even so, the Central Bank of Mexico did raise it policy rate.

Graph 9
Annual Inflation in Several Latin American Economies



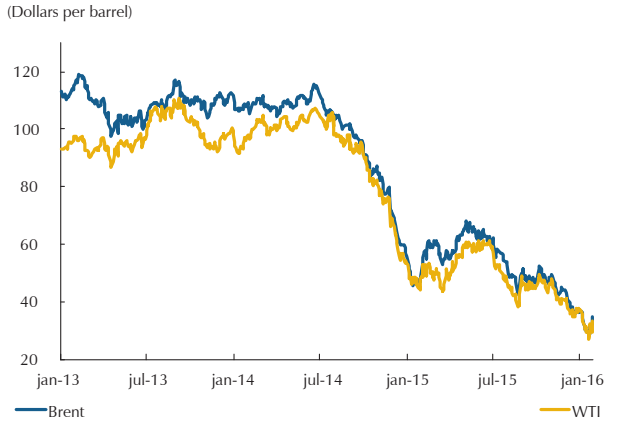

Source: Datastream.

Graph 10
Terms of Trade Index (Commerce Method)




Source: *Banco de la República*.

Graph 11
International Oil Prices (Brent and WTI)




Source: Datastream.

## 2. Commodity Prices

In addition to the shock of lower demand in recent months from Colombia's major trading partners, the country's foreign income continued to be affected by a sharp unwinding in its terms of trade (Graph 10). This shock deepened during the fourth quarter of 2015 and at the start of 2016,[1] given a further drop in prices for the commodities Colombia exports, mainly oil.

The average price of oil (Brent reference) fell 13.4% between the third and fourth quarter, going from USD 50.9 per barrel to USD 44.4 per barrel (Graph 11). The figures for January 2016 show a further decline, with oil averaging USD 32.0 per barrel that month and reaching the lowest since 2003 (USD 27.8 per barrel). These new levels are significantly below those forecast in the September 2015 edition of this report for the final quarter of 2015 and 2016, on average.

The new fall in oil prices would be due largely to the prospect of the current oversupply increasing in the coming months. This is the result of the several factors; namely, the lifting of restrictions on oil exports from Iran, the announcement by the leading members of the Organization of Petroleum Exporting Countries (OPEC) that they do not intend to limit their production and signs of a further slowdown in growth in the global demand for oil. Moreover, oil production in the United States has declined less than expected, and inventories of crude the world over are still high. Part of the collapse in oil prices also can be attributed to appreciation of the dollar.

As for coal, its prices have dropped significantly in recent months, given less demand for this raw material. Some of the reasons for this situation include the slowdown in global economic activity,

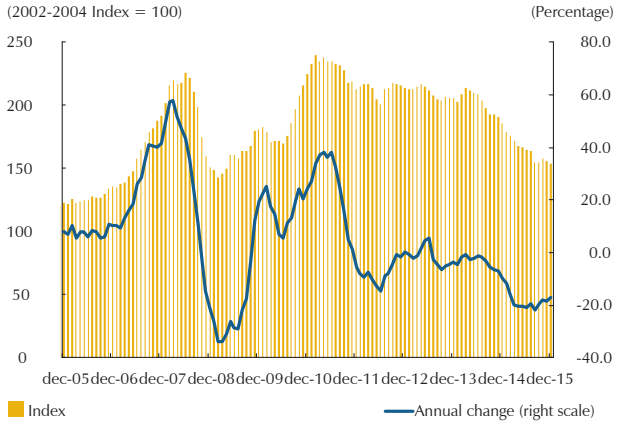
1 Data up to 1 January 2016 was available at the time this report was written.

particularly in the emerging economies; lower oil prices, which facilitate substituting coal; the strong dollar; and the efforts of several countries to rebuild their productive apparatus with an eye towards cleaner sources of energy.

International coffee prices remained low compared to the levels observed in late 2014 and early 2015. There has been a large global supply of coffee, since a number of producers have recovered from the supply shock that hit last year.

International prices for agricultural commodities in the fourth quarter continued the downward trend observed three months earlier. The added annual contraction in the food price index of the United Nations Food and Agriculture Organization (FAO) reflects this situation (Graph 12), which can be attributed to the fact that global supply remains extensive, the dollar is strong and oil prices are low. Furthermore, lower oil prices have reduced transportation cost and those of some of the input required to produce food, besides favoring the replacement of biofuels. Since Colombia imports a number of these commodities, this reduction would have buffered, to some extent, the sharp unwinding in terms of trade.

Graph 12
International Food Prices




Source: Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO).

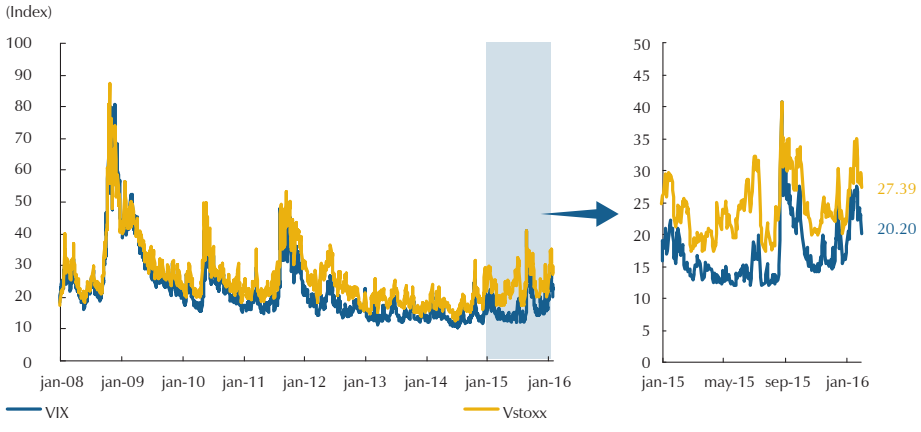
## 3. Financial Markets

As for international financial markets, some of the volatility indexes declined during the fourth quarter with respect to the high levels observed in September. However, global risk aversion rose sharply in January 2016, sparking a significant increase in volatility (Graph 13).

This new episode would be explained largely by growing fears about the health of the Chinese economy, given the outflow of capital from that country and the deterioration in its economic indicators, especially for the manufacturing sector. Moreover, the decision by China's central bank to fix the price of the yuan against a basket of currencies caused it to devalue against the dollar. This was interpreted by many analysts as another sign of weakness in the Chinese economy.

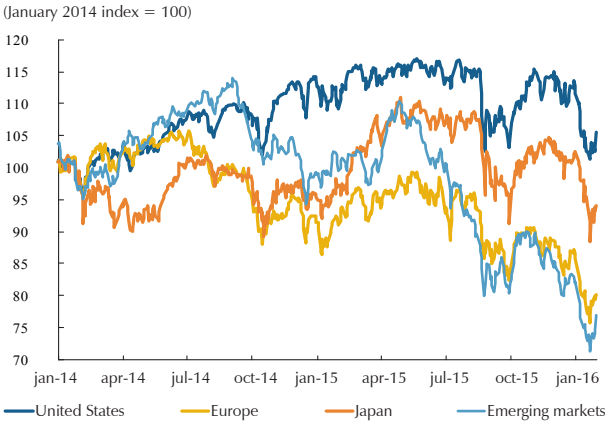
In this context, most of the world's stock markets fell sharply (Graph 14). Although the reduction was widespread and most sectors were affected,

Graph 13
Financial Volatility Indexes




Source: Bloomberg.

Graph 14
Global Stock Indexes




Source: Bloomberg.

Graph 15
US Dollar Exchange Rate
(Trade weighted average)

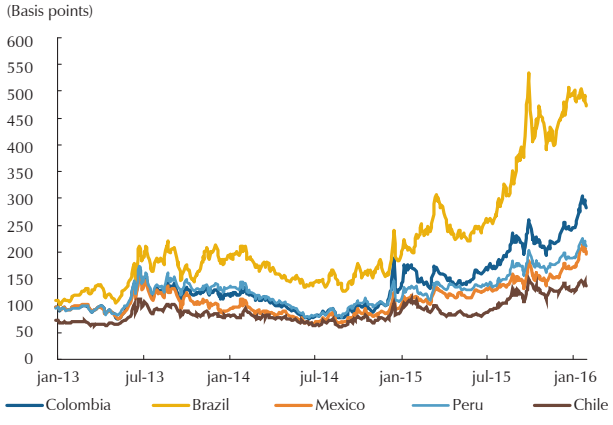

Source: Bloomberg.

those hit the hardest were energy companies and high yield corporations, which are perceived as riskier.

Meanwhile, the tendency for the US dollar to appreciate against most of the world's currencies continued in recent months (Graph 15), due to an increase in global risk aversion and the policy rate hikes in this country. Rates on long-term bonds declined somewhat, despite the Fed's policy decisions. This also would be associated with the added uncertainty in global financial markets and the fact that market agents expect the normalization of monetary policy to be slower than was announced by the members of the FOMC.

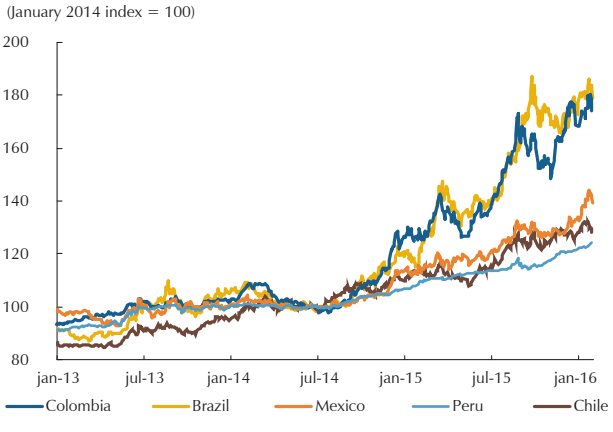
In the case of Latin America, the rise in financial volatility worldwide resulted in higher risk premiums (Graph 16) – the highest since 2009 for some countries - and further depreciation of the Latin American currencies against the dollar (Graph 17). In Colombia, five-year credit default swaps (CDS) went from an average value of 225.4 basis points in the fourth quarter to 277.6 basis points in January 2016. During the same period, the Colombian peso depreciated 7. 3%, on average, going from COP3,064 to COP3,288 per dollar.

Graph 16
Five-year Credit Default Swaps (CDS) for Several Latin American Countries




Source: Bloomberg.

Graph 17
Exchange Rate Indexes for Several Latin American Countries




Source: Bloomberg.

## 4. Forecasts Developed by the Technical Staff at *Banco de la República*

The forecasts for growth of Colombia's trading partners in 2016 were revised downwards in this report with respect to those in the September 2015 edition. This reduction is mainly due to slower growth estimated for the emerging economies, especially those in Latin America, because of the adverse impact lower commodity prices have had on national income. Accordingly, economic expansion in the case of our major trading partners (non-traditional trade-weighted) is expected to be 1.3% in 2016. This is a reduction of 0.4 percentage points (pp) compared to the forecast last quarter (Table 1). However, some recovery compared to the figure on record for 2015 is expected.

The forecast for growth in the United States in 2016 also was lowered in this report, since global uncertainty, weak external demand and appreciation of the dollar would have a greater-than-expected impact on net exports and nonresidential investment. Even so, households in the United States are expected to consolidate as the main engine of growth, since the fundamental factors of families remain favorable. This also should provide an additional boost to residential investment.

Inflation in the United States during 2016 is expected to remain below the Fed's long-term target (2.0%), thanks to a strong dollar and further commodity price reductions, especially in the case of fuel. In this context, the Fed would continue to raise its benchmark rate during the year, although very gradually. This measure is expected to pass through to market rates in an orderly fashion.

Economic recovery in the euro area would remain slow, as anticipated in the previous edition of this report. In a scenario marked by low inflation and limited demand-side pressures, the ECB would continue to pursue a highly expansionary monetary policy, which would help to restore confidence and reestablish the credit channel, thereby boosting private consumption and investment. As in the United States, the impetus in Europe will have to come from domestic demand, since export growth likely will be affected by the weakness of the emerging economies.

Table 1
Growth Forecasts for Colombia's Trading Partners

| Growth forecasts for trading partners | 2014 | Forecasts for 2015 Scenario | | | Forecasts for 2016 Scenario | | |
|---|---|---|---|---|---|---|---|
| | | Minimum forecast | Central forecast | Maximum forecast | Minimum forecast | Central forecast | Maximum forecast |
| **Main partners** | | | | | | | |
| United States | 2.4 | 2.3 | 2.5 | 2.7 | 1.8 | 2.5 | 2.8 |
| Euro Area | 0.8 | 1.3 | 1.5 | 1.7 | 0.8 | 1.6 | 2.0 |
| Venezuela[a/] | (4.0) | (10.0) | (9.0) | (8.0) | (10.0) | (5.0) | (2.0) |
| Ecuador | 3.8 | (0.3) | 0.1 | 0.4 | (2.0) | (0.5) | 0.5 |
| China | 7.3 | 6.8 | 6.9 | 7.0 | 6.0 | 6.4 | 6.8 |
| **Other partners** | | | | | | | |
| Brazil | 0.1 | (4.0) | (3.7) | (3.3) | (3.5) | (2.5) | (2.0) |
| Peru | 2.4 | 2.5 | 2.8 | 3.1 | 2.5 | 3.5 | 4.0 |
| Mexico | 2.1 | 2.2 | 2.4 | 2.6 | 2.0 | 2.8 | 3.3 |
| Chile | 1.8 | 1.9 | 2.1 | 2.3 | 1.0 | 2.5 | 3.5 |
| **Total trading partners (non-traditional trade-weighted)** | **1.5** | **0.6** | **0.9** | **1.1** | **0.2** | **1.3** | **2.0** |
| Developed countries[b/] | 1.8 | | 1.9 | | | 2.1 | |
| Emerging and developing countries[b/] | 4.6 | | 4.0 | | | 4.3 | |
| **Total worldwide[b/]** | **3.4** | | **3.1** | | | **3.4** | |

a/ There are no figures available for Venezuela for 2014 The forecast published in the December edition of the *Inflation Report* is used to calculate the growth of Colombia's trading partners.
b/ IMF forecasts at January 2016
Source: *Banco de la República*'s calculations

In the case of China, growth is expected to continue amidst efforts to rebalance the country's economy towards one supported by private consumption. In this context, the expansion in exports and investment is expected to decline from the high levels witnessed in past years, and China's demand for commodities would continue to slow. However, the stimulus measures adopted by the government and the central bank are expected to allow for a softer landing.

Economic recovery in Chile, Mexico and Peru would be slower than expected. This is because commodity prices would remain low, demand from major trading partners would be modest, and business and household confidence would continue to be low. In the case of Brazil, where a new economic setback in 2016 is expected, the reduction in its forecasts takes into account the added fiscal adjustment the country must make, its recent loss of investment grade, its uncertain political situation, and its low levels of investor and consumer confidence. In Ecuador, the collapse of its terms of trade and the resulting decline in its fiscal accounts would cause the economy to contract. Venezuela would remain in a severe recession as a result of low international oil prices and the country's precarious fiscal and external positions.

*The main risk to the central forecast comes from a sharper slowdown in the emerging economies.*

Nevertheless, the central forecast described above continues to face significant downside risks, which would be greater that those evaluated in the previous edition of this report. The main risk comes from a sharper slowdown in China and less growth in the commodity-exporting emerging markets. In the Chinese case, this would be due to problems associated with the country's financial stability, as a result of high indebtedness and the imbalances that have accumulated in its financial system in recent years. In the case of commodity- exporting countries, such as most of those in Latin America, a further drop in terms of trade or a larger-than-expected adverse impact on national income could spell poorer performance.

In addition, the high debt level in some emerging countries, coupled with deterioration in their economic situation, higher foreign interest rates and depreciation of their currencies, could hit investor confidence, further reducing capital inflows to these markets. This could lead to serious liquidity and solvency problems that would eventually punish growth.

As for the risks in the developed economies, the uncertainty associated with political factors in the United States or in the euro area could increase, with potentially adverse effects on investment decisions. Furthermore, if the Fed normalizes US monetary policy, the reaction from financial markets might be disorderly.

With respect to raw materials, weak global demand, especially from China, coupled with the strong dollar would continue to push down commodity prices (Table 2). Oil prices are expected to fluctuate near the current levels (USD 32 per barrel) in the first half of the year, when oversupply would persist because of the factors mentioned earlier. However, production in the non-OPEC countries should start to decline by the second half of the year, especially in North America, where production costs exceed current prices. This would favor a slight recovery in prices. Accordingly, the aver-

Table 2
Benchmark Price Forecasts for Colombia's Commodity Exports

| Major products | 2015 | Forecast for 2016 Scenario | | |
|---|---|---|---|---|
| | | Minimum forecast | Central forecast | Maximum forecast |
| Colombian coffee (ex *dock*; dollars per pound) | 1.51 | 1.30 | 1.50 | 1.80 |
| Brent crude (dollars per barrel) | 52.9 | 20.0 | 35.0 | 50.0 |
| Coal (dollars per ton) | 60.1 | 30 | 50 | 60 |
| Nickel on the London exchange (dollars per ton) | 11,877 | 7,423 | 9,650 | 11,134 |
| Gold[a/] (dollars per troy ounce) | 1,160 | 1,250 | 1,100 | 900 |

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 forecast for the average oil price in 2016 was lowered considerably in this report to USD 35 per barrel.*

age price of crude is expected to be $ 35 per barrel in 2016, which is well below the price of $ 55 per barrel that was forecast in the previous edition of this report.

However, there is a downward bias to the risks in this forecast, since the unconventional reserves in North America might have lower production costs than estimated or their productivity might be higher, in which case the anticipated decline in production would not occur. Yet, even if production in North American declines, the OPEC countries could step in to fill the gap, so as to increase their share of the oil market. Also, global demand could slow more than expected. In any of these scenarios, the excess supply of oil would increase and prices would remain at current levels for quite some time, or decline even further.

## B. BALANCE OF PAYMENTS

### 1. Third Quarter Performance

The current account deficit in the first three quarters of 2015, as a whole, was 6.6% of GDP (USD 14,469 m), which is higher than it was during the same period last year (4.7% of GDP, USD 13,222 m). In all, 0.2 pp of this build-up, as a percentage of GDP, is due to the added deficit in dollars and 1.7 pp, to the effect of peso depreciation on the measurement of nominal GDP in dollars.

This outcome reflects an annual decline of 33.0% in exports of goods, while imports were down 13.3%. Consequently, the country's trade balance, by September, registered a cumulative deficit of USD9,782 m, which is more than in the third quarter of 2014 (USD 1,280 m).

The service balance continued to post a deficit (USD 3,186 m), but less so compared to the same period a year earlier (USD 1,643 m). Service exports amounted to USD 5,305 m, with an annual increase of 5.3%, bolstered mainly by added revenue from travel. It is important to point out that current income from services is concentrated largely in travel and transportation, which account for approximately 82% of these exports.

*The current account deficit in the third quarter came to 6.6% of GDP, given a sharp decline in the trade balance as a result of fewer exports.*

Service imports during the same period fell 13.9% annually (USD 1,374 m), mainly because of fewer disbursements for construction and business services, especially those related to the oil industry. The major expenses for this item pertain to foreign travel and transport services, with maritime shipping rates accounting for about 65%. Reduced disbursements to pay for

*The deficit in services and factor income was lower in the third quarter of 2015 compared to the year before. This partially offsets the increase in net outflows from the trade balance.*

insurance and financial services, transportation and travel costs also contributed to this decline.

During the period in question, the balance for factor income also showed a deficit (USD 5,301 m), but it was USD 4,942 m less than the year before (48.2%). This was due to fewer disbursements for factor income (USD 4,496 m), mainly because of reduced profits for companies operating in the oil sector, although profits in other sectors were down as well.

Net income from current transfers between January and September 2015 came to $ 3,801 m, 24.3% above the level observed a year ago. Worker remittances by September 2015 (USD 3,403 m) showed an annual increase of 14.4%.

The current account deficit between January and September 2015 was financed with USD 14,972 m in net income from the capital and financial account (6.8% of GDP). This represents an increase compared to the year before (USD 13,417 m, pertaining to 4.7% of GDP). By September, foreign portfolio investment was the main source of financing, with USD 9,110 m in net inflows. This amount is USD 1,610 m less compared to last year (USD 10,720 m), when the effect of the restructured JP Morgan emerging market bond index in favor of Colombian securities was felt. Foreign direct investment (FDI) was down 26.3% by September, compared to the same period last year. This mirrors less of an influx of foreign capital for mining and energy activity and for the transport and communications sector. In contrast, the influx of investment in commerce and the hotel industry was up.

As for bank loans and other foreign credit, the country received USD 1,423 m in net disbursements, mostly on loans contracted by agencies in the public sector. This amount represents an increase of USD 2,070 m compared to the same period last year.

During the period in question, it is estimated that USD 4,318 m in Colombian capital left the country to constitute assets abroad. This was USD 7,066 m less than during the same period in 2014. A good portion of these resources (78.2%) was used to create direct investment abroad; the other 19.1% went to financial portfolio investments, mostly by the public sector.

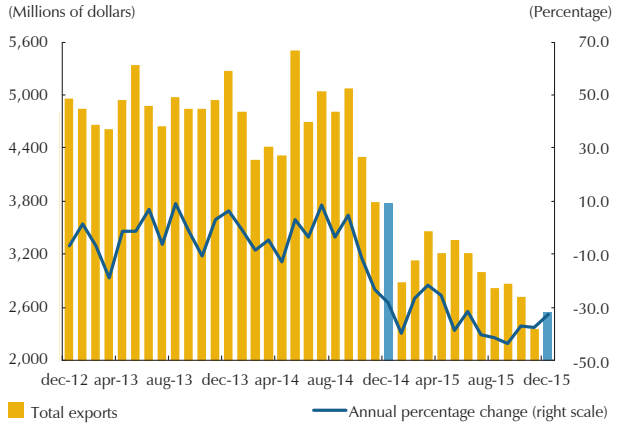
*Foreign direct investment was down 26.3% annually by September 2015, due to major cutbacks in resources for investment in the mining-energy sector.*

Finally, in terms of derivatives for transactions in forward contracts and currency options, the country registered USD 1,482 m in net outflows by September 2015 due to losses on the settlement of agreements for currency purchase and sale. With respect to a year ago, income from derivative transactions was up by USD 153 m, while expenditures increased by USD 1,473 m.

## 2. Forecasts

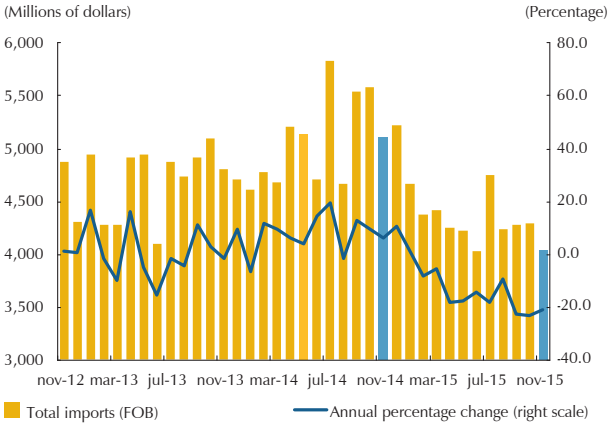
It is estimated the trade deficit continued to grow somewhat during the fourth quarter, with the accelerated drop in oil prices in recent months affecting foreign sales the most. The available information on foreign trade in goods during the fourth quarter of 2015 shows total exports in dollars declined 35.8% from the previous year (Graph 18). This reflects the significant reduction in the value of exports of oil and derivatives thereof, in addition to a generalized decline in other types of goods. The value of imports (FOB)[2] during October-November 2015 was 22.0% less in annual terms (Graph 19) (See the shaded section on page 28).

Graph 18
Total Exports
(Monthly)




Source: DANE; *Banco de la República*'s calculations.

Graph 19
Total Imports (FOB)
(Monthly)




Source: DANE; *Banco de la República*'s calculations.

2 Unlike the balance of payments measurement, which takes into account FOB import (free on board), GDP calculated according to the national accounts considers CIF imports, which include freight and insurance. The average total value of the latter, in dollars, was USD 4,379 million in October-November 2015, which comes to an annual increase of 21.8%

## EXPORTS AND IMPORTS IN DOLLARS DURING THE THIRD QUARTER OF 2015 AND THE FOURTH QUARTER TO DATE

Total exports fell 41.9% in the third quarter of 2015 with respect to the previous year. This was due to lower mining and industrial exports, which declined 54.8% and 15.5% annually, in that order. In contrast, agricultural exports posted a 1% annual increase. There was a generalized decline in the exported value of all mining products. However, the sharpest reduction was in refined petroleum products, with an annual variation of -62.6%, largely because of the drop in prices for hydrocarbons. Oil exports fell 59.1% annually, given the plunge in international prices (which were down 50.4% annually, on average, during this period). On the other hand, the slight increase in agricultural exports reflects the 6.8% rise in coffee exports and fewer sales of bananas and flowers (-12.7% and -3.2%, respectively).

Industrial exports[1] were affected mostly by lower foreign sales of vehicles, nonmetallic minerals and manufactured leather goods. As for export destinations, trade with Venezuela was affected the most, with annual sales of industrial export down 53%, while sales to Ecuador and Asia fell by 34.1% and 12.5% , respectively. In contrast, exports to the European Union and the United States posted respective increases of 15.4% and 4.9% during the third quarter.

Imports, in dollars, fell 17.3% annually in the third quarter, due to lower foreign purchases in all product groups. Imports of intermediate goods declined 14.1% annually, given the reduced value of purchases of fuels and lubricants (-22.7%), raw materials for industry (-12.1%) and raw materials for agriculture (-2.5%). Foreign purchases of consumer goods plunged 20% annually, with a drop in durable and non-durable goods (28.4% and 10.8%, respectively). Finally, imports of capital goods experienced an annual reduction of 19.4%, explained by fewer purchases of transport equipment (-32.9%), building materials (-6.2%) and capital goods for industry (-14.3%).

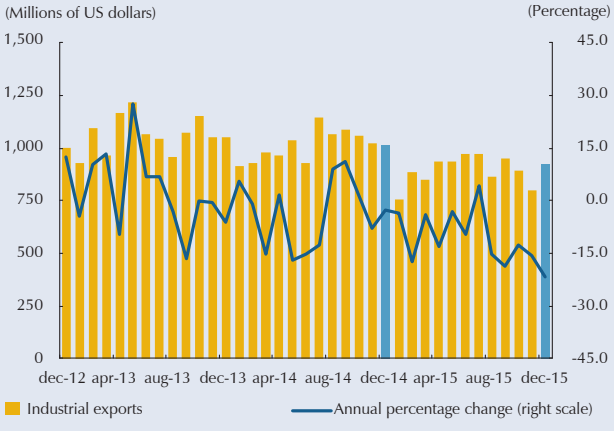
Exports, in dollars, dropped sharply during the fourth quarter of 2015 (-35.8%), given the general reduction in external sales in all groups of goods. The sizeable decline in mining exports during this period (-47.6%), due to of low international prices for these products, is particularly predominant. In fact, there were fewer exports of refined oil and crude oil (-39.8% and -52.0%, respectively), nickel (-49.0%), coal (-41.0%) and gold (-31.4%).

As for industrial exports, a 15% annual decline in sales of these products was observed between October and December (Graph A). This reflects the drop in non-traditional exports to all destinations, except the European Union and the United States; these destinations experienced 23.8% and 3.8% annual growth, respectively (Graph B). The annual reductions in exports to Venezuela (-55.3%) and Ecuador (-36.0%) during October and December are particularly important.

Agricultural exports contracted 13% annually during the quarter. The value of exports of all the products in this group declined, except for bananas, which registered an increase of 26. 5%. In contrast, sales of coffee and flowers fell by 23.6% and 5.8%, respectively.

In October-November, FOB imports in dollars contracted 22% annually, linked to the decline in the ex-

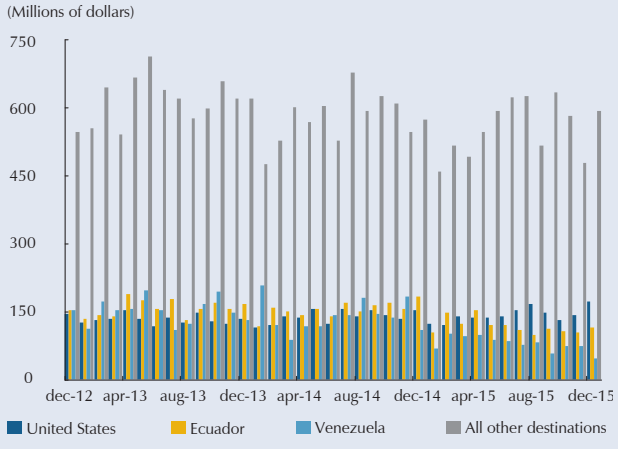
Graph A
Industrial Exports and Others[a/]
(Monthly




a/ Does not include oil or derivatives thereof, coal, ferronickel, gold, coffee, bananas or flowers. Includes other mining and agricultural goods.
Source: DANE, *Banco de la República*'s calculations

1 These exports do not include petroleum or derivatives thereof, coal, ferronickel, gold, coffee, bananas or flowers, and account for 32.1% of all exports during the period in question. Manufacturing exports represent 96.1% of this group.

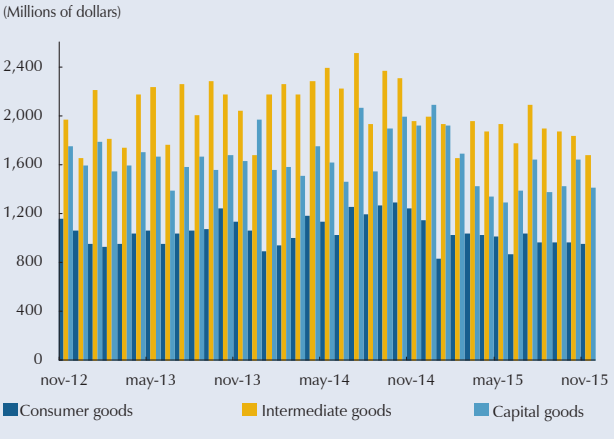
Graph B
Non-commodity Industrial Exports to the United states, Ecuador, Venezuela and Other Destinations[a/]
(Monthly)




a/ Does not include oil or derivatives thereof, coal, ferronickel, gold, coffee, bananas or flowers. Includes other mining and agricultural goods.
Source: DANE, *Banco de la República*'s calculations

ported value of all types of goods. Foreign purchases of consumer goods fell 24.1% annually, due to a contraction of 31.1% in durable goods and 16.3% in nondurable goods. In terms of their performance, imports of durable goods were affected the most by the drop in imports of domestic appliances (-37.8%) and vehicles (-31.9%), while non-durable goods were affected primarily by fewer imports of apparel (-27.3%) and other non-durable consumer goods (-23.4%). Imports of intermediate goods declined 17.5%, partly because of lower prices for fuels and lubricants (-38.8%). And, , purchases of capital goods tumbled 21.9%, due to far fewer imports of transport equipment (-32.8%), capital goods for industry (-17.5%) and construction materials (-9.8%) (Graph C).

Graph C
Imports, by Type of Goods (FOB)




Source: DANE; *Banco de la República*'s calculations.

The reduction in foreign purchases was accompanied by a lower a deficit in the services balance, thanks to the positive effects of the exchange rate on exports of this type and the reduction in imports linked to freight and tourism services.

The negative outcome for the trade balance might be offset, in part, by less disbursement for factor income in the mining-energy sector, which would continue decline because of the low prices for oil and raw materials. Lower net disbursements for factor income are expected in the other sectors as well, given the effect of depreciation on earnings measured in dollars. Moreover, net income from current transfers could improve slightly during the last part of the year compared to the previous quarters.

In terms of financing, it is estimated that FDI flows to mining and industry were less in the last quarter of 2015 than those observed during the year, given the outlook for prices in that sector. The other sectors are expected to see more resources in the fourth quarter, compared to the third, but the levels would be low with respect to

a year ago. Accordingly, a reduction of about 25% in FDI in Colombia is projected for all of 2015.

Inflows of portfolio investment are still less than they were a year ago, when the weights in the JP Morgan emerging markets bond index were restructured in favor of Colombian securities. This situation has been partially offset by increased resources from other investments, particularly loans obtained by the non-financial public sector.

In light of the foregoing, the current account deficit for all 2015 is expected to come to 6.5% of GDP; this is the most likely figure (Table 3), within a range of -6.7% to -6.3%. The central forecast assumes there will be an adjustment in the deficit during the final quarter of the year (about 6.3% of GDP), given the way imports have performed and considering the reduction in the deficit for services and income, plus an additional amount of current transfers, given the increase in worker remittances observed in recent months. Accordingly, the current account deficit in 2015, as a share of GDP, would have increased from 5.2% in 2014 to 6.5% at present. In dollars, this would mean a reduction of about USD 437 m.

Table 3
Balance of Payments
Annual Flows (Millions of US dollars)

| | 2011 | 2012 | 2013 (pr.) | 2014 (pr.) | 2015 (proj.) |
|---|---|---|---|---|---|
| **Current account (A+B+C)** | **(9,710)** | **(11,306)** | **(12,367)** | **(19,567)** | **(19,130)** |
| **Percentage of GDP** | **(2,9)** | **(3,1)** | **(3,3)** | **(5,2)** | **(6,5)** |
| A. Goods and services | 935 | (858) | (2,763) | (11,255) | (17,859) |
| B. Primary income (factor income) | (15,479) | (15,027) | (14,198) | (12,671) | (6,485) |
| C. Secondary income (current transfers) | 4,834 | 4,579 | 4,594 | 4,359 | 5,214 |
| | | | | | |
| **Financial account (A+B+C+D)** | **(8,925)** | **(11,754)** | **(11,845)** | **(19,903)** | **(19,633)** |
| **Percentage of GDP** | **(2,7)** | **(3,2)** | **(3,1)** | **(5,3)** | **(6,7)** |
| A. Direct investment (ii-i) | (6,228) | (15,646) | (8,557) | (12,426) | (8,169) |
| i. Foreign investment in Colombia (FDI) | 14,648 | 15,039 | 16,209 | 16,325 | 12,111 |
| ii. Colombian investment abroad | 8,420 | (606) | 7,652 | 3,899 | 3,942 |
| B. Portfolio investment | (6,090) | (5,690) | (6,978) | (11,654) | (7,232) |
| C. Other investment (loans, other types of credit and derivatives) | (349) | 4,176 | (3,257) | (259) | (4,644) |
| D. Reserve assets | 3,742 | 5,406 | 6,946 | 4,437 | 412 |
| **Errors and omissions (E & O)** | **785** | **(448)** | **522** | **(335)** | **(504)** |

(pr.) preliminary
(proj.): projected
Source: *Banco de la República*
Observation: The results presented in this table follow 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*

*The current account deficit in 2016 is expected to be between 5.4% and 6.5% of GDP, with 6.0% as the most likely figure.*

For 2016, given the major assumptions for the external environment outlined in the previous section, a correction in the current account deficit, in dollars and as a share of GDP (about 6.0%) is expected compared to the estimate for 2015 (about 6.5%). This would imply a reduction to levels near USD 16,000 m. This forecast includes the effect the drop in oil prices has on the various accounts in the external balance, as well as the impact of a moderate slowdown in economic activity in Colombia. In this sense, the deficit in merchandise trade is expected to continue to be important in a scenario marked by a contraction in traditional exports, which would be offset, in part, by the recovery of non-traditional exports and the reduction in imports.

This being the case, total exports in dollars would contract by 16%. Export performance would be affected by lower forecast prices for all major export products, as outlined in the first part of this chapter. This situation would be offset partially by a recovery in exports of petroleum products when the Cartagena Refinery (Reficar) resumes full operation at mid-year. In addition, a slight acceleration in the increase in external demand is expected. Coupled with anticipated depreciation of the Colombian peso, this could boost foreign sales of industrial products.

On the other hand, imports in dollars would decline compared to what was observed in 2015 (about -14% annually). This performance would be associated with: i) a significant reduction in imports of consumer durables and capital goods, given less momentum in domestic demand; ii) the replacement of fuel imports with entry into operation of Reficar, and iii) further declines in prices for imports, especially intermediate goods.

As for trade in services, there is expected to be an additional reduction in the deficit, beyond what was observed in 2015. This would be due to the effects of depreciation on the net balance for certain services, such as those associated with business and tourism, and to the reduction in prices for imported services, such as cargo transport.

*Despite an estimated decline in exports of goods during 2016, a further adjustment in foreign purchases is expected, along with reductions in the deficit in the balance of services and factor income.*

A decline in net expenses for factor income is anticipated as well, particularly because remittances of profits from the mining-energy sector are expected to decline.

In terms of financing, the forecast is for reduced capital flows compared to those anticipated for 2015. These would be affected by additional cutbacks in investment plans for the mining-energy sector and by fewer estimated flows of foreign portfolio investment. This would occur in a context of better conditions for advanced economies relative to emerging markets and continued normalization of monetary policy in the United States. Accordingly, net foreign direct investment is expected to be less than it was the

*It is estimated that capital flows in 2016 will be less than those anticipated for 2015. This forecast assumes additional cutbacks in investment in the mining-energy sector and reductions in net portfolio investment flows.*

year before, especially because of reduced FDI inflows to the oil and mining sectors due to the sharp drop in prices for these commodities. However, this decline would be offset, in part, by a slight increase in flows to other sectors, and bolstered by the momentum in the construction of infrastructure and by the resources from the sale of Isagen.

Similarly, net financing for portfolio investment is expected to be less with respect to the previous year, due to lower estimated inflows of foreign capital to the market for local government debt and fewer bonds issued on international markets by both the public and private sectors. In addition, resources from other investments (loans and deposits) are expected to be less than those on record for 2015, particularly because of less net borrowing by the public sector.

The forecast range for the current account deficit in 2016, which would be between 5.4% and 6.5% of GDP, is determined by uncertainty about the terms and availability of financing, as well as the sensitivity of certain capital flows to prospects for mining-sector sector and for economic activity in general.

# II. Domestic Growth: The Current Situation and the Short-Term Outlook

**Annual GDP growth in the third quarter was 3.2%,** which was in the upper part of the forecast range outlined in the previous edition of the *Inflation Report*.

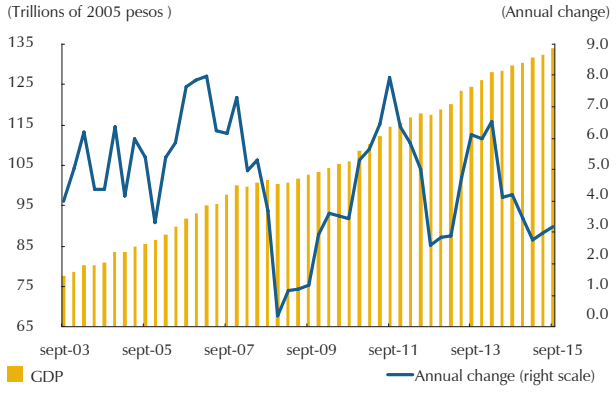
**The components of domestic demand that account for the largest share of imports;** namely, spending on consumer durables and investment in machinery and equipment and transport equipment, contracted.

**The Colombian economy would have expanded during the fourth quarter** at a rate similar to the growth on record for the third quarter. Net exports would have contributed positively to growth, while domestic demand would have slowed.

**On the supply side, the most dynamic sectors** in the fourth quarter would have been coffee and manufacturing. In contrast, mining and commerce would have performed the worst.

## A. GDP DURING THE THIRD QUARTER OF 2015

Graph 20
Gross Domestic Product
(Seasonally adjusted)




Source: DANE; *Banco de la República*'s calculations.

According to the latest information on the national accounts released by the National Bureau of Statistics (DANE), the Colombian economy grew 3.2% in the third quarter of 2015 (Graph 20). This increase was in the upper part of the forecast range outlined by the technical staff at *Banco de la República* in the last *Inflation Report* (between 2.3% and 3.5%, with 2.9% being the most likely figure) and implies a slight acceleration compared to the first half of the year. The quarterly percent change from preceding periods was 1.2%, the highest on record so far this year. In annualized terms, this represents an increase of 5.1%. GDP performance was in line with the momentum anticipated in previous editions of this report.

*Lower terms of trade have had an impact on aggregate demand.*

Despite the apparent improvement in economic performance compared to the first half of the year, lower terms of trade clearly have had an important impact on the real sector, particularly on aggregate demand. Furthermore, household and corporate spending capacity has been punished somewhat by the general increase in the prices in the economy and by nominal depreciation of the peso against the dollar.

However, the information shows domestic demand again contributed positively to growth. Aggregate consumption increased at a higher rate than in the second quarter, although it was still below its average since 2001. Meanwhile, the gross fixed capital formation contracted, in this case, for the first time since the end of 2012. Accumulated inventories partially offset this setback, which is why the aggregate for total investment (gross capital formation) showed an increase similar to that of the previous quarter (Table 4).

A look at the performance of the individual components of domestic demand shows major adjustments in items with greater participation of imported goods. Thus, spending on consumer durables and investment in machinery and equipment and transport equipment was down. In contrast, investment in the construction of civil works showed somewhat more growth than in previous quarters.

As for the other items that make up private consumption, performance was favorable, even somewhat better than during the first half of the year. Government consumption behaved similarly, having increased at a higher rate (2.7%) than during the first and second quarters. However, fiscal adjustment is evident when comparing this figure to the momentum witnessed in this GDP category during 2014 and 2013, when its annual growth was 6.2% and 9.2%, respectively.

With respect to net exports, this component of GDP contributed negatively to Colombian economic growth. While real exports declined slightly, imports in constant 2005 pesos registered a small increase. It is important to point out that the levels of both categories rose compared to the previous quarter, and the poor performance observed in the third quarter was due largely to a high base of comparison for the same period in 2014.

On the supply side, the third quarter of 2015 saw favorable performance in commerce (4.8%), financial services (4.3%) and agricultural activities (4.5%) (Table 5). However, mining activity contracted (-1.1%). It should be noted that manufacturing industry, after five quarters, again showed positive growth (2.5%), while the contribution to GDP from the construction sector declined significantly (0.8%).

*Financial services, commerce, and agriculture were the best performing sectors in the third quarter of 2015.*

Despite depreciation of the peso and the downturn in consumer confidence, growth in retail sales accelerated from 2.8% to 4.7%. Joined with the per-

Table 4
Real Annual GDP Growth, by Type of Expenditure

| | 2014 | | | | 2014 | 2015 | | | Contribution to Annual Growth (III Qtr. 2015) |
|---|---|---|---|---|---|---|---|---|---|
| | I Qtr. | II Qtr. | III Qtr. | IV Qtr. | Full year | I Qtr. | II Qtr. | III Qtr. | |
| Total consumption | 5.2 | 4.4 | 4.3 | 5.0 | 4.7 | 3.7 | 3.0 | 3.4 | 2.8 |
| Household consumption | 4.1 | 3.8 | 4.1 | 5.4 | 4.4 | 4.1 | 3.5 | 3.8 | 2.4 |
| Non-durable goods | 3.6 | 3.0 | 3.9 | 4.8 | 3.8 | 3.9 | 3.6 | 3.9 | 0.8 |
| Semi-durable goods | 3.8 | 4.0 | 3.2 | 7.5 | 4.6 | 3.8 | 2.3 | 4.1 | 0.2 |
| Durable goods | 4.1 | 5.1 | 8.2 | 12.7 | 7.6 | 3.2 | (0.2) | (4.6) | (0.2) |
| Services | 4.8 | 4.1 | 4.1 | 4.2 | 4.3 | 4.3 | 4.1 | 4.6 | 1.5 |
| End government consumption | 9.4 | 6.7 | 5.3 | 3.8 | 6.2 | 2.2 | 1.8 | 2.7 | 0.5 |
| Gross capital formation | 14.7 | 13.8 | 10.1 | 8.5 | 11.7 | 6.5 | 1.0 | 1.0 | 0.3 |
| Gross fixed capital formation | 13.3 | 8.6 | 11.8 | 10.1 | 10.9 | 6.0 | 1.8 | (0.4) | (0.1) |
| Agriculture, forestry, hunting and fishing | 3.1 | 3.0 | 4.5 | 7.8 | 4.6 | (2.0) | (1.2) | (1.0) | (0.0) |
| Machinery and equipment | 14.4 | 7.8 | 14.6 | 12.2 | 12.2 | 1.6 | (5.2) | (1.7) | (0.2) |
| Transport equipment | 5.2 | 11.1 | 14.9 | 16.6 | 12.1 | 30.3 | (8.9) | (4.9) | (0.2) |
| Construction and buildings | 7.1 | 1.2 | 15.4 | 7.4 | 7.8 | 2.3 | 9.4 | (7.4) | (0.5) |
| Civil works | 25.8 | 13.6 | 6.7 | 3.6 | 12.1 | 6.7 | 8.1 | 8.5 | 0.7 |
| Services | 5.7 | 1.5 | 5.6 | 1.2 | 3.5 | 1.7 | (0.6) | 1.1 | 0.0 |
| Domestic demand | 7.7 | 6.1 | 5.8 | 5.8 | 6.3 | 4.3 | 2.9 | 2.8 | 3.1 |
| Total exports | 2.4 | (11.7) | 4.3 | (0.4) | (1.7) | 2.3 | (0.8) | (0.7) | (0.1) |
| Total imports | 8.8 | 5.3 | 8.3 | 14.2 | 9.2 | 9.2 | (0.9) | 0.6 | (0.2) |
| GDP | 6.5 | 4.1 | 4.2 | 3.4 | 4.6 | 2.8 | 3.0 | 3.2 | 3.2 |

Source: DANE; *Banco de la República*'s calculations.

formance of hotel and restaurant services (8.4%), this allowed commerce to contribute positively to growth of the national economy. Apparently, a weaker peso is encouraging domestic tourism among Colombians and foreigners alike.

Financial services, which account for a substantial share of GDP (19.9%), continue to contribute significantly to economic growth, particularly because of the momentum in financial brokerage services and insurance.

The high point in the agricultural sector was the sharp increase in coffee production (14.4%). This result evidences an increase in the productivity owing to land renewal. As for other agricultural products, there was an increase in both

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

| Sector | 2014 | | | | 2014 | 2015 | | | Contribution to Annual Growth (III Qtr. 2015) |
|---|---|---|---|---|---|---|---|---|---|
| | I Qtr. | II Qtr. | III Qtr | IV Qtr | Full Year | I Qtr. | II Qtr. | III Qtr. | |
| Agriculture, forestry, hunting and fishing | 6.2 | 0.3 | 1.9 | 0.8 | 2.3 | 1.7 | 2.6 | 4.5 | 0.2 |
| Mining and quarrying | 5.4 | (2.4) | (0.9) | (2.7) | (0.2) | 0.5 | 4.3 | (1.1) | (0.1) |
| Manufacturing industry | 4.6 | (1.7) | (1.2) | (0.5) | 0.2 | (1.8) | (0.7) | 2.5 | 0.2 |
| Electricity, gas and water | 4.6 | 3.8 | 3.9 | 2.9 | 3.8 | 2.3 | 1.7 | 3.7 | 0.1 |
| Construction | 14.0 | 8.6 | 11.1 | 6.0 | 9.9 | 4.7 | 8.6 | 0.8 | 0.5 |
| Buildings | 7.0 | 0.8 | 14.4 | 7.2 | 7.4 | 2.0 | 8.9 | (8.1) | |
| Civil works | 24.4 | 14.7 | 6.8 | 4.2 | 12.0 | 6.7 | 8.4 | 8.5 | |
| Commerce, repairs, restaurants and hotels | 5.4 | 4.2 | 4.3 | 4.4 | 4.6 | 5.1 | 4.0 | 4.8 | 0.4 |
| Transport, storage and communication | 4.8 | 4.4 | 4.2 | 3.2 | 4.2 | 2.9 | 0.5 | 1.8 | 0.1 |
| Financial, real estate and corporate services | 5.4 | 5.5 | 4.5 | 4.1 | 4.9 | 4.3 | 3.7 | 4.3 | 0.7 |
| Social, community and personal services | 7.7 | 5.6 | 4.9 | 3.8 | 5.5 | 2.7 | 2.5 | 3.1 | 0.3 |
| Subtotal –aggregate value | 6.6 | 3.8 | 4.0 | 3.1 | 4.4 | 2.7 | 3.0 | 3.1 | 2.5 |
| Taxes minus subsidies | 7.5 | 8.5 | 7.5 | 8.0 | 7.8 | 4.1 | 3.1 | 3.3 | 0.2 |
| GDP | 6.5 | 4.1 | 4.2 | 3.4 | 4.6 | 2.8 | 3.0 | 3.2 | 3.2 |

Source: DANE; *Banco de la República*'s calculations.

temporary and permanent crops: 1.6% and 4.3%, respectively. The output of cereals, a temporary crop, rose 16.2%, while permanent crops saw substantial increases in harvests of oleaginous seeds and fruits (27.2%) and fresh fruit and nuts (5.3%). Hog and cattle slaughtering also boosted expansion in the agricultural sector, having risen 10.8% and 2.6%, respectively.

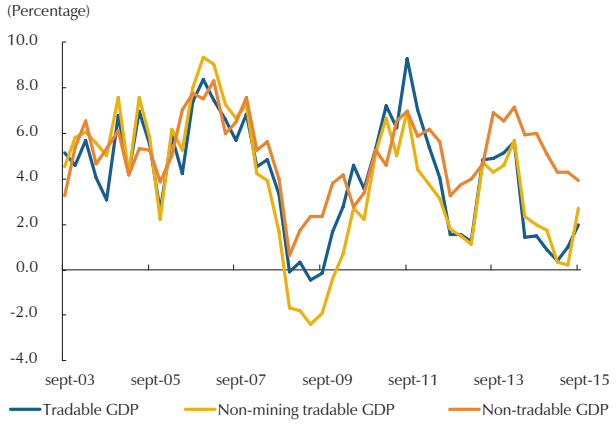
After the industry had shown falls since June 2014, it registered positive growth between July and September 2015. Even so, the performance in this sector of the economy remains highly varied. Some branches, such as wood products (20.5%), coffee products and threshing (20.5%) and basic metal products (8.4%) posted high growth. However, other segments of manufacturing, such as those related transport equipment (-7.0%), machinery and equipment (-6.7%) and other electrical machinery and devices (-6.7%) contracted sharply. Oil refining, which fell dramatically during the first half of the year, in annual terms, due to the closure of Reficar, ceased to decline in the third quarter, since it already faced a very low base of comparison.

*Although the expansion in industry was positive, performance within the sector is quite mixed.*

Construction had been growing more than the economy as a whole, at around 10%, on average, since 2013. However, its expansion during the third quarter

of 2015 was limited (0.8%). There is a great deal of disparity in this branch of the economy. For example, the major increase in civil works (8.5%) was offset by a general decline in building construction (-8.1%). Other engineering works (a sub-category of civil works) were a highlight (48.6%), with the largest payments going to construction, maintenance, the repair and refurbishing of parks, sports venues and market places, and other environmental works. These payments came primarily from territorial agencies (39.9%). The category of civil works comprised of highways, roads and bridges (3.2%) continued to grow, thanks to spending by local governments (54.6%). On the other hand, building construction declined, both residential (-9.4%) and non-residential (-8.8%).

Graph 21
GDP in the Tradable, Non-mining Tradable and Non-tradable Sectors
(Annual growth)




Source: DANE; *Banco de la República*'s calculations.

Mining was the only major branch of the economy to register a contraction (-1.1%), largely because oil production was down (-1.5%) due to problems related to attacks that affected crude oil infrastructure and transport. The production of non-metallic minerals declined as well (-11%), given the slump in mining for platinum and silver (-26.1%) and nickel (-24.4%).

In this environment, although GDP in the tradable sectors accelerated from 1.0% to 2.0%, it continues to increase less than the economy as a whole and below its average since 2000 (3.8%). Excluding mining, GDP in the other tradable sectors rose 2.7%, while GDP growth in the non-tradable sectors slowed somewhat (from 4.3% to 3.9%) (Graph 21).

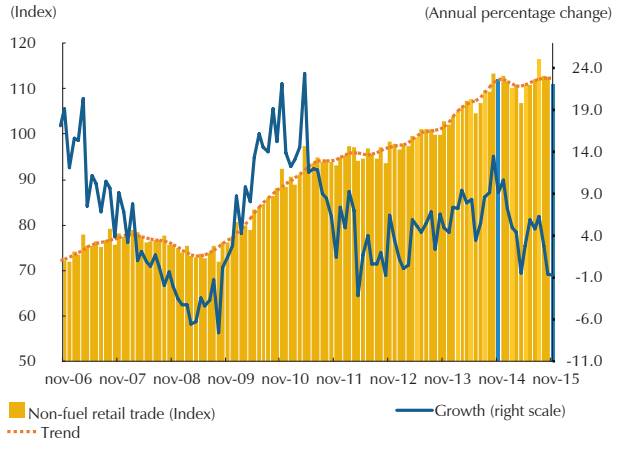
## B. GDP DURING THE FOURTH QUARTER 2015 AND IN ALL OF 2015

The latest information on real activity suggests Colombia's economic growth during the fourth quarter of 2015 was similar to that of the third. On this occasion, net exports would have contributed positively to economic growth, considering that real imports would have contracted at a higher rate than exports. This outcome is consistent with the mediocre performance of domestic demand for imported goods. In fact, private consumption would have slowed considerably between October and December as a result of poor performance in spending on durable and semi-durable goods, while spending on tradable capital goods (particularly those classified as transportation equipment and machinery for industry) would have declined even more. On the other hand, public consumption would have increased, although not much and similar to the growth recorded, on average, for the first three quarters. This being the case, domestic demand would have slowed relative to the situation in previous quarters.

Notably, this occurred in a context of further declines in international oil prices and high depreciation and volatility on the exchange market for the Colombian peso versus the dollar. This, in turn, would have a negative impact on national income and consumer confidence. Also, available information on the economic activity of Colombia's main trading partners suggests their economies grew less in 2015 than was forecast in earlier editions of this report. Therefore, the conclusion is that external demand in the fourth quarter would have been sluggish and unfavorable for GDP growth.

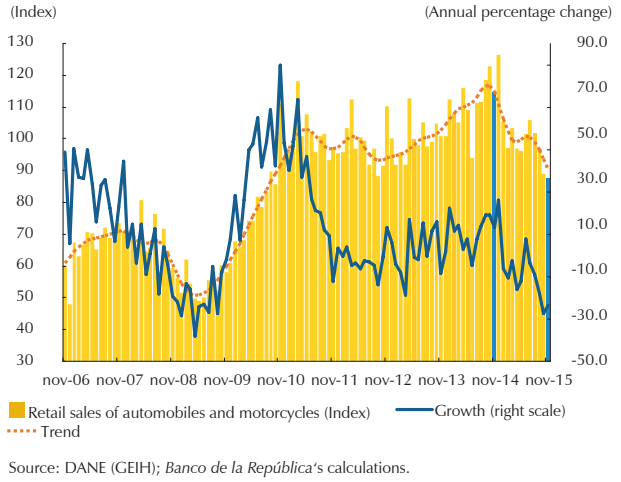
A number of sector indicators support that forecast. The Monthly Retail Sales Survey (MRSS) is a case in point. Conducted by the National Bureau of Statistics (DANE), it shows retail sales sank 0.7% in November with respect to the same month in 2014, a figure similar to the one registered for October (Graph 22). This means the aggregate growth rate for October-November (-0.7% annually) slowed with respect to the third quarter, a period when sales were up 4.3% annually. The figures improve when vehicle sales are excluded. In this case, the increase for the rest of the aggregate was 4.9% annually by November (5.4% for the two months). Even so, this momentum also represents a slowdown compared to the third quarter, when the series posted an annual increase of 8.3%.

Graph 22
Monthly Retail Trade Survey: Total Non-fuel Sales, Seasonally Adjusted




Source: DANE; *Banco de la República*'s calculations.

Graph 23
Monthly Retail Trade Survey: Automobile and Motorcycle Sales, Seasonally Adjusted

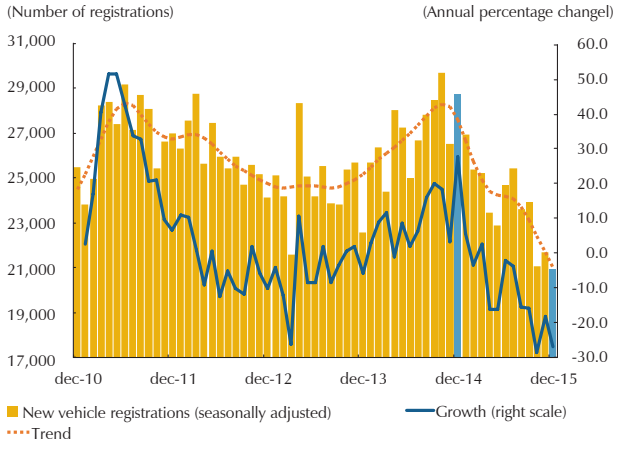



Source: DANE (GEIH); *Banco de la República*'s calculations.

The other component of retail sales; namely, vehicles and motorcycles (Graph 23), slumped dramatically and shows no signs of improving. The DANE Monthly Retail Sales Survey showed a contraction of 23.8% in November with respect to the same month in 2014. For October-November, this meant an annual decline of 25.5%: essentially, the momentum in these sales collapsed compared to the situation in the third quarter (-10.8%). Admittedly, this figure is affected, in part, by a high base of comparison for the same period in 2014, since the XIV Motor exhibition, a biennial event, was held in Bogota at the end of November. The figures on vehicle retail sales and new license plate registrations, released by the Colombian Automotive Committee (CAC),[3] confirm this performance: there were far fewer registrations

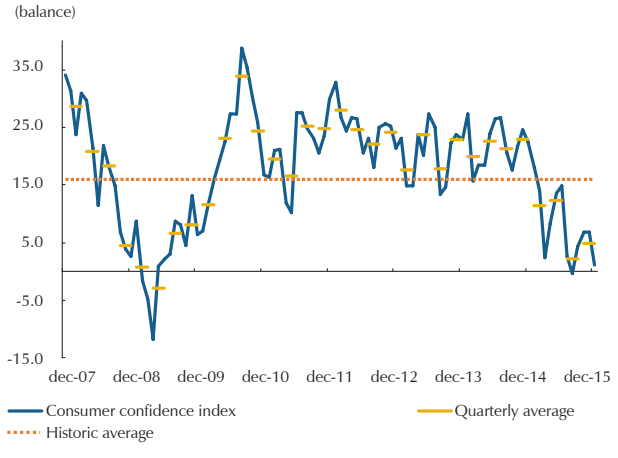
3 The committee is comprised of the National Association of Colombian Entrepreneurs (ANDI), the National Federation of Merchants (FENALCO) and Econometría.

Graph 24
New Vehicle Registrations
(Seasonally adjusted series)



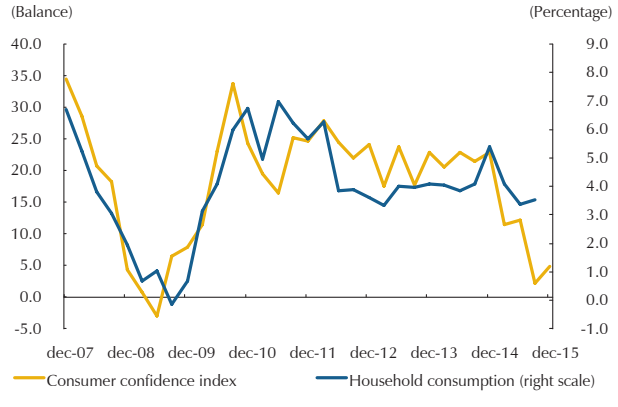

Source: Colombian Automotive Committee (ANDI, Fenalco and Econometría); *Banco de la República*'s calculations

Graph 25
Consumer Confidence Index and Quarterly Average




Source: Fedesarrollo.

Graph 26
Consumer Confidence (Quarterly Average) and Household Consumption Index
(Annual change)




Sources: DANE, Fedesarrollo, *Banco de la República*'s calculations

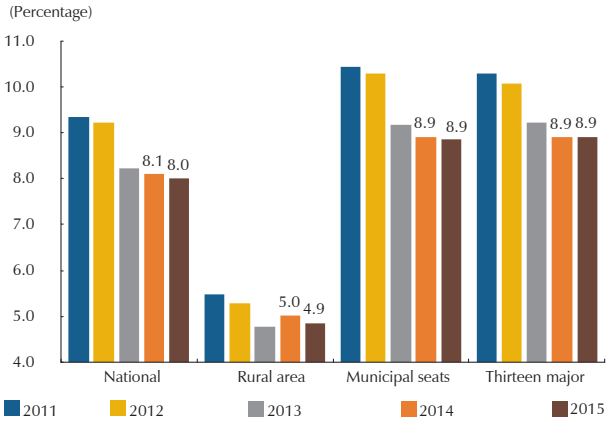
throughout the fourth quarter (Graph 24). When vehicles are classified according to end-use, one sees contractions in private use as well as commercial use. This suggests poor performance for consumer durables and investment in transportation equipment during the fourth quarter of 2015.

Accordingly, the consumer confidence index (CCI), which is another auxiliary indicator that is generally highly correlated with the rate of growth in private consumption, retreated in December from the figures in past months and was again at levels near those witnessed in mid-2015, which is well below its average since 2001 (Graph 25). Therefore, the average for the CCI in the fourth quarter points to poor performance for household consumption during that period (Graph 26).

The job market was less favorable at the close of 2015, compared to the situation described in the previous edition of this report. Mainly, this was because the unemployment rate (UR) would have ceased to decline. Given the information on the moving quarter ended in December, unemployment (UR) in the country's municipal seats and its thirteen major metropolitan areas was 8.9%, the same as a year ago. In the nationwide total and in the rural area, the reductions during the same period were minimal: 8.0% and 4.9%, respectively (Graph 27). In addition, when discounting the seasonal effect of total unemployment nationwide and in the thirteen metropolitan areas, one sees a slight upward trend in recent months (Graph 28). Notably, the annual rate of unemployment in the thirteen major metropolitan areas and in the country's municipal seats had been declining.

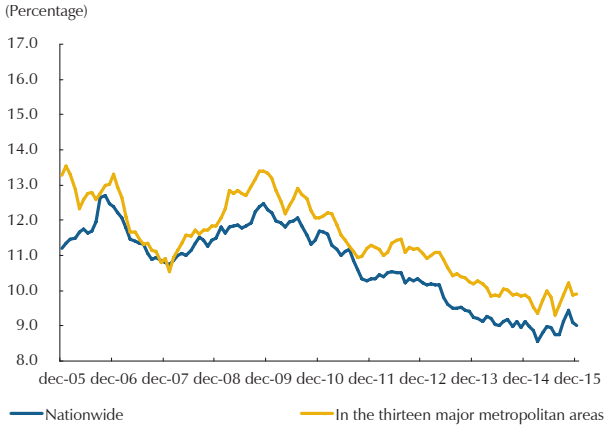
The trend in the unemployment rate is explained by the slowdown in employment. Although employment recovered somewhat in the fourth quarter of 2015, it was not enough to reduce the unemployment rate significantly. The number of employed rose 2.1% annually in the nationwide total during the moving quarter ended in December, as opposed to only 0.8% in the thirteen major metropolitan areas (Graph 29).

Graph 27
Unemployment Rate (UR)
(June-July-August moving quarter)




Source: DANE (GEIH).

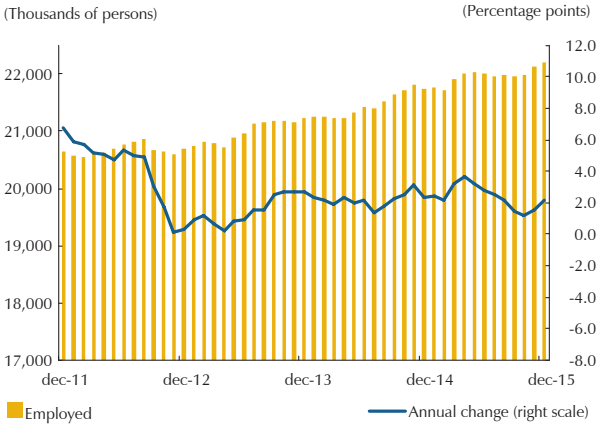
Graph 28
Unemployment Rate (UR)
(Seasonally adjusted moving quarter)



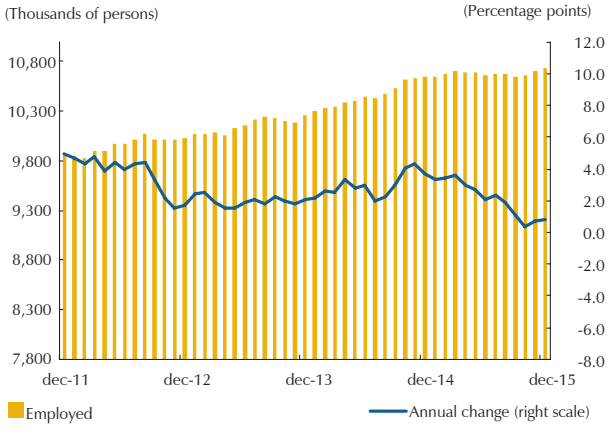

Source: DANE (GEIH); *Banco de la República*'s calculations.

Graph 29
Number of Employed and Annual Change

A. Nationwide total




B. 13 principales áreas metropolitanas



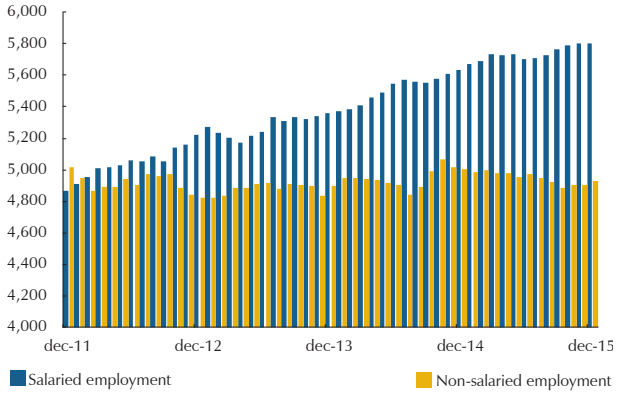

Source: DANE (GEIH); *Banco de la República*'s calculations.

Most of the jobs created in recent months were salaried. The annual increase in salaried employment during the moving quarter ended in December came to 2.8%, while non-salaried jobs declined by 1.5% (Graph 30).

As for investment, the available figures on imports of capital goods - converted into real pesos - suggest the increase in gross fixed capital formation (GFCF) between October and December, apart from GFCF for the construction of buildings and civil works, would have deteriorated with respect to the third quarter (Graph 31). This is occurring in a scenario where the decline in international prices for capital goods, measured in dollars, was more than offset by depreciation of the nominal exchange rate, so these prices in pesos would have increase. Added to this is the negative shock to national income from the drop in terms of trade. Both these circumstances would have discouraged domestic demand for capital goods.

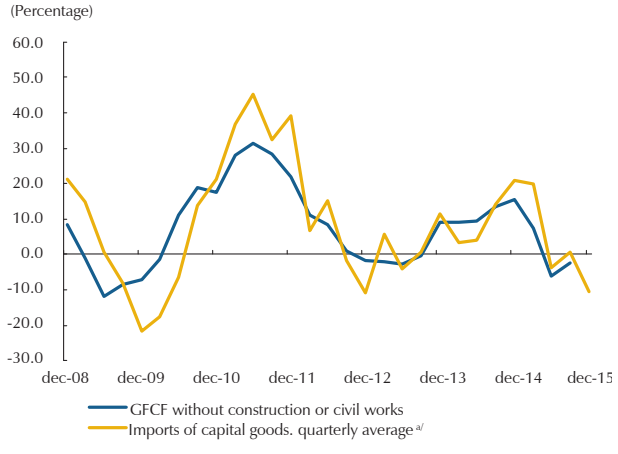
In terms of foreign trade, the figures on exports in dollars published by DANE at the close of the period in November reveal important setbacks. When stated in constant pesos, they also show declines, although not as pronounced. This is consistent with the figures for the quantities of oil and mining exports, as well as the number of bags of coffee reported by the National Federation of Coffee Growers (Fedecafé).

Graph 30
Employment, by Type of Occupation
(Thirteen major metropolitan areas, seasonally adjusted moving quarter)
(Thousands of persons)




Source: DANE (GEIH); *Banco de la República*'s calculations.

Graph 31
Imports of Capital Goods for Industry and Transport Equipment (Real) and GFCF Excluding Construction of Buildings and Civil Works
(Annual change)




Note: The figure for December is a projection by *Banco de la República*.
a / Figures expressed in real terms, as calculated by *Banco de la República*.
Sources: DANE (national and foreign trade accounts)

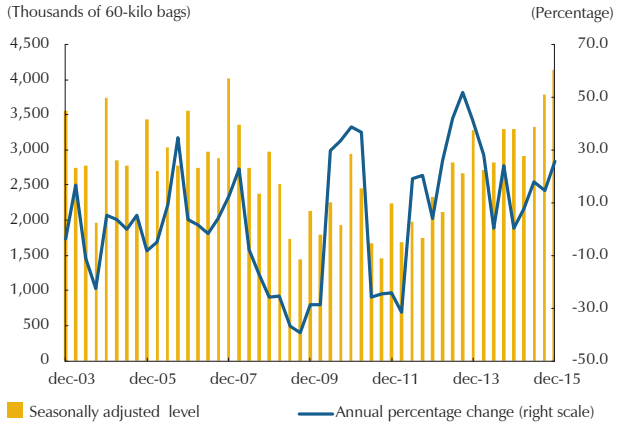
The situation with imports was similar. The figures, in dollars, also point to sharp contractions in October and November. When converted to constant pesos, they reveal significant reductions, even higher than in the case of exports. The most pronounced adjustments would have been in capital goods and consumer durables; this would be consistent with the behavior domestic demand for tradables would have exhibited during the fourth quarter.

On the supply side, although the available indicators suggest uneven economic performance in the fourth quarter of 2015, they also indicate the pace of GDP growth would be close to what it has been so far this year. The best news comes from the coffee sector and industrial manufacturing. Mining, in contrast, has not performed as well and commerce slumped, as noted already.

According to Fedecafé, coffee production continues to perform well beyond what was forecast three months ago and above the target set by the coffee growers association. The annual increase in production was 25.6% between October and November, following an increase of 14.7% in the third quarter of 2015 (Graph 32). As a result, production for the entire year came to 14,175 thousand 60-kilo bags, which implies an increase of 16.8% compared to 2014. On the other hand, there was a recovery in cattle slaughtering, which rose 3.0% annually in October-November, after increasing 2.2% during in the third quarter.

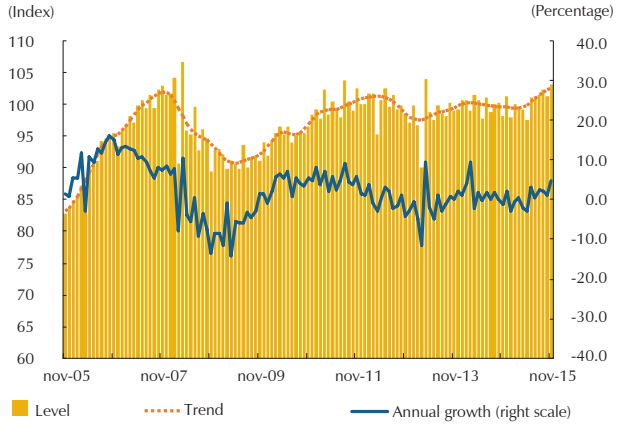
Industry would have begun a gradual process of recovery, partly due to the reopening of Reficar. According to the DANE Monthly Manufacturing Survey (MMS), overall growth in the sector was 4.8% by November and, if oil refining is excluded, it was 2.6%. Industry, as a whole, would have grown 0.7% so far this year and 1.4% without oil refining. The trend component of both series shows an important increase and confirms the recovery in sector performance (Graph 33). However, performance within the sector remains mixed. While activities related to coking, oil refining and fuel blending (17.4%), the manufacture of beverages (6.6%) and the manufacture of pharmaceuticals and medicinal chemical substances (11.1%) far outpaced the increase in the economy; others detracted from economic growth, such as basic iron and steel production

Graph 32
Coffee Production
(Quarterly and annual growth)




Sources: National Federation of Colombian Coffee Growers; *Banco de la República*'s calculations

Graph 33
Total Real Industrial Production
(Seasonally adjusted series, trend component and annual growth)




Source: DANE; *Banco de la República*'s calculations.

(-12.9%), the manufacture of machinery and equipment n. c. p. (-15.3%), the manufacture of other transport equipment (-24.0%) and the manufacture of electrical appliances and equipment (-7.8%).

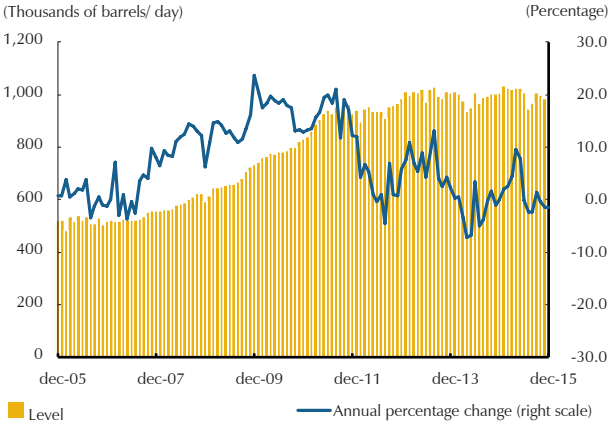
On the other hand, the Fedesarrollo Business survey in December showed a slight increase in orders and a reduction in inventories, suggesting the recovery would continue. However, the expectations of entrepreneurs at three months declined. The volatility of expectation indicator has increased in the last year and the trend component is stable; so, it is difficult to be certain about the direction of the perceptions of manufacturers. Industrial confidence had improved by December with respect to the previous quarter. Moreover, according to the ANDI Business Opinion Survey, the use of installed capacity is at levels near its historic average, and the business climate is improving.

The figures compiled by the Colombian Mining Association (ACM) show 72.3 million tons were produced during the course of the year to November. This implies an annual reduction of 1.5%.[4] However, the drop in October-November was less (-0.8%). The outlook for the sector is more worrying when considering the information on export volume published by DANE, which shows mining exports declined 14.9% in July-August and 16.2% for the year to date. On the other hand, although oil production improved from the previous quarter, when it was affected by attacks on infrastructure, production was below one million barrels per day (993 mbd as opposed to 972.7 mbd in the third quarter). While this represents an increase of 2.1%, it is actually a decline of 1.1% compared to the same period last year (Graph 34).

The prior analysis suggests GDP growth in the fourth quarter would have been somewhere between 2.6% and 3.6%, with 3.1% as the most likely figure. This forecast assumes an increase in government consumption at a pace similar to the average for the first three quarters of 2015. The extent of the forecast range is due to the uncertainty associated with items such as government consumption and investment in civil works.

4 ACM collects approximately 92% of the information on national production.

Graph 34
Oil Production
(Level and annual growth)




Sources: National Hydrocarbon Agency (ANH); *Banco de la República*'s calculations

In general, the information at hand shows domestic demand, both public and private, slowed during 2015. Government consumption grew less than it has in the past decade. There was a similar situation with private spending, where the biggest adjustments were in investment, especially for tradable capital goods (machinery and transport equipment). Household consumption also weakened, although not as much. The slowdown in private spending would have been related to the loss of the purchasing power of household income, due to the recent price hikes for goods and services that make up the basket of household consumption, in addition to the shock to terms trade and the sluggishness in the job market.

The adjustment in investment, which is consistent with the new reality in terms of the nominal exchange rate and foreign financing, was concentrated mainly in machinery and equipment and in transportation. In contrast, investment in construction, including civil works, grew at a good pace, in a context of considerable spending by regional and local governments, as well as good investment performance in other infrastructure projects (airports and roads).

Despite the slowdown in the Colombian economy, the pace of GDP growth can be deemed as satisfactory in an environment where the Latin American economies as a whole contracted 0.3% annually. In fact, growth might have been less had it not been for outside financing to support the increase in absorption. One reflection of this is the increase in current account deficit forecast for all of 2015, as a proportion of GDP (outlined in Chapter I of this report).

On the supply side, the sectors with the most growth in 2015 as a whole would be construction, financial services and commerce. Industry and agriculture would have accelerated considerably compared to what was observed in 2014, with domestic production having shifted somewhat towards tradable goods. As such, the forecast for all of 2015 is 3.0% growth, within a range of 2.8% to 3.2%.

## Box 1
## RECENT PERFORMANCE OF PRODUCTION AND INTERNATIONAL TRADE IN THE INDUSTRIAL SECTOR

Alejandra Ximena González
Stefany Andrea Moreno
Juan Pablo Cote
Daniel Parra*

Colombian industry has stagnated in the last four years, compared to the relatively favorable performance of the country's economy as a whole. The national accounts produced by DANE show the manufacturing sector grew 0.3%, on average, between 2012 and September 2015, while GDP and domestic demand rose at respective average rates of 4.2% and 5.0% during the same period. Poor industrial performance is not only a problem in Colombia; it is a worldwide phenomenon. However, Colombia seems to have emerged from it relatively unscathed compared to its peers in Latin America (Table B1.1). Poor industrial performance in Colombia has been associated, in part, with appreciation of the peso (mainly between 2012 and 2013) and the loss of competitiveness it would have entailed. However, that phenomenon was reversed during the past year by devaluation of the peso in 2015. The purpose of this section is to analyze whether the current trend in the exchange rate has somehow influenced in the recent performance of industrial production.

Table B1.1
Real Industrial Production
(Annual change)

| | 2014 | Jan-Nov 2015 |
|---|---|---|
| Mexico | 2.56 | 1.04 |
| Chile | 0.33 | (0.01) |
| Peru | 2.35 | 2.74 |
| Brazil | (2.87) | (7.95) |
| Colombia | 1.53 | 0.61 |
| Argentina | (1.84) | 0.01 |

Source: Bloomberg; *Banco de la República*'s calculations.

Devaluation of the peso could have affected industrial production in two ways. Firstly, by making imports more expensive, peso depreciation would have reduced foreign purchases in certain sectors, and possibly prompted their replacement with domestically produced goods. Secondly, the increase in earnings of exporters (in pesos) as a result of depreciation of the exchange rate, could pose an incentive for industry to expand production in the hope of increasing exports.

The latest information from the Monthly Manufacturing Survey (with data up to November 2015) indicates that industrial production overall and production without oil refining have increased 0.7% and 1.4% so far this year, respectively. Yet, despite the recent improvement (4.8% and 2.6% by November for total production and without refining, in that order), performance within the sector remains mixed. While coking, oil refining and fuel blending (17.4%), manufacturing of beverages (6.6%) and manufacturing of pharmaceuticals and medicinal chemicals (11.1%) grew considerably, other activities such as basic iron and steel industries (-12.9%), manufacturing of machinery and equipment n.c.p. (-15.3%), manufacturing of other transport equipment (-24.0%) and manufacturing of appliances and electrical equipment (-7.8%) have fallen significantly.

The evidence also indicates the industrial sector is highly diverse when it comes to international trade. A look at the figures on annual growth in exported and imported quantities during the period from 2014 to 2015 (through November) shows major expansion in some sectors, while others have experienced sizeable contractions in both components of the trade balance (Table B1. 2). The highlights in terms of exported quantities include the growth of sectors dedicated to the manufacture of oils and automobile bodies, while the notable declines were in glassmaking and other types of transport equipment. As for imports, the increase in the sectors producing dairy products and beverages is significant, while milled products, sugar and bakery goods posted major declines.

Table B1.2 contains relevant information for analyzing the hypothesis on import substitution. There would be evidence of this process in sectors where industrial production increased and the quantities (tons) of imports

* The authors are economists from *Banco de la República*'s Center for Studies on the International and Industrial Economy, in Cali, and the Programming and Inflation Department in Bogota. The comments and opinions expressed in this article are solely the responsibility of the authors and imply no responsibility from *Banco de la República* or its Board of Directors.

Table B1.2
Annual Growth Year to Date: January-November 2015

| Branches | Industrial Production | Imports | | | Exports | | |
|---|---|---|---|---|---|---|---|
| | | Value in dollars | Value in Pesos | Quantities (Tons) | Value in dollars | Value in Pesos | Quantities (Tons) |
| Processing and preservation of meat, fish, crustaceans and mollusks | 7.2 | (13.4) | 18.1 | (1.3) | (20.5) | 9.7 | (11.9) |
| Processing of oils and fats of vegetable and animal origin | 5.0 | (13.9) | 15.3 | 12.7 | 69.5 | 146.6 | 121.2 |
| Manufacturing of dairy products | 2.1 | 26.5 | 70.1 | 65.2 | (34.0) | (8.9) | (23.3) |
| Manufacturing of milled products, starches and derivatives | (0.7) | (58.7) | 36.9 | (64.4) | 3.9 | 41.7 | 13.7 |
| Manufacturing of white sugar and brown sugar | 0.9 | (51.3) | (40.5) | (68.5) | 1.8 | 40.4 | 11.0 |
| Manufacturing of bakery goods | 1.7 | (53.6) | (38.3) | (50.7) | (13.6) | 19.1 | (8.6) |
| Manufacturing of prepared animal feed | 14.6 | 6.3 | 46.3 | 1.6 | (33.7) | (10.0) | (14.3) |
| Preparation of beverage | 4.4 | 23.1 | 72.3 | 120.6 | (4.3) | 30.5 | (15.3) |
| Spinning, weaving and finishing of textile products | (8.3) | (15.3) | 17.0 | (2.8) | (18.1) | 11.8 | (10.1) |
| Manufacturing of wearing apparel | 3.3 | (17.8) | 14.4 | (13.1) | (7.0) | 27.3 | 2.3 |
| Tanning and re-tanning of hides, re-tanning and dyeing of fur | (4.6) | (22.6) | 6.3 | 46.7 | (16.7) | 11.7 | 5.9 |
| Manufacturing of luggage, handbags and similar articles in leather | 11.3 | (25.8) | 0.8 | (27.2) | (6.8) | 28.0 | (7.8) |
| Shoemaking | (7.2) | (17.4) | 14.0 | (11.4) | (9.9) | 23.3 | 6.6 |
| Wood processing and products | 8.1 | (16.0) | 14.8 | (7.8) | 2.7 | 41.5 | (27.4) |
| Manufacturing of paper, cardboard and products thereof | 4.2 | (11.6) | 21.3 | (7.3) | (18.4) | 11.0 | (11.5) |
| Printing activities | 1.4 | 21.6 | 70.0 | (16.7) | (25.0) | (0.3) | (7.7) |
| Coking, oil refining and fuel blending | (5.1) | (34.6) | (10.4) | 9.1 | (54.1) | (37.7) | (16.3) |
| Manufacturing of basic chemicals and products thereof | 6.9 | (12.8) | 22.5 | 5.1 | (19.2) | 16.0 | (11.9) |
| Manufacturing of other chemical products | 3.0 | (3.0) | 32.8 | 4.8 | 11.2 | 54.6 | 4.1 |
| Manufacturing of soap and detergents, perfumes and toiletries | (3.9) | (7.7) | 26.2 | (6.5) | (10.3) | 22.4 | (2.2) |
| Manufacturing of pharmaceuticals and medicinal chemical substances | 2.6 | 0.5 | 37.9 | 11.9 | (3.8) | 31.8 | (9.4) |
| Manufacturing of rubber products | (10.2) | (14.1) | 17.2 | (7.3) | (15.3) | 14.2 | (29.7) |
| Manufacturing of plastic products | 4.9 | (8.5) | 25.2 | (0.0) | (5.0) | 30.3 | (0.3) |
| Manufacturing of glass and glass products | (2.9) | (8.5) | 25.1 | 5.5 | (29.7) | (3.5) | (53.4) |
| Manufacturing of non-metallic mineral products - n. c. p. | 1.9 | (1.0) | 36.3 | 41.2 | (18.6) | 11.4 | (14.3) |
| Manufacturing of basic iron and steel | (2.0) | (23.7) | 4.2 | (2.7) | (31.9) | (7.2) | (22.3) |
| Manufacturing of basic precious and non-ferrous metals | 6.1 | (13.8) | 17.5 | (6.3) | (11.8) | (3.0) | 3.2 |
| Production of metal manufactured goods | (3.3) | (11.7) | 20.4 | (2.1) | (4.2) | 31.3 | (6.6) |
| Manufacturing of electrical appliances and equipment | (3.8) | (18.2) | 12.0 | (11.8) | 2.8 | 40.7 | 5.3 |
| Manufacturing of machinery and equipment-n. c. p. | (2.3) | (10.4) | 22.7 | (7.1) | (17.6) | 12.6 | (10.0) |
| Manufacturing of motor vehicles and their engines | (4.4) | (31.4) | (6.5) | (24.8) | (11.0) | 21.6 | 3.4 |
| Manufacturing of bodies for motor vehicles, trailers | (16.1) | (18.6) | 12.4 | 2.1 | 127.9 | 197.4 | 127.0 |
| Manufacturing of parts (auto parts) and accessories (luxury) for vehicles | (9.1) | (11.6) | 20.6 | (0.4) | (17.2) | 13.0 | (12.5) |
| Manufacturing of other transport equipment | (4.7) | 5.7 | 42.3 | 9.5 | (17.2) | 16.4 | (68.5) |
| Manufacturing of furniture, mattresses and box springs | (3.7) | (19.4) | 10.2 | (17.4) | (9.4) | 24.6 | (13.8) |
| Other industrial manufacturing | (9.8) | (8.5) | 26.0 | (9.1) | 0.4 | 38.7 | (0.8) |

n.c.p. – not classified previously
Source: DANE; *Banco de la República*'s calculations.

declined during the year to date. This is true for nine of the 36 industrial sectors analyzed (shaded in yellow). However, sectors for which there appears to be evidence of import substitution only account for 17.3% of industrial production, according to the weights obtained from the Industrial Production Index (IPI).

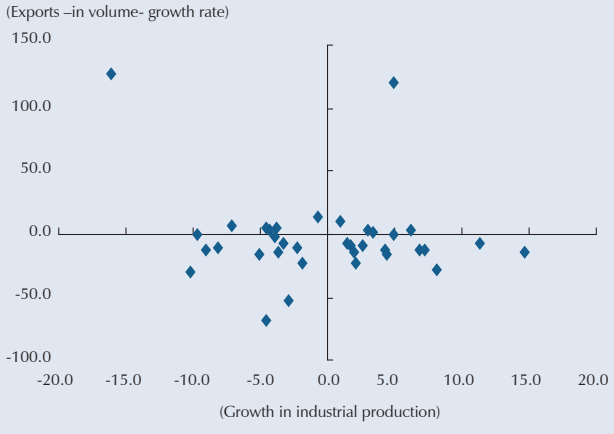
As for exports, there have been increases in both production and exported volume (in tons) in five sectors (shaded in gray in Table B1.2). In the other sectors, there are setbacks or, in a few cases, very moderate increases in real foreign sales that are not accompanied by growth in production.

When analyzing sectoral production compared to respective international sales and purchases during the period from January to November 2015, we see that production is not systematically related to the components of international trade. The correlation coefficient between production growth and both exports and imports is not statistically significant.[1] This outcome is similar to what was reported by Carranza et al. (2013),[2] who found no evidence of a correlation between imports and production (Graph B1.1).

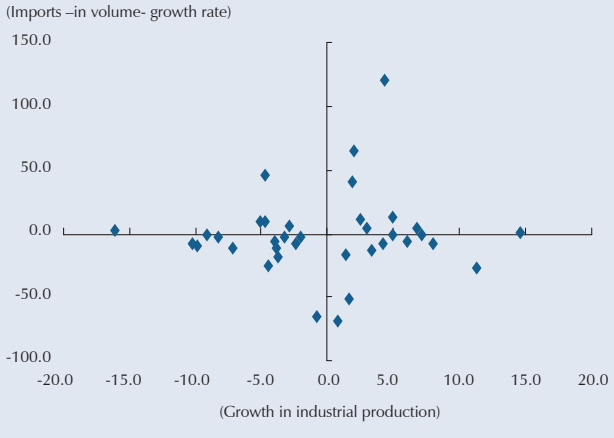
Table B1.3 lists the annual changes in exports and imports, by destination, between 2014 and 2015, specifically during the period from June to November. It shows that, by destination, despite the decline in trade in dollars, the variation in current pesos is positive. While exports and imports fall by about 14%, in dollars, there is an increase of more than 20% in pesos. Accordingly, as a result of peso devaluation, exporters saw their income increase significantly. However, this does not necessarily mean more profits for exporting firms; as shown in the same table, the peso value of imports for the sector also increased. This suggests that some of the costs for companies in this sector that make intensive use of imported inputs and raw materials have

Graph B1.1
Scatter Plots Showing Trade Volume versus Production in Real Terms, by Branches (Annual variations, accumulated from January to November 2015)

A. Exports




B. Imports




Source: *Banco de la República*'s calculations.

increased as well, offsetting the rise in revenue, at least to some extent. In fact, according to the ANDI industrial opinion survey, employers raised concerns about problems with the exchange rate, possibly reflecting the fact that depreciation has increased their production costs (Graph 1.2).

Of course, it is important to point out that the decline of manufacturing output in Colombia during the last two years was not due solely to the exchange rate; other supply and demand shocks also played a role. Closure of the refinery in Cartagena (Reficar) during 2014 and 2015, less external demand, less dynamic domestic demand and, to some degree, competition from imports are other shocks that affected industry in the recent period. Added to this is the drop in trade with Venezu-

1 Cross-correlations between real production and trade, in volume and dollars, showed similar results, except for the manufacture of textiles and garments and plastic products. For those branches of manufacturing, a positive and significant correlation between imports and production was found. It also was noted that industry has grown and imports have declined in 2015.

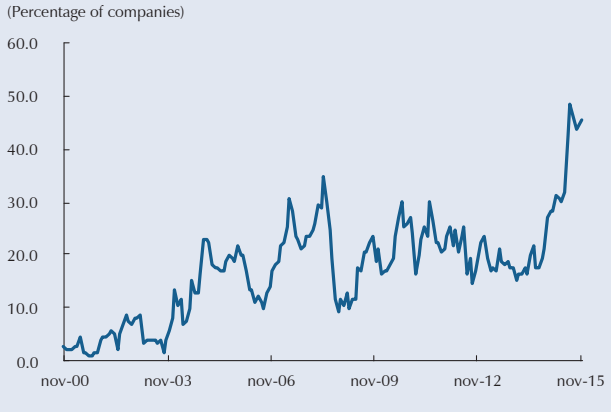
2 Carranza, J. E., Gonzalez, A. Serna, N. "La relación entre la producción y el comercio exterior de la industria manufacturera colombiana (2000.2010)" (The Relationship between Production and Foreign Trade in Colombian Manufacturing (2000-2010). *Borradores de Economía*, No. 806, *Banco de la República*, 2014.

Table B1.3
Annual Changes in Exports and Imports by Destination, Accumulated from June to November 2015

| Country | Exports | | Imports | |
|---|---|---|---|---|
| | Value in dollars | Value in Pesos | Value in dollars | Value in Pesos |
| United States | 0.2 | 47.0 | (16.1) | 23.2 |
| Euro zone | (2.3) | 43.4 | (10.3) | 31.6 |
| China | (21.5) | 15.2 | (12.6) | 28.3 |
| Panama | 4.7 | 53.7 | (5.6) | 38.5 |
| Mexico | 22.9 | 80.4 | (29.4) | 3.6 |
| Brazil | (24.4) | 11.0 | (10.2) | 31.9 |
| Switzerland | 59.5 | 134.1 | (2.4) | 43.3 |
| Singapore | (29.7) | 3.1 | 12.9 | 65.8 |
| South Korea | (14.9) | 24.9 | (23.5) | 12.3 |
| Ecuador | (30.6) | 1.9 | (33.6) | (2.6) |
| Peru | (4.3) | 40.5 | (23.7) | 12.0 |
| Japan | 5.9 | 55.4 | (13.4) | 27.0 |
| Chile | 5.0 | 54.1 | (31.5) | 0.5 |
| Venezuela | (51.4) | (28.7) | (62.7) | (45.2) |
| Costa Rica | | 45.3 | 7.5 | 57.8 |
| Weighted average | (13.3) | 27.2 | (14.9) | 24.9 |
| Weighted average (without Ecuador) | (10.2) | 31.8 | (14.5) | 25.5 |
| Weighted average (without Venezuela) | (6.6) | 37.1 | (14.7) | 25.2 |
| Weighted average (without Ecuador and Venezuela) | (1.3) | 44.9 | (14.3) | 25.8 |

Note: Inflation pertains to the annual change in the price indexes reported by the IMF (last update at October 2015). The calculation for Ecuador does not include the effect of tariff measures that reduce the real price received by Colombian exporters. The manufacturing industry is classified according to CIIU REV 4, excluding petrochemicals and metals.
Average weighted by the share of trade in 2014.
Sources: DIAN, DANE, IMF and central banks; *Banco de la República*'s calculations

Graph B1.2
Problems Associated with the Exchange Rate, as Indicated by Industrialists in the ANDI Industrial Opinion Survey




Source: ANDI.

ela and Ecuador, as evident in the decline in exports in dollars to those destinations (Table B1.3). This is a demand shock and it has had a significant impact on the momentum in industry in recent months.

To date, there is still no evidence to support the hypothesis that depreciation of exchange rate has significantly affected foreign trade in Colombia's industrial sector. However, accumulated depreciation in 2015, which favors the competitiveness of domestic industry, is expected to allow for some degree of import substitution during 2016. The reopening of Reficar is expected to prompt an expansion in the industrial sector during 2016, inasmuch as the facility is expected to be operating at one hundred percent capacity by the first quarter of the year.

# III. Recent Developments In Inflation

**Annual consumer inflation continued to trend upward sharply during the final quarter** of the year, surpassing the forecasts outlined in the previous *Inflation Report*.

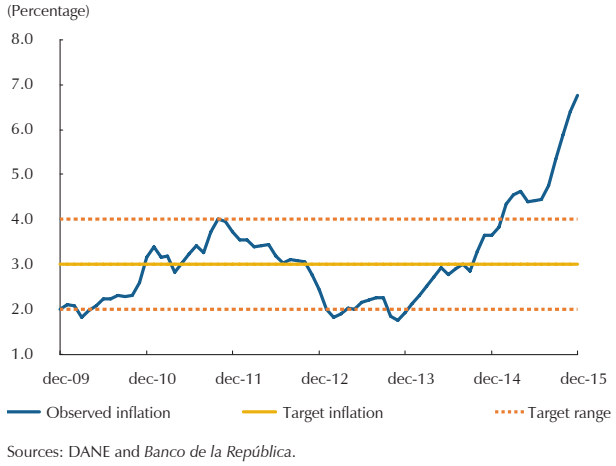
**Upward inflationary pressures are still concentrated** on a wide range of goods and services. The core inflation indicators average continued to increase and, by the end of the year, it was above the long-term goal set by the Board of Directors of *Banco de la República*.

**Once again, in recent months the main inflationary pressures** came from the accumulated peso depreciation and the agricultural supply shock caused by the worsening of *El Niño* weather.

**There are signs of acceleration** in production costs, despite lower international prices of raw materials, and an activation of indexation mechanisms.

During 2015, annual consumer inflation trended sharply upward and was particularly pronounced in the fourth quarter, when it went from 5.35% in September to 6.77% in December (Table 6). In general, inflation throughout the year tended to surpass market analysts expectations and those of *Banco de la República*'s technical staff. In that respect, the last three months were no exception. The December figure is the highest since January 2009 (7.18%), rounding out five quarters with inflation above the 3.0% target and eleven months since it surpassed the target range ceiling (2.0% to 4.0%) (Graph 35 and Table 6).

Graph 35
Total Consumer Inflation




Sources: DANE and *Banco de la República*.

As mentioned in the previous edition of this report, there are two factors that explain the sharp inflation rise during 2015, fourth quarter inclusive. The first is the accumulated peso depreciation against the dollar and other currencies, which is significant and

Table 6
Consumer Inflation Indicators
(At September 2015)

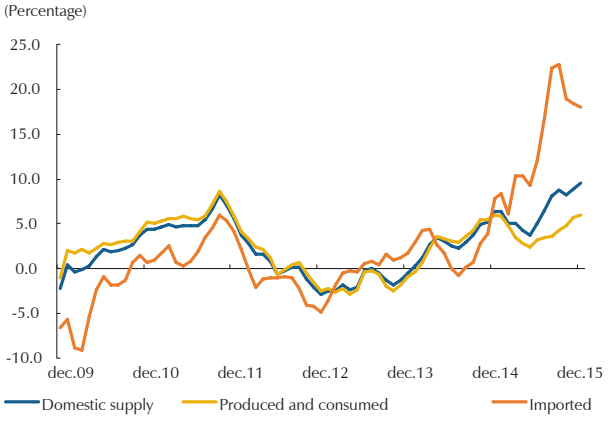
| Description | Dec-14 | Jun-15 | Sep-15 | Oct-15 | Nov-15 | Dec-15 |
|---|---|---|---|---|---|---|
| **Total** | **3.66** | **4.42** | **5.35** | **5.89** | **6.39** | **6.77** |
| **Excluding food** | **3.26** | **3.72** | **4.58** | **4.75** | **5.05** | **5.17** |
| Tradables | 2.03 | 4.17 | 5.90 | 6.42 | 6.92 | 7.09 |
| Non-tradables | 3.38 | 3.98 | 4.27 | 4.34 | 4.39 | 4.21 |
| Regulated items | 4.84 | 2.55 | 3.30 | 3.14 | 3.66 | 4.28 |
| **Food** | **4.69** | **6.20** | **7.30** | **8.80** | **9.81** | **10.85** |
| Perishables | 16.74 | 10.73 | 14.95 | 21.54 | 23.31 | 26.03 |
| Processed | 2.54 | 6.00 | 6.71 | 7.39 | 8.56 | 9.62 |
| Meals outside the home | 3.51 | 4.45 | 4.73 | 5.28 | 5.67 | 5.95 |
| **Core inflation indicators** | | | | | | |
| Non-food | 3.26 | 3.72 | 4.58 | 4.75 | 5.05 | 5.17 |
| Core 20 | 3.42 | 4.24 | 4.73 | 4.94 | 5.23 | 5.22 |
| CPI excluding perishable foods, fuel and public utilities | 2.76 | 4.54 | 5.28 | 5.54 | 5.85 | 5.93 |
| Inflation excluding food and regulated items | 2.81 | 4.06 | 4.95 | 5.21 | 5.45 | 5.42 |
| **Average of all the indicators** | **3.06** | **4.14** | **4.89** | **5.11** | **5.40** | **5.43** |

Source: DANE; *Banco de la República*'s calculations.

has passed through to a wide range of goods and services, including a number of non-tradable items, causing a direct or indirect effect through higher production costs. The second factor is the supply shock caused by the presence of a severe *El Niño* weather for several months. This has affected productivity in the agricultural sector and likely has changed the seasonality of crops, by prompting farmers and ranchers to postpone investments decisions.

These two phenomena created upward pressures that have prevailed over the downward one would expect to see with the drop in international prices for raw materials. Consequently, the non-labor costs involved in producing consumer goods and services adjusted at an important rate throughout 2015, as suggested by the producer price index (PPI) (Graph 36).

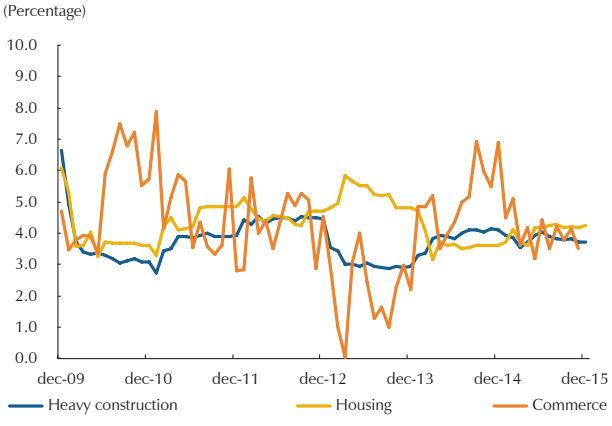
Graph 36
PPI, by Origin
(Annual change)




Source: DANE.

Specifically, annual producer inflation of the domestic supply (i.e., produced and consumed plus imported) rose from 8.7% to 9.6% between September and December. The upward pressure during those two months concentrated on goods produced and consumed locally, especially agricultural products. This was a result of the supply restrictions due to the difficult weather conditions mentioned above. The annual change in the imported PPI, despite having

Graph 37
Nominal Wages
(Annual percentage change)




Source: DANE; *Banco de la República*'s calculations.

declined recently, remained very high in December due to accumulated peso depreciation (Graph 36).

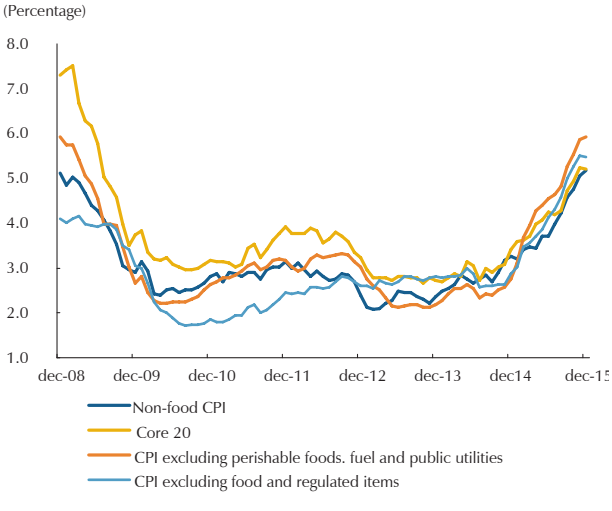
Demand pressures on prices were moderate during the fourth quarter, as in the rest of 2015. This is inferred by the low growth in demand during that period and by what output gap estimates suggest, as shown in Chapter IV of this report.

Labor costs did not push up inflation during 2015. In fact, November and December figures indicate that annual adjustments in wages were still compatible with the target range for inflation. Wages in heavy construction (3.7%) and housing (4.2%) exhibited no important changes in the fourth quarter. The pace of wage adjustments in the retail sector even slowed with respect to September and was 3.5% in November (Graph 37). Generally speaking, the momentum in salary adjustments during 2015 does not explain the acceleration in inflation during the year.

## A. CORE INFLATION

The average of the four core inflation indicators monitored by *Banco de la República* continued to trend upward during the fourth quarter of 2015 and ended December at 5.43%, as opposed to 4.89% last September and 3.06% in December 2014 (Table 6). The current rate is the highest since February 2009. All the indicators in December exceeded the target range for long-term inflation, and all of them increased with respect to September. The CPI excluding staple foods, fuel and utilities registered the highest increase (5.93% in December versus 5.28% in September), while the rise in the non-food CPI was the lowest (5.17% in December, up from 4.58% in September) (Table 6 Graph 38 ).

Graph 38
Core Inflation Indicators

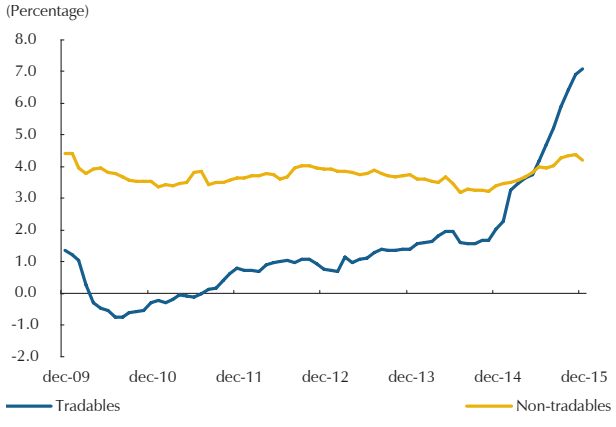



Source: DANE; *Banco de la República*'s calculations.

The increase in the non-food CPI, particularly during the fourth quarter, was due to increments in the annual variation in the components of the tradable goods basket (excluding food and regulated items) and regulated prices. In contrast, the non-tradable group (excluding food and regulated items) rose only slightly (Table 6, Graphs 39 and 40).

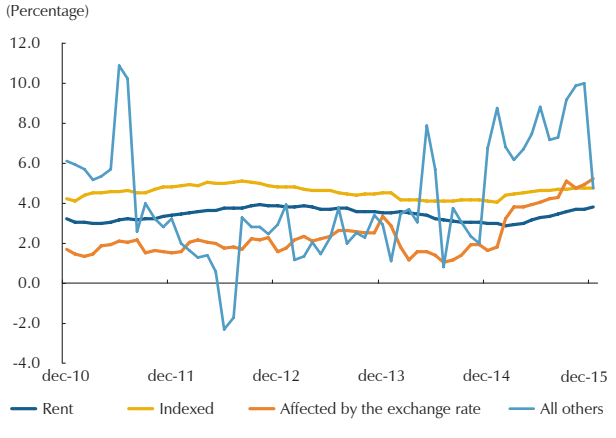
The tradable goods CPI, excluding food and regulated items, has risen steadily since August 2014

Graph 39
CPI for Tradables and Non-tradables Excluding Food and Regulated Items
(Annual change)




Source: DANE; *Banco de la República*'s calculations.

Graph 40
Annual Non-tradable Inflation
Annual change)




Source: DANE; *Banco de la República*'s calculations.

and ended 2015 at 7.09% (compared to 5.9% the quarter before). Most of the effect of depreciation on consumer prices has been felt in this sub-basket, as expected. Data observed by December, as in previous months, tended to exceed the forecasts of the Bank's technical staff, largely due to a higher than expected peso depreciation.

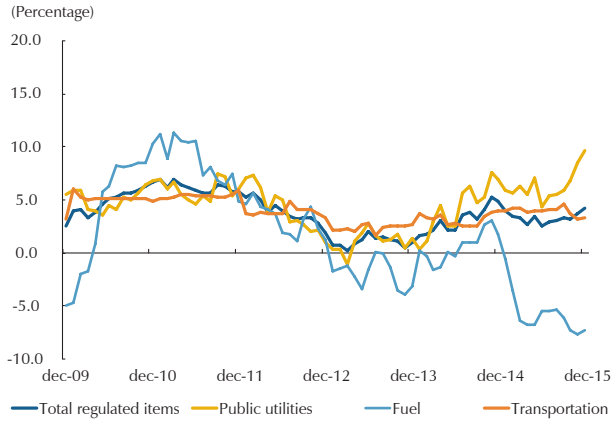
However, the degree of exchange rate pass through to prices for tradables is not necessarily greater than in several previous episodes, especially considering the current depreciation stint has been more prolonged and intense, and appears to be permanent. As follows, during the period from July 2014 to December 2015, when the peso-dollar exchange rate accumulated an increase of 74.6%, the risk in prices for tradables, excluding food and regulated items, was 8.0%, which implies a price elasticity of 11.0% for tradables. This measurement is still lower than the elasticity witnessed during the depreciation episode between April 2002 and September 2003 (32.0%).

As has been the case for several quarters, in the fourth, the price hikes in the tradable sub-basket were again widespread. Vehicles, stoves, washing machines, certain personal care products and jewelry made of gold and silver stood out in this respect and ended December with annual variations in excess of 14.0%.

Regulated items, were the other sub-basket that brought upward pressure on inflation, and had an annual increase of 4.28% in December compared to 3.30% in September. However, this is less than the December 2014 rate (4.84 %). The rebound in the final quarter is attributed primarily to the rise in public utility rates (from 5.9% in September to 9.7% in December), especially in water and electricity. In the case of water, the increase was due to activation of the regulation formula indexation mechanism, by which every time inflation accumulates an additional 3.0% since the last price adjustment, an increase of equal magnitude is authorized. In the case of electricity, the recent months price hikes are explained by higher thermal generation costs, due to the impact of *El Niño* weather. In addition, annual adjustments in the price of natural gas (21.5%) ended 2015 at a very high level, that reflects supply problems and transport bottlenecks.

The pace of annual price increases for the other two components of the regulated CPI-transportation and fuel- declined. In the case of fuel, the rate in December

Graph 41
CPI for Regulated Items and Components Thereof
(Annual change)




Source: DANE; *Banco de la República*'s calculations.

(-7.3%) was even more negative than in September (-6.2%) and lower than in December 2014 (1.8%) (Graph 41). Fuel prices declined throughout the year, despite the sharp depreciation of the peso. This was partly the result of the government's decision to lower the gasoline price by 300 pesos at the beginning of 2015; however, international oil prices collapse was also a factor. Transportation benefited from the drop in fuel prices and ended 2015 with an annual adjustment of 3.3%, which is less than the price increases recorded in September (4.6%) and December 2014 (4,0%).

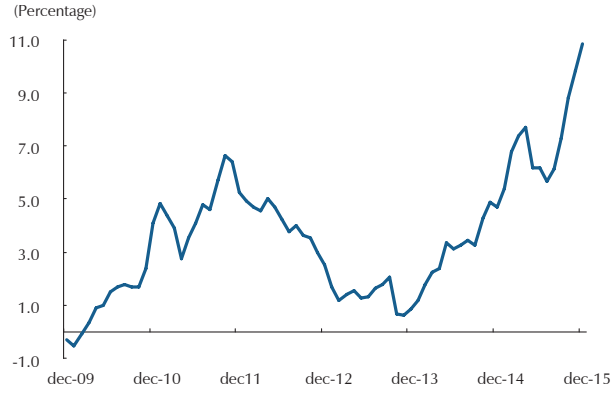
In contrast to these two sub-baskets, the annual variation in the non-tradable CPI excluding food and regulated items declined in the last three months of 2015, ending the upward trend exhibited in the first three quarters of the year. By December, the annual variation in the non-tradable CPI excluding food and regulated items was 4.21% (slightly less than forecast outlined in the previous edition of this report), as opposed to 4.27% in September and 3.38% in December of last year (Table 6 and Graph 39).

The decline in non-tradables during the fourth quarter was due mainly to a lower annual variation in recreation CPI (including soccer tickets), which went from 9.2% in September to 4.8% in December. This drop concentrated in December, because the increase in ticket prices for the Colombian soccer finals was smaller than that of the year before. In this sense, the change was due to a reversal of a shock observed in the previous year, which was temporary in principle and, therefore, should not have led to a permanent break in the trend in this aggregate.

Rental fees, in contrast, were up 3.6% by September and 3.8% by December. In turn, the subgroup comprised of items that are most sensitive to the exchange rate (5.2%) and those more likely to be indexed (4.7%) showed no significant changes during the final quarter of 2015, but did vary considerably with respect to December 2014 (when they rose by 1.6% and 4.1%, respectively).

On this occasion, as in previous quarters, the increase in the annual variation in non-tradables during the first nine months of the year occurred in the absence of major pressure from demand, as suggested by the estimate of an output gap near zero (see Chapter IV). The upward trend observed in this basket throughout the year would be explained not only by depreciation of the peso, but also by factors such as higher non-labor costs, increased inflation expectations, and the activation of indexation mechanisms.

Graph 42
Food CPI
(Annual change)




Source: DANE; *Banco de la República*'s calculations.

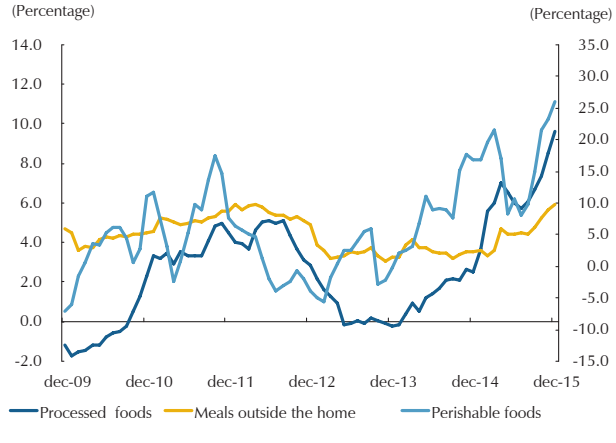
## B. FOOD INFLATION

Following the drop in annual food inflation between May and July 2015, prices in this group resumed the upward course they had been on since early 2014. As a result, annual food inflation ended 2015 at 10.9%, which is higher than those of September (7.3%) and December 2014 (4.7%). The annual change in the CPI for this component surpassed projections outlined in previous quarters inflation reports (Graph 42).

The last time double-digit inflation was seen in the food CPI was on January 2009 (12.2%). The high level of this indicator in recent months and its upward trend are a reflection of the effects of *El Niño* as well as the exchange rate depreciation. The current *El Niño* weather stint, which international meteorological agencies regard as intense, has reduced rainfall in the country's agricultural areas. This, in turn, has discouraged farmers from planting new crops and reduced harvests' and livestock productivity, especially in the beef sector. Fear of its negative impact on productivity also seems to have resulted in a situation where planting in various regions for a number of crops is being postponed *El Niño* weather has raised prices dramatically for perishables in general (vegetables, fruits and tubers); in fact, annual inflation in these items reached 26.0% by the end of the year (Table 6 and Graph 43).

Sharp accumulated depreciation of the peso against the dollar boosted prices for processed foods by 9.6% in December (Graph 43). These items were hit hard, because they are highly tradable, either by being imported or having a high percentage of imported inputs, or because they can be exported. This increase occurred despite the generalized decline in international food prices, which probably prevented the pass-through of depreciation from being even more pronounced. Fats and oils, cereals, sugar and chicken are the items in this group that have been affected the most by the exchange rate. Annual inflation in the CPI for meals outside the home (6.0%) exceeded the increases witnessed by September (4.7%) and December 2014 (3.5%), reflecting higher prices for food, public utilities and probably the increases in rent as well. It also is possible that indexing might have begun to have an impact on these hikes (Graph 40).

Graph 43
Food CPI, by Groups
(Annual change)




Source: DANE; *Banco de la República*'s calculations.

# IV. Medium-Term Forecasts

**The forecast for growth in 2016 was reduced to 2.7%,** within a range of 1.5% to 3.2%. Additional adjustments in investment and consumption are estimated, given the continued impact the decline in terms of trade is having on national income.

**Accumulated depreciation of the peso is expected** to help stimulate a number of the tradable-producing branches of the economy in 2016. In addition, the industry will receive an important positive shock when the Cartagena Refinery beings operating at full capacity.

**The central forecast for annual consumer inflation** in the next eight quarters was raised in this edition of the *Inflation Report*.

**Consumer inflation is expected to begin to decline** once the domestic conditions affected by *El Niño* weather begin to return to normal, which should happen between the second and third quarters of 2016.

## A. ECONOMIC GROWTH IN 2016

The economic growth forecasts for 2016, as presented in this report, were revised downward compared to those in the previous edition. According to the latest projections by the technical staff at *Banco de la República*, the pace of economic growth in Colombia during the coming year will experience an additional reduction amidst an international context where the recovery in external demand would be slower than expected, the prices of Colombia's leading commodity exports would decline further, and access to foreign borrowing would become more expensive, due to an increase in the risk premiums of the emerging economies and the interest rate hikes by the United States Federal Reserve (the Fed). All of these factors would tend to reduce capital inflows to the country. This, in turn, would be reflected in a decline in the current account deficit projected for 2016, as was illustrated in Chapter I of this report.

*The forecasts for economic growth in 2016 were revised downward with respect to the previous edition of this report.*

According to the projections in the central scenario for the balance of payments, the forecast in this report for growth in 2016 assumes international prices for crude oil will drop even further, to around USD 35 per barrel,

*The price declines for the commodities exported by Colombia would continue to weaken terms of trade and national income.*

well below the forecast in the previous edition of this report (USD $55 per barrel). This setback would have an adverse impact on the terms of trade index, on national income and, hence, on economic activity. Similarly, given the sharp decline in commodity prices, a significant reduction in FDI, especially in the mining-energy sector, is expected as well and would not be offset entirely by increased inflows to other sectors, such as infrastructure, or by the estimated the proceeds from the sale of Isagen. Based on the indications outlined in Chapter I, net financing for portfolio investment is also is expected to be less than in 2015, given the forecast for reduced inflows of foreign capital to the local government debt market and fewer securities issued on international markets by both the public and private sectors.

This being the case, added constraints on foreign financing in 2016 will likely limit possibilities for an increase in domestic demand in the Colombian economy. Spending on gross capital formation is expected to perform poorly, especially when a large share of imported input is involved. Therefore, the GDP growth forecasts in this report signal a contraction in investment in machinery and equipment and transport equipment. As far as these areas are concerned, the accumulated depreciation of the nominal exchange rate, the pass-through of recent changes in Colombia's monetary policy stance to market interest rates, and a possible further decline in confidence among agents in the economy would have a real impact on the performance of investment in assets of this type.

Spending on investment in construction would expand at a higher rate than all other gross fixed capital formation, but with less momentum than in 2015. In principle, the second version of the national government's Productivity and Employment Enhancement Plan (PIPE 2.0) would help to consolidate an acceptable increase in home building. At the same time, civil works would continue to contribute positively to GDP growth, albeit at a slower pace than 2015. In that respect, resources already earmarked for a number of investment projects that are now underway to build roads and airports throughout the country will continue to be spent, and initial payments will be disbursed for infrastructure projects that are part of the so-called fourth-generation concession program (4G).

*Investment in civil works would continue to contribute positively to GDP growth, although at a lower rate than in 2015.*

A downturn in aggregate consumption is expected as well. On the private side, peso depreciation and the rise in food prices are likely to have a negative effect on the purchasing power of household income. For that reason, spending on consumption would decline, especially for durable and semi-durable goods. Consumption of non-durables (food and beverages) would slow, although less so, bringing its expansion to a rate near the average witnessed since 2001. The job market is expected to be less dynamic during 2016, in keeping with a new reality for the economic environment. On the

*The pace of expansion in government consumption is expected to be less than it was last year.*

other hand, there is the possibility the government will pass a tax reform bill at the end of year that might have an impact on the disposable income of Colombian households.

The momentum in public consumption is another important consideration with respect to growth in 2016. The expectation in this report is that it will be less than in 2015 and also below the forecast in the previous quarterly report. This prediction is based on the government's announcement of an austerity policy against a backdrop of negative external shocks and low international prices for oil.

However, one highlight for 2016 is that net exports would contribute more positively to growth in output, contrary to the situation in 2015, when they would have detracted from growth. On the one hand, the performance of real imports would be akin to the expected dynamics/performance of domestic demand that have more of a tradable component. Accordingly, the slowdown in investment spending on transport equipment, capital goods for industry and on the consumption of durables and semi-durables should lead to a reduction in imports, in real terms. This would help to correct some of the trade deficit in 2016.

In terms of exports, the restart of operations at Reficar should prompt a significant increase in foreign sales of oil products, while encouraging the substitution of certain fuel imports. In addition, the exchange rate is expected to play a more important role in non-traditional export performance that it did in 2015. With a more competitive exchange rate, these exports should be able to take advantage of the free trade agreements (FTA) signed by Colombia and the recovery in the developed economies with which Colombia has commercial ties. Meanwhile, traditional exports would register mediocre performance, particularly considering the forecast for exports of oil, coal and, to a lesser extent, coffee.

*Growth in the sector, according to the different branches of activity, is expected to be more balanced than in 2015. Accumulated depreciation of the peso should bolster a number of the sectors that produce tradables.*

As for the different branches of activity, growth in the sector is expected to be more balanced than in 2015. Accumulated depreciation of the peso should bolster a number of the sectors that produce tradables.

Construction would continue to be a driving force of economic growth. As mentioned already, start-up of the first 4G concession contracts would maintain an important amount of momentum in the construction of civil works. Moreover, thanks to royalties from earlier periods, local governments are expected to continue to disburse payments for roads and other civil engineering works, which also would contribute to the increase in civil works. In the case of buildings, moderate expansion, supported by the government programs described earlier, is expected.

*The reopening of Reficar is expected to contribute 5.2 percentage points to GDP growth in industry and 0.6 percentage points to GDP growth overall.*

Industry is forecast to recover significantly in 2016. To begin with, the reopening of Reficar is expected to boost the production of petroleum products, which account for around 12% of industrial GDP. In its central forecast, *Banco de la República* estimates Reficar will contribute approximately 5.2 percentage points to industrial GDP growth and 0.6 percentage points to total GDP in 2016. Secondly, there are the investments made in past years, when an inexpensive dollar bolstered purchases of machinery, equipment, and capital goods for the sector. In addition, the efforts of entrepreneurs in the last five years to find new export markets and to diversify their products should help the sector to grow. Also, the effect of accumulated depreciation in terms of making local products more competitive should stimulate domestic production and exports, as well as some import substitution.

The mining sector, in contrast, is expected to see almost no growth in coal production during 2016. Mining companies are still faced with relatively low coal prices and reduced inflows of foreign capital via foreign direct investment. As for oil, the assumption for production was reduced from what it was three months ago and is now below one million barrels per day, on average. This implies an annual decline of nearly 3%. Consequently, the sector is expected to perform poorly in 2016, far from the double-digit growth rates observed during the mining boom of the end of the last decade.

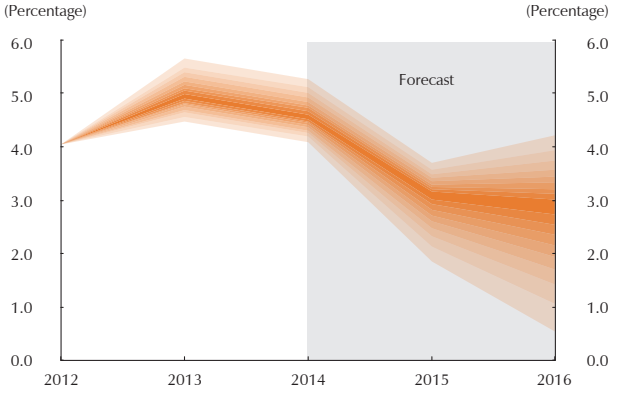
Moderate growth is forecast for the agricultural sector. In the case of coffee, the increase in production is expected to be less than overall economic growth, due to a high base of comparison, even though coffee trees were renovated throughout the country and the investments made in past years would keep production at historically high levels (between 14 and 15 million 60-kilo bags). As for other agricultural products, livestock and animal products, a major slowdown is anticipated, with a downside risk due to the impact *El Niño* could have on agricultural supply and the slaughter of cattle.

Based on all these factors, the forecast for GDP growth in the most likely scenario is around 2.7% for 2016 (Graphs 44 and 45), within a range of 1.5% to 3.2% (Table 7). The range is still a broad and biased towards the bottom, evidencing the risk of a further slowdown in GDP growth for the current year.

*The forecast for GDP growth in the most likely scenario is about 2.7% for 2016, within a range of 1.5% to 3.2%.1,5% y 3,2%.*

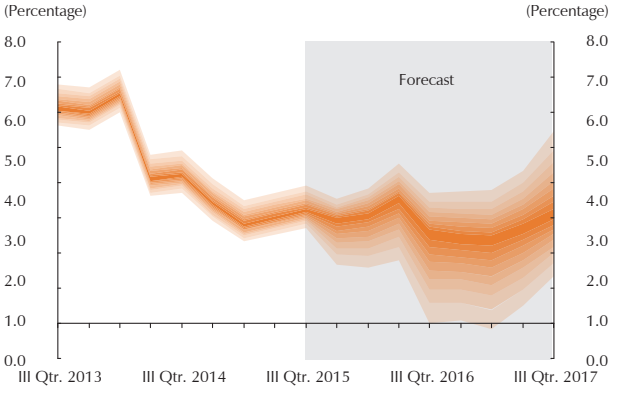
Accordingly, the main downside risks are associated with less performance in terms of consumption and public investment. Civil works, as part of public investment, might not be as dynamic as anticipated in the central forecast, particularly because there might be delays in the 4G concession projects. Less growth on the part of Colombia's trading partners in the region is another downside risk and would affect non-traditional trade. Also, recent uncertainty about the upcoming tax reform, coupled with further deterioration in house-

Graph 44
Fan Chart of Annual GDP Growth




Source: DANE; *Banco de la República*'s calculations.

Graph 45
Fan Chart of Annual Growth in Quarterly GDP




Source: DANE; *Banco de la República*'s calculations.

hold confidence, could reduce private consumption more than expected. The main upside risk is related to more-than-expected momentum in the country's productive system for tradables, since accumulated depreciation should stimulate that type of production. However, all of this could be offset by less demand for exports, as indicated earlier.

According to the forecasts for economic growth in 2015 and 2016, the output gap estimates suggest that this variable would have been positive in 2014 and negative in 2015 and 2016. For 2015, the models show a somewhat more negative value than was estimated in the September report. The estimated probability that this indicator will be negative increased for 2015 and 2016, and is 96% for both years (Graph 46). The estimated reduction in the output gap for 2015 and 2016 can be explained, in part, by the downward revision in the forecast for growth compared to last quarter.

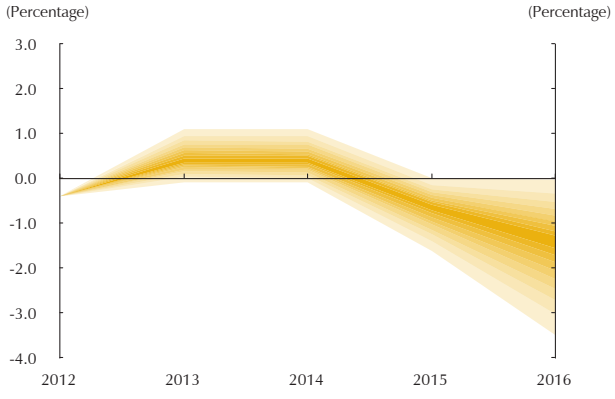
As for the gap in the job market, the models suggest the unemployment rate in 2015 would have been very close to the level consistent with stable inflation (NAIRU). The risk that unemployment (UR) will rise in 2016 and exceed the NAIRU has increased with respect to the last edition of this report, given the reduced prospects for economic growth prospects.

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

| Range | 2015 | 2016 |
|---|---|---|
| < 3.0 | 60.5 | 67.8 |
| 3.0-4.0 | 39.1 | 26.2 |
| 4.0-5.0 | 0.4 | 5.7 |
| 5.0-6.0 | 0.0 | 0.3 |
| 6.0-7.0 | 0.0 | 0.0 |
| > 7.0 | 0.0 | 0.0 |
| Between 2 & 4 | 89.5 | 59.9 |
| Between 1.5 & 3 | 58.1 | 46.5 |

Source: *Banco de la República*'s calculations.

Graph 46
Fan Chart of the Output Gap




Source: DANE; *Banco de la República*'s calculations.

In short, estimates of the output gap and NAIRU suggest there was very little inflationary pressure from aggregate demand in 2015, and it probably will remain so during 2016.

## B. INFLATION

### 1. Forecasts

As mentioned in Chapter III of this report, year-end inflation far exceeded the forecasts in the September report. The bulk of the forecast error was concentrated in the food CPI; however, the tradable CPI, excluding food and regulated prices, was very much underestimated as well.

Clearly, the two main upside risks that were considered three months ago tended to emerge in the fourth quarter. First, the effect of *El Niño* weather on the supply and prices of agricultural goods was more intense and prolonged than anticipated in the central forecast outlined in the September report. Secondly, inflation expectations increased and, by the end of the year, they were above the long-term target range established by the Board of Directors of *Banco de la República* (BDBR). This phenomenon affects the formation of prices for a wide range of goods and services, through various mechanisms, such as indexing.

In addition, the exchange rate depreciated in the fourth quarter, beyond what was anticipated in the inflation forecasts. This was due to various reasons (including lower-than-expected oil prices) and translated into sharper increases than anticipated in the tradable CPI, excluding food and regulated items, and in the CPI for a number of imported foods, among others. As noted in Chapter III, underestimation of the price path for these segments of the CPI up to December is apparently not so much a question of additional pass -through of depreciation to consumer prices, but the simple fact that the peso has weakened far more than the models predicted .

*Upside risks to inflation that were identified in previous reports tended to emerge in recent quarters.*

However, the lag in the pass-through of accumulated peso depreciation to prices since mid-2014 appears to be more than in previous episodes (when it was estimated at one to two quarters). This complicates any attempt to gauge the extent of this pass-through.

In this report, it is felt the upside shocks to inflation in recent months would gain strength and would last longer than expected. The assumption in the central forecast is that the presence of severe *El Niño* weather since last year,

*Perishable food prices are expected to be substantially lower by the end of 2016.*

which is likely to persist until the end of the first quarter or the beginning of the second, will continue to raise prices for perishable foods during the first half of year, particularly in the first quarter.

With respect to the September report, the price path for this group of foods rose sharply during the first two quarters, peaking between March and June. However, a major decline in perishable food prices is expected, particularly towards the end of the year, coupled with far more moderate adjustments in the first half of 2017 than was the case last year. This would generate considerable downward pressure on the annual variation in the food CPI

*El Niño* would have more of an impact on energy and gas prices in 2016 than was anticipated in the previous report. The current forecast signals further adjustments in the price of energy charged to consumers, taking into account the hikes authorized by the government in late 2015, which would begin to affect electricity rates in early 2016. The forecasts also assume significantly higher prices for residential natural gas, but the increases would be less than those in 2015 (which came to 21.1%). The current bottlenecks in generating and transmitting electrical power are expected to persist during 2016, in addition to the enlarged demand for electricity to generate thermal power.

The increase in the forecast for the exchange rate this year and 2017 is due to the lower oil price forecast in this report for 2016 (USD 35 per barrel of Brent crude), compared to the forecast in the September edition (USD 55), coupled with some of the other factors mentioned in Chapter I. This represents an additional shock to the central forecast for inflation, first of all because it dramatically affects prices in the tradable CPI, excluding food and regulated items. However, it also impacts the prices of other goods and services classified in the sub-baskets comprised of non-tradables excluding food and regulated items, (e.g., payments for all-risk vehicle insurance, additional payments for health care, specialized medicine and tourism, etc.) and foods (such as cereals, oils, meat and eggs). A more depreciated peso affects consumer inflation, both directly, by increasing prices for imported goods, and indirectly, through higher production and transportation costs, or by altering expectations and indexing processes.

Furthermore, insofar as depreciation observed in the fourth quarter of 2015 was not contemplated in the forecast in the September edition of the *Inflation Report*, its effect towards 2016 was not included in the last central forecast either. This also raised the central forecast for 2016, especially in the first two quarters.

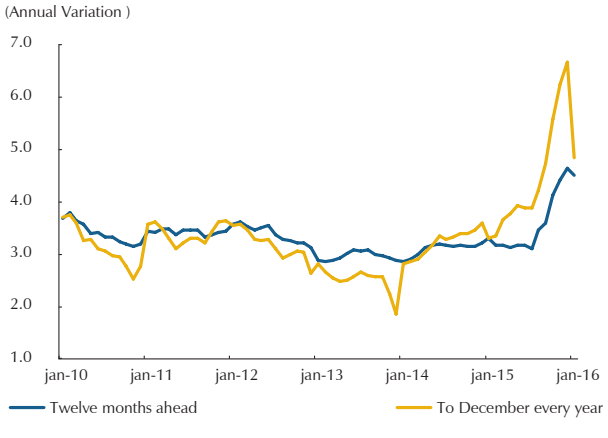
*The price increases forecast in this report for electricity and natural gas are higher than those in the previous report.*

The impact of the weather on the supply of food and energy, as well as the increase in depreciation are captured in the central forecast, as it now stands,

as transient events in terms of their direct impact. However, because both these phenomena have been more intense and prolonged than anticipated, the estimated moment when their impact on inflation is diluted has been postponed as well. Therefore, particularly in the case of accumulated and anticipated depreciation, the central forecast in this report continues to predict an important impact towards 2017, which was not included in previous reports, or was much lower.

Moreover, with inflation at the end of 2015 well above the ceiling of the long-term target range set by the BDBR, which surprised economic agents in general, indexing mechanisms have become far more important in determining inflation this year and in 2017, compared to what was considered in the previous report. The activation of these mechanisms should have an especially sharp impact on prices during the first quarter and early in the second. Added to this is the increase in inflation expectations, as measured by the different surveys and sources consulted by *Banco de la República*. Expectations are a determining factor, especially in the evolution of prices for non-tradables and tradables. Both these factors are increasing the indirect effects climate and the exchange rate are having on prices, and are slowing the convergence of inflation towards its long-term target.

Graph 47
Annual Inflation Forecasts by Banks and Brokerage Firms



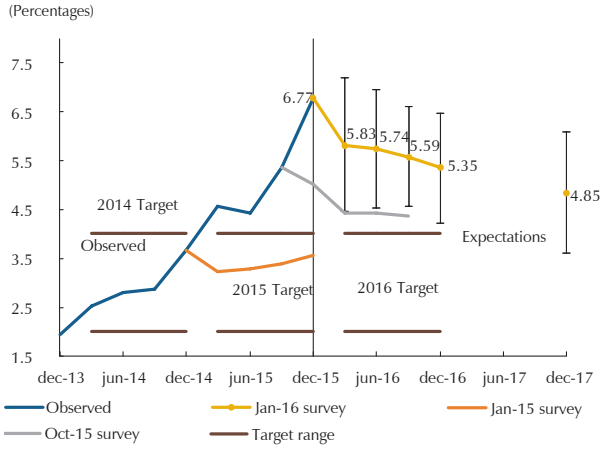

Sources: *Banco de la República*.

The monthly survey of analysts shows they expect inflation to be 4.50% in twelve months, which is more than indicated in the September report (4.12%) (Graph 47). Two-year-ahead inflation expectations are at 3.68%, suggesting these agents again believe inflation will return to the target range within a span of eight quarters, although more slowly, since the rate anticipated a quarter ago was 3.46%.

The quarterly survey of employers and trade unions, among others, shows higher expectations for inflation in one to four quarters. The four-quarter-ahead inflation expectation is 5.35%, given the figures collected in early January, compared to 4.37% from the survey conducted at the beginning of October (Graph 48).

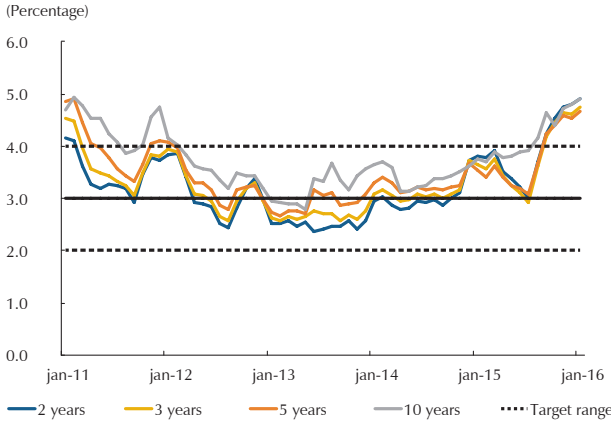
The information based on TES interest rates (break-even inflation) also points to a significant increase in inflation expectations in recent months, specifically at horizons of more than a year. In fact, the results for expectations at two, three and five years, based on information up to January, are 4.91%, 4.74% and 4.67%, respectively. These are much higher rates than those published in the September report (4.51%, 4.44% and 4.38%, in that order) (Graph 49).

Graph 48
Observed Inflation and Inflation Expectations
(At three, six, nine and twelve months)
(Annual inflation)
(Percentages)




Source: *Banco de la República*.

Graph 49
TES-derived Inflation Expectations
(At two, three, five and ten years)
(Monthly average)[a/]




Observation: The respective standard deviation is presented for each expectation.
Source: Bank of the Republic (Quarterly Survey of Expectations) and DANE

Given the foregoing, when using an econometric model (Bayesian model averaging in logistic regression), one can say the likelihood that inflation expectations might have come unanchored from the target has increased in recent months.[5]

In addition to added price indexing and increased expectations, there is the fact that wage costs will most likely adjust at higher rates than those contemplated in the target range for inflation, considering the increase in the minimum wage for 2016 was 7.0%. A large part of the formal labor force in Colombia earns the minimum monthly wage; therefore, it can be used as a reference price for all other wages. However, as illustrated in Chapter III, wages in a number of sectors, by December, were still adjusting at lower rates compatible with the long-term inflation target.

With respect to non-wage costs, upward pressure largely related to depreciation of the exchange rate will continue in 2016. A key component of the input required by Colombia's productive apparatus is imported and comes from developed countries with currencies against which the peso depreciated. Even so, in the case of some raw materials, such as fuel, the sharp drop in international prices in recent months and the forecasts for very low levels in 2016 would offset much of the upward pressure from the exchange rate.

So, in this report, the central forecast for overall consumer inflation continues to rise until the second quarter of 2016, when it reaches a much higher rate than was estimated last quarter. After the second half of 2016, as indicated in the previous report, total inflation will decline quickly and return to the long-term target range in 2017, although at a level above 3.0% throughout the year.

The sharp rise forecast for overall inflation and its anticipated rapid decline in the second half of the year and early 2017 are explained by the way the food CPI is expected to react to the weather shock, especially with respect to per-

5 See Guarin, Hamann and Rodriguez (2015). "De-Anchoring of Inflation Expectations" (mimeograph), *Banco de la República*.

ishables. In the case of this sub-basket, the central forecasting model used by *Banco de la República* predicts the stronger the increase is in the short term, the more pronounced the declines will be at the end of 2016 and in early 2017.

However, in the case of non-food inflation, the forecast is less favorable. Although this indicator does reach the levels of total inflation at midyear, its course for the next eight quarters rose sharply compared to September report and its convergence towards the target will be much slower. Non-food inflation likely will remain well above the ceiling of the long-term target range in 2016 and above this rate in 2017, but with a downward trend.

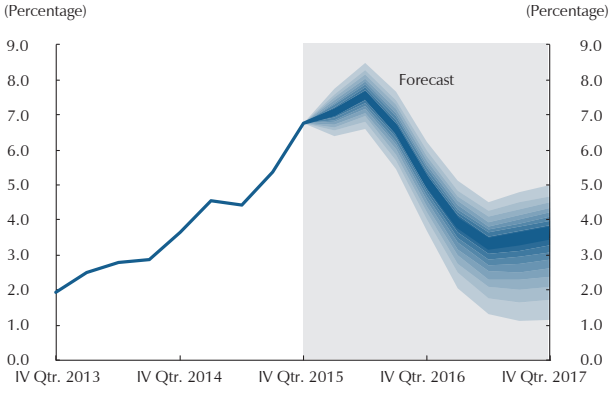
The three baskets that make up the non-food CPI (tradable, non-tradable and regulated items) increased significantly on this occasion, due to the strong inertia stemming from high inflation expectations and indexation based on extremely high inflation at the end of 2015. All of this has occurred in the midst of considerable accumulated depreciation. Demand should not be a source of upward pressure this year or next year, given the growth forecasts (see the first part of Chapter IV) and the estimates of a negative output gap based on those forecasts.

As for regulated items, the domestic price of gasoline is expected to decline slightly throughout the year, since low oil prices would offset the effect of peso depreciation. Even so, the anticipated increases in energy and natural gas have raised the forecasts in this report for the entire sub-basket.

## 2. The Balance of Risks

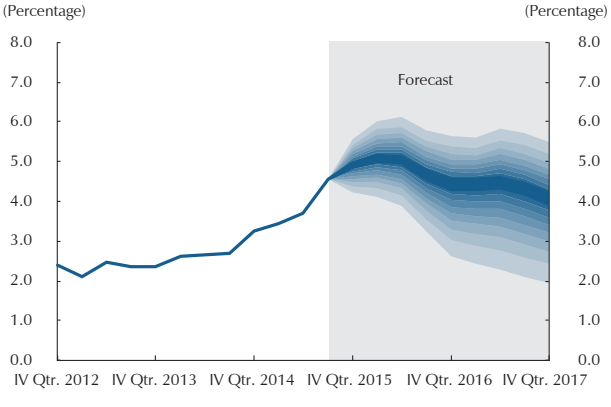
The balance of risks estimated for total consumer inflation and non-food inflation is shown in fan-charts 50 and 51. The central forecast includes the

Graph 50
Fan Chart of Total Inflation




Source: *Banco de la República*.

Graph 51
Fan Chart of Non-food Inflation




Source: *Banco de la República*.

*The growth forecast for Colombia's trading partners was revised downward for 2016.*

effects of intense *El Niño* weather on inflation this year; so, an upside risk associated with this phenomenon is not contemplated for 2016. The balance of risks on this occasion is biased downward, especially towards the medium and long term, considering the risks to Colombia's growth, given the uncertainty surrounding the economic growth of the country's trading partners, the behavior of oil prices and the extent of external financing flows, among other factors. As indicated, the central forecast for inflation is higher in this report.

The following are the main downside risks:

*Less external demand than anticipated in the central forecast:* The assumption about the growth of our trading partners was revised downward for 2016, but continues to show a recovery compared to 2015. However, there are still risk factors in terms of less momentum in the global economy, and especially in several emerging markets. Therefore, the possibility that Colombia's main trading partners may not see their economies accelerate in 2016 cannot be ruled out. In the case of China, for example, the downside risks remain linked to potential problems with financial stability, in addition to the weak performance of the country's trade balance. This could lead to a sharper economic slowdown than expected. As for China's trading partners in Latin America, a further decline in their terms of trade, which is feasible given the surplus supply in global commodity markets, would have an impact on the growth of these economies and on the demand for Colombia's exports. Added to this is the increased political uncertainty that exists in some of these countries. For Colombia, the emergence of several or a number of these risks could weaken external demand and lower the confidence of investors and consumers, with negative effects on domestic demand, which would tend to bring downward pressure to bear on consumer inflation.

*Risks in access to sources of financing during 2016 cannot be ruled out.*

*Less domestic growth than envisaged in the baseline scenario, due to domestic factors:* The risks concerning access to financing for investment in general, including investment in civil works, cannot be ruled out for 2016. The uncertainty about the price path for the raw materials Colombian exports, particularly at a time when there is a sharp external imbalance, coupled with possibility of interest rate hikes in the United States, can raise the perception of risk to the country. On the other hand, private consumption might be affected if a tax reform is adopted that seeks to compensate for the loss of resources due to the decline in oil revenue. This would affect disposable household income, with consequences for private consumption, which begin to emerge even with the mere announcement of a possible tax reform. It is important to point out that the central forecast for inflation presented in this report does not contemplate an impact on domestic growth from the eventual adoption of a tax reform bill in 2016.

*Domestic demand that is less dynamic could speed convergence towards the long-term target for inflation.*

Less domestic demand would result in less inflationary pressure. This, in turn, would mean a quicker convergence towards the inflation target than is contemplated in the central forecast. Or, at least it would offset the upward pressures that can arise, as will be noted later.

*A sharp unwinding of prices for perishable foods:* Food inflation is not expected to exert pressure on total inflation at the start of 2016, apart from the pressure already contemplated in the central forecast. However, a more pronounced reaction to high prices, from the agriculture supply, could spark a faster and more pronounced downward adjustment in these prices towards the end of the year and in early 2017. This, in turn, would speed the convergence of overall inflation to the target, especially if inflation expectations respond favorably to this phenomenon and the impact of indexation declines.

The following are the main upside risks:

*An unexpected increase in tradable and non-tradable inflation*: The risks associated with higher-than-expected depreciation, such as lower oil prices, further interest rate hikes by the Fed and possible increases in the risk premium, might imply higher inflation in the basket of tradables, either because of a higher exchange rate or an increase in its pass-through to consumer prices. The business community might have cushioned that pass-through in 2015, thanks to wide margins, but this would be less likely in 2016. The same risk would apply to the non-tradable items that are more exposed to variations in exchange rates, either directly or indirectly via costs. Increases in the non-tradable basket, which is made up largely of services, might be more than expected if the central forecast underestimated the effect of indexing. Currently, several of these items (such as rents, education and health) have active indexing mechanisms. This risk surely will tend to emerge to a greater extent during the first quarter of 2016, when the bulk of these prices are readjusted.

*Increased inflation expectations:* There are signs that inflation expectations probably are becoming unanchored. These expectations could increase if they react to the possibility that the increase in the price index during the first half of 2016 will be more than expected. Under these circumstances, expectations at longer horizons could become unanchored. If that were to happen, the permanent effects on inflation would be sharper and more prolonged than those contemplated in the central forecast.

*Inflation expectations show signs of probable unanchoring.*

When considering all these factors, and after weighing the different risks that are reflected in the fan chart, it is estimated there is an 11% likelihood of total inflation being within the target range for 2016. This estimate in-

creases to 59% in 2017 (Table 8). It should be noted that the scope of the forecast density, which is shown in graphs 50 and 51 (shaded area), only includes 90% of it. These results, like the central forecast, assume an active monetary policy in which the benchmark rate and the interbank rate (IIR) are adjusted to make sure the target is met.

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

| Range | 2016 | 2017 |
|---|---|---|
| < 2.0 | 0.0 | 18.0 |
| 2.0-2.5 | 0.1 | 11.2 |
| 2.5-3.0 | 0.7 | 14.3 |
| 3.0-3.5 | 2.7 | 16.5 |
| 3.5-4.0 | 7.6 | 16.8 |
| > 4.0 | 88.9 | 23.3 |
| Between 2 & 4 | 11.1 | 58.7 |

Source: *Banco de la República*'s calculations.

## Box 2
## RECENT INTEREST RATE PASS-THROUGH

Carlos A. Huertas C.
Paola A. Jaramillo C.
Luis H. Calderón L.*

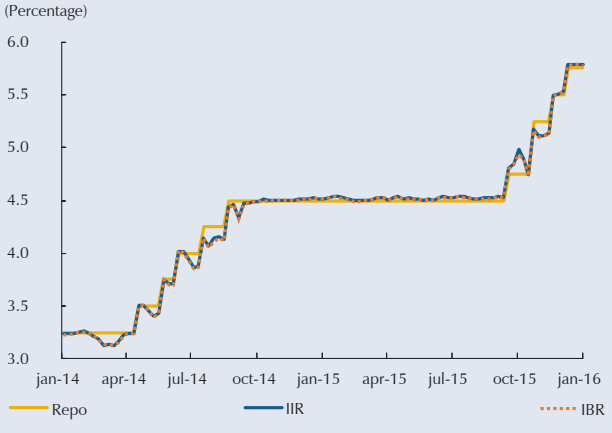
The literature on the inflation targeting strategy[1] highlights four channels for monetary policy pass-through: inflation expectations, the exchange rate, aggregate demand and credit. It is through these channels that changes in the central bank's benchmark rate manage to affect aggregate demand with the objective of achieving price stability.

In that context, this box offers an analysis of the pass-through of recent changes in the benchmark rate to deposit and lending rates in the financial system from the standpoint of the credit channel.[2] Some of the reasons that might explain the particular behavior of interest rates are presented as well, by categories.

The Board of Directors of *Banco de la República* (BDBR) decided, at its meeting on 25 April 2014, to embark on a series of increases in the one-day repo rate. This action was considered necessary to lead it into less expansionary territory in order to encourage convergence of inflation to the target (3%). From that point and until 16 January 2016, the BDBR raised the benchmark rate[3] nine times: by 25 basis points on eight occasions and by 50 bp[4] on one occasion. These hikes took the benchmark rate from 3.25% to 5.75% and were implemented in two stages separated by a period of 13 months, from August 29, 2014 to September 25, 2015. Throughout that interval, the interest rate was left unchanged at 4.50%.

During the same 21-month period when the benchmark rate was being raised, all the interest rates (deposit and lending) charged by credit institutions increased as well, although to a different extent. As shown in Graph B2.1, the interbank rates – overnight rates (IIR) and the benchmark index (IBR) – adjusted quickly to the policy rate and in equal magnitude.

Graph B2.1
Policy Rate, IIR and IBR
(Weekly)




Source: *Banco de la República*'s calculations.

In the case of interest rates on deposits, pass-through increased as of the fourth quarter of 2015, when the BDBR resumed its policy rate hikes. Since April 2014, the monthly average of the overall total rate on time certificates of deposit (CDs) has increased by 187 bp, including 91 bp in the last three months of 2015 (Graph B2.2). Nevertheless, throughout the entire period, the change in this rate was still less than the increase in the policy rate (231 bps), representing nearly 81% of the rise in the benchmark rate (Table B2.1).

In the final quarter of last year, the acceleration in rates was most noticeable for deposits over ninety days: the rate for deposits over 12 months increased by 174 bp as opposed to 83 bp for fixed term deposits (DTF). [5]

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* Mr. Huertas is Head of the Programming and Inflation Department, Ms. Jaramillo is a student intern, and Mr. Calderón is an expert on the financial sector. The opinions expressed in this section imply no commitment whatsoever on the part of *Banco de la República* or its Board of Directors.

1 Blejer, Ize, Leone, and Werlang (eds.). Inflation Targeting in Practice: Strategic and Operational Issues and Application to Emerging Market Economies, pp. 1-7 International Monetary Fund.

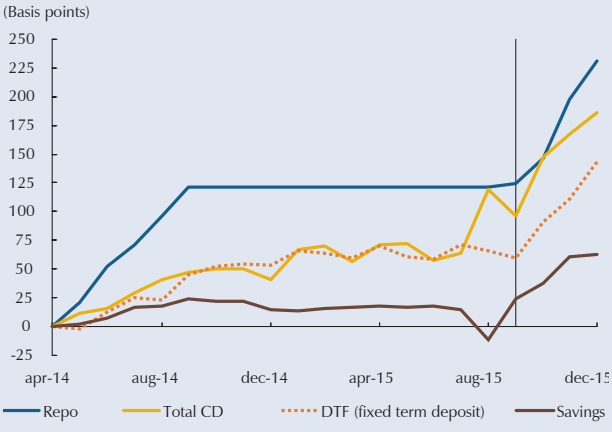
2 For an explanation of the operating mechanism of the credit channel, see Huertas et al. (2005). "Algunas consideraciones sobre el canal de crédito y la transmisión de tasas de interés en Colombia." (Considerations on the Credit Channel and Interest Rate Pass-through in Colombia). *Borradores de Economía*, No. 351, p. 2, *Banco de la República*.

3 The interest rate *Banco de la República* charges on expansionary repos.

4 The decision was taken at the BDBR meeting on 30 October 2015.

5 Fixed term deposit: indicator of deposits at ninety days with credit establishments.

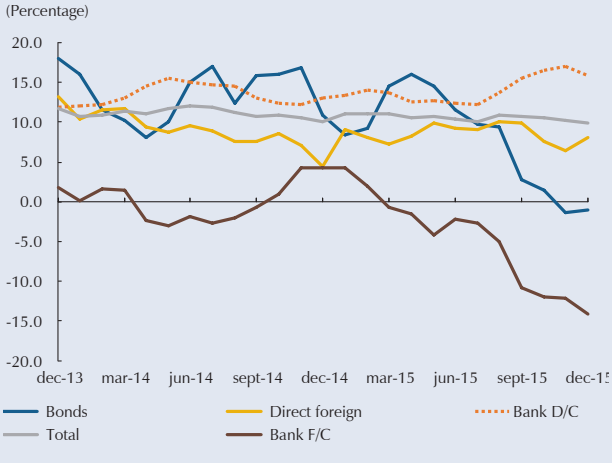
Graph B2.2
Deposit Interest Rates
(Accumulated variation[a/] since April 2014)




a/ Variation in monthly nominal interest rates
Source: *Banco de la República*'s calculations

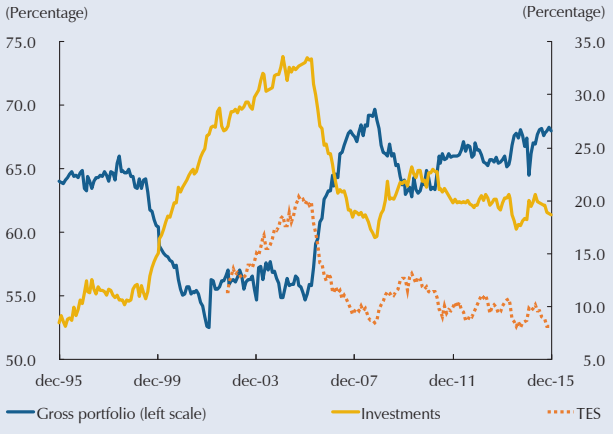
Several facts point to an acceleration in policy rate pass-through to deposit rates. On the deposit supply side, rising inflation and inflation expectations, coupled with the prospect of further increases in the exchange rate, prompt savers to demand higher yields. On the other hand, financial institutions have increased their demand for deposits to finance credit. In fact, the growth in commercial loans in domestic currency, partly due to the decline in other sources of corporate borrowing, such as corporate bond issues and the foreign currency portfolio, has added to the funding needs of credit institutions (Graph B2.3). The fact that credit institutions have lower levels of investment to liquidate and substitute them with loans is also a factor (Graph B2.4).

Graph B2.3
Commercial Borrowing
(Annual variation)[a/]




a/ Monthly average
Source: Financial Superintendence of Colombia; *Banco de la República*'s calculations

Graph B2.4
Loan Portfolio, Investments and TES as a Percentage of Assets

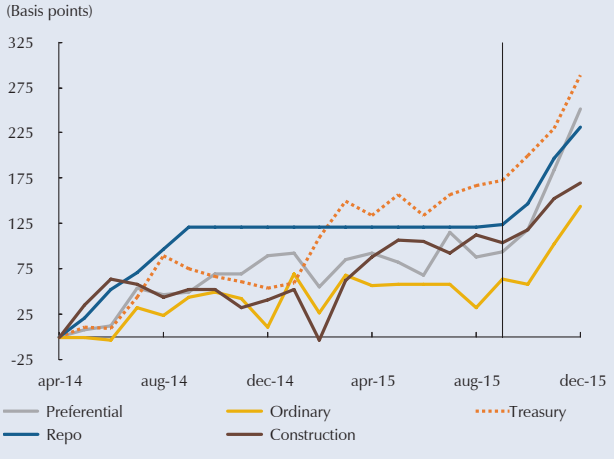



Source: Financial Superintendence of Colombia; *Banco de la República*'s calculations

As for lending rates, the increase in recent months was concentrated largely in preferential rates for commercial loans (Graph B2.5). Interest rates on this type of lending accumulated an increase of 252 basis points as of April 2014; in other words, 109.2% of the increase in the benchmark rate. The preferential rate rose by 158 basis points in the final quarter, as opposed to 94 bp in the preceding stage (Table B2.1).

The maturities on preferential disbursements[6] registered uniform increments, with the exception of those granted

Graph B2.5
Commercial Interest Rates
(Accumulated variation[a/] since April 2014)




a/ Variation in monthly nominal rates
Source: Financial Superintendence of Colombia; *Banco de la República*'s calculations

6 Preferential, ordinary and consumer disbursements' terms are classified into four categories: less than one year, between one and three years, between three and five years, and more than five years.

Table B2.1
Policy Rate Transmission to Interest Rates Charged by Credit Institutions

| Date | Apr-14 (a) | Sep-15 (b) | Dec-15 (c) | Variation (b-a) | Variation (c-b) | Variation (c-a) | Pass-through (Percentage) (c-a) VABR[b/] |
|---|---|---|---|---|---|---|---|
| | Monthly Average (percentage) | | | Basis Points | | | |
| Policy rate | 3.29 | 4.53 | 5.60 | 125 | 106 | 231[b/] | |
| Interbank interest rates | | | | | | | |
| IIR | 3.25 | 4.57 | 5.60 | 131 | 104 | 235 | 101.9 |
| IBR | 3.24 | 4.55 | 5.59 | 131 | 104 | 235 | 101.8 |
| Deposit interest rates | | | | | | | |
| Total Certificate of deposit | 4.18 | 5.14 | 6.05 | 96 | 91 | 187 | 80.9 |
| DTF – fixed-term deposit | 3.81 | 4.41 | 5.24 | 60 | 83 | 143 | 62.0 |
| 180 days | 4.23 | 4.89 | 5.98 | 66 | 110 | 175 | 75.9 |
| 360 dayss | 4.59 | 5.77 | 6.80 | 118 | 103 | 221 | 95.8 |
| More than 360 days | 4.96 | 6.70 | 8.44 | 174 | 174 | 348 | 150.8 |
| Savings | 2.19 | 2.43 | 2.82 | 24 | 39 | 63 | 27.4 |
| Lending interest rates | | | | | | | |
| Commercial | | | | | | | |
| Preferred | 6.88 | 7.82 | 9.40 | 94 | 158 | 252 | 109.2 |
| <= 1 year | 6.47 | 7.46 | 9.07 | 100 | 160 | 260 | 112.7 |
| > 1 year to 3 years | 7.27 | 7.54 | 9.23 | 27 | 169 | 196 | 85.0 |
| > 3 years to 5 years | 6.93 | 8.32 | 9.32 | 139 | 100 | 238 | 103.3 |
| > 5 years | 8.08 | 8.34 | 9.84 | 25 | 150 | 175 | 76.0 |
| Ordinary | 10.50 | 11.14 | 11.94 | 64 | 80 | 144 | 62.3 |
| <= 1 year | 10.79 | 11.22 | 11.67 | 43 | 45 | 88 | 38.1 |
| > 1 year to 3 years | 10.99 | 11.84 | 12.90 | 86 | 106 | 191 | 83.0 |
| > 3 years to 5 years | 11.19 | 11.77 | 13.25 | 58 | 148 | 207 | 89.5 |
| > 5 years | 9.28 | 10.13 | 11.08 | 86 | 94 | 180 | 78.0 |
| Treasury | 6.83 | 8.57 | 9.71 | 173 | 115 | 288 | 124.9 |
| Construction | | | | | | | |
| Non-LIH (non-low-income housing) | 8.75 | 9.78 | 10.45 | 103 | 67 | 170 | 73.7 |
| LIH[a/] (low-income housing) | 9.54 | 10.07 | 10.70 | 53 | 63 | 117 | 50.5 |
| Homes | | | | | | | |
| Consumer | 17.19 | 16.88 | 17.64 | (31) | 77 | 46 | 19.7 |
| <= 1 year | 20.82 | 20.03 | 19.57 | (79) | (46) | (124) | (53.8) |
| > 1 year to 3 years | 22.01 | 21.79 | 22.26 | (23) | 47 | 24 | 10.6 |
| > 3 years to 5 years | 17.67 | 17.77 | 18.60 | 10 | 82 | 93 | 40.2 |
| > 5 years | 15.10 | 14.83 | 15.74 | (27) | 90 | 64 | 27.5 |
| Credit card | 27.82 | 27.22 | 27.98 | (60) | 76 | 16 | 6.9 |
| Usury | 29.45 | 28.89 | 29.00 | (55) | 10 | (45) | (19.5) |
| Mortgage | | | | | | | |
| Non-LIH (non-low-income housing) | 11.11 | 10.85 | 11.30 | (26) | 44 | 19 | 8.1 |
| LIH[a/] (low-income housing) | 11.95 | 12.45 | 13.29 | 50 | 83 | 133 | 57.8 |

a / Low-income housing
b / VABR: Accumulated variation in *Banco de la República*'s policy rate.
Source: Financial Superintendence of Colombia; *Banco de la República*'s calculations.

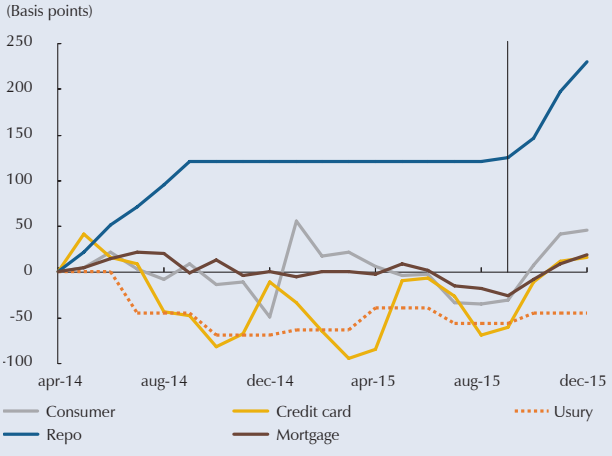
at three to five years, in which case the change was more moderate. As for the amount, they represented 51% of the commercial loans in domestic currency disbursed during the year, of which those at three to five years accounted for less than 8%.

Interest rates on ordinary loans (Graph B2.5), which rank second in importance in the commercial category (accounting for 42% of disbursements), were also more dynamic in the fourth quarter of the year. During that period, the interest rate on these loans increased 80 bp vs. 64 bp in the first period, for an accumulated variation of 144 basis points, which is equivalent to 62% of the policy rate adjustment(Table B2.1). With loans of this type, the rates for longer maturities increased the most.

In contrast, the other two components in the commercial category: treasury credit and construction loans, which account for a small share of the disbursements in this category (5.2% and 1.8%), experienced rate increases, but they were less pronounced in the final quarter of 2015 compared to those on record between April 2014 and September 2015 (Graph B2.5). By periods, the increases in rates on cash credit were 115 vs 173 bp, in that order, and 67 versus 103 bp for construction loans, with an accumulation of 288 and 170 bp, respectively. Therefore, with respect to the change in the policy rate, the reaction of interest rates on cash credit came to 124.9%, while the response from interest rates on construction loans amounted to only 73.7% (Table B2. 1).

The acceleration in commercial interest rates can be attributed to several factors; namely, the change in *Banco de la República*'s stance, the increase in interest rates on deposits, and more demand for commercial loans in domestic currency. This last factor is associated, on the one hand, with the rising cost of external financing, given a tighter monetary stance in the United States, the increase in the country risk premium and peso devaluation. On the other hand, conditions for issuing bonds have become more difficult,[7] given the uncertainty derived from the volatility on financial markets, the reduced availability of resources directed to the mining-energy sector,[8] and the increase in risk premiums for the emerging economies.

Graph B2.6
Household Interest Rate
(Accumulated variation[a/] since April 2014)




a/ Variation in monthly nominal rates
Source: Financial Superintendence of Colombia; *Banco de la República*'s calculations

As for interest rates on household loans (Graph B2.6), pass-through of the policy rate hikes has been witnessed only as of September 2015. In fact, during the previous phase, these rates tended to decline slightly. The fourth quarter of 2015 saw interest rates on consumer loans increase by 77 bp, and by 76 bp for those disbursed through credit cards. During that same period, interest rates on home mortgages rose by 44 bp (Table B2.1).

There are several factors that might explain this performance. In 2014, the strength of the job market and the appreciation in housing prices led to optimism about future household income, as would be expected, and raised the value of the collateral used to back loans to families. Moreover, there was a great deal of available liquidity in the financial system during the second half of 2014, largely due to foreign sales of TES by domestic agents.[9]

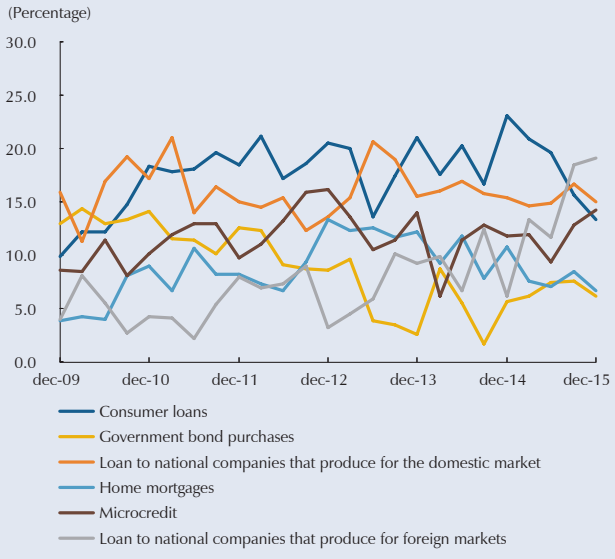
The favorable outlook for household credit risk, coupled with abundant resources (which included the reinvestment of profits in the banking system), would have stimulated the preference among lenders to allocate more resources to households, as revealed by the results of surveys in the financial sector (Graph B2.7). So, despite the increase in the policy rate, the growing supply of loans to households kept interest rates on consumer loans

7 This situation prompted companies to suspend bond issues, and lenders marketed only enough to offset the equivalent maturities.

8 The cutback in resources is due to the drop in oil prices.

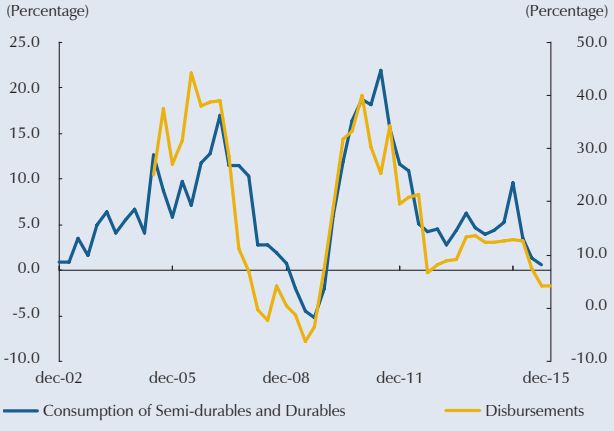
9 On 19 March 2014, JP Morgan published its decision to increase the ratio of Colombian debt in the GBI-EM Global Diversified index (from 3.2% to 8%), in GBI-EM Global (from 1.81% to 5.60%), and in GBI-EM Global Diversified 15% (from 3.07% to 8.26%). This process evolved gradually between 30 May and 30 September 2014.

Graph B2.7
Main Uses of Bank's Surplus Resources



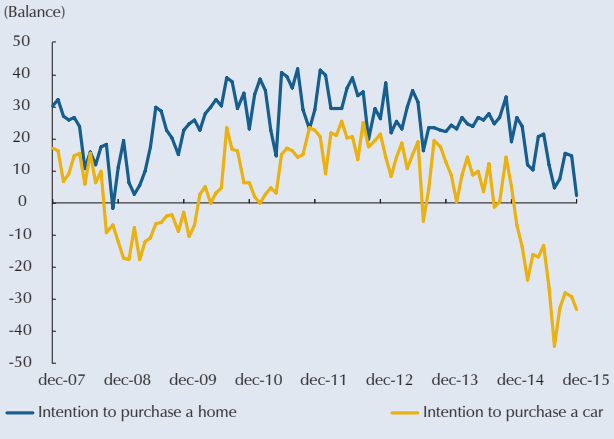

Source: *Banco de la República* (*Survey on the Credit Situation in Colombia*, June 2015).

Graph B2.8
Consumption of Semi-durables and Durables and Disbursements for Consumer and Credit Card Loans (Annual real change)[a/]




a/ Order 2 smoothed quarterly disbursements
Source: Financial Superintendence of Colombia; *Banco de la República*'s calculations

Graph B2.9
Intention to Purchase a Home and a Car




Source: Fedesarrollo (Consumer Opinion Survey)

and home mortgages relatively stable, and even reduced those applicable to cards credit, pressured by the reduction in the usury rate. As explained below, these trends were less favorable after mid-2015.

On the demand side, the unemployment rate (seasonally adjusted) ceased to decline and housing prices –relative to the consumer price index (CPI) – experienced more modest increases. Household debt (consumer loans plus mortgages) relative to output reached historically high levels, while real household income weakened a result of rising inflation. Disbursements on consumer loans slowed, accompanied by less growth in spending in the economy on durables and semi-durables (Graph B2.8). The indicators of consumer confidence warned that households are less willing to spend on a car or a home (Graph B2.9).

On the supply side, the surveys done by lending institutions suggest the requirements for granting consumer loans have increased, default indicators have deteriorated somewhat, and the levels of TES (relative to assets) in the portfolios of these institutions are low compared to what they were historically. Therefore, it is unlikely these investments will continue to be substituted to finance the loans (Graph B2.4).

These credit supply and demand factors led to an increase in consumer interest rates as of the final quarter of 2015, when *Banco de la República* again began to raise the benchmark rate. In the case of interest rates on home mortgages, low policy rate pass-through would be due, in part, to competition among lenders for the resources being made available through government programs that offer an interest-rate subsidy for the purchase of low-income housing, [10] especially since in one of the tranches[11] the government imposed limits on how much interest banks could charge the benefi-

10 For further details on these programs, see "ReTable 3: Programa de cobertura de las tasas de interés para la adquisición de vivienda," (Box 3: Interest Rate Coverage Program for Home Purchase ). p. 69-72, *Reporte de Estabilidad Financiera*, March 2014.

11 It is known as the FRECH Counter-cyclical Coverage Program and regulated under Decree 0701/2013 and resolutions 1263/2013 and 015/2014.

ciaries of these subsidies. This scheme has favored the purchase of 101,512 homes since 2013.

In conclusion, the pass through of policy rate changes to interest rates on deposits and lending in the economy accelerated during the fourth quarter of 2015. A number of factors contributed to this behavior, such as the onset of action to tighten monetary policy in the United States, the deterioration in the country risk premium and devaluation of the peso, which raised expectations of external profitability and made the cost of external financing more expensive. In addition to fueling the increase deposit rates in the Colombia, these factors also boosted corporate demand for loans in domestic currency and pressured the rise in interest rates on commercial loans.

In the case of consumer loans and home mortgages, the reduction in real disposable household income, as a result of rising inflation and the added financial burden due to higher debt levels, has limited household creditworthiness and affected the perception of risk. This is clear in the surveys applied to lending institutions, which have increased their requirements for granting loans. This perception would also be associated with the reduction in the rate of growth in housing prices.

## Box 3:
## NATURAL RATE OF INTEREST ESTIMATES FOR COLOMBIA

Sebastián Amador
Paula Andrea Beltrán*

Through its benchmark interest rate, *Banco de la República* is able to influence the behavior of the Colombian economy, and that of variables such as inflation, GDP growth, among others. A significant portion of the impact of monetary policy depends on the distance between the policy rate and its natural (or neutral) level.

Thus, the "natural" or "neutral" rate of interest gains special importance. There are several alternative interpretations of this concept, based on Wicksell's definition (1898) of the natural rate of interest as the interest rate level that equals savings to investment and, in the absence of financial frictions, is equal to the marginal product of capital. The most commonly modern definition used is the one proposed by Laubach and Williams (2003), who specify it as the interest rate level that keeps the output gap closed and inflation stable in the medium term.

Consequently, natural rate of interest estimates are part of the diverse set of indicators and analysis employed to determine the monetary policy stance.

Despite its usefulness, the concept of the natural rate of interest has important limitations. Being a theoretical notion, it is not observable, nor is there a consensus on its most appropriate estimation method. Moreover, the high degree of uncertainty involved must be considered, not only that inherent of the statistical estimators, but also the that due to model specification and choice.

In this section, the natural rate of interest is estimated using eleven different methods, and their evolution in time is discussed. Hereinafter, we refer to the natural rate and the neutral rate, indistinctly. While some of the estimates are closer to one classification or the other, there is no consensus on the most appropriate one. So, we chose to analyze both.

* Mr. Amador is a specialized professional with the Programming and Inflation Department and Ms. Beltrán is a specialized professional with the Department of Macroeconomic Models. The opinions in this article, and any errors, are the responsibility of the authors and imply no commitment whatsoever on the part of *Banco de la República* or its Board of Directors.

### Methods [1]

#### *The Solow-Swan growth model with Harrod-neutral technological progress*

The Solow-Swan model explains long-term economic growth through capital accumulation, the rate of savings, labor force growth and exogenous increases in productivity (Solow, 1956 and Swan, 1956). Assuming the production function of the Colombian economy follows a Cobb-Douglas with technological enhancing labor (Acemoglu, 2003),[2] it is possible to obtain an expression for the real equilibrium interest rate (the natural rate of interest) based on the marginal productivity of capital (Chetwin and Wood, 2013). The procedure described in Cobo (2005) is modified to accomplish this objective. By employing non-inflationary levels of utilization of production factors, the results can be considered close to both the definition of the natural rate of interest and that of the neutral rate of interest.

#### *Consumption-smoothing models*

This method corresponds to a closed economy without market friction in which a representative agent optimizes its consumption-saving program. The interest rate is obtained through Euler's equation, using a plausible set of parameter values (Sources and Gredig, 2007; Magud and Tsounta, 2012). In this case, we compute the natural rate of interest using specifications with and without consumption habits, according to Cochrane (2001) and Campbell and Cochcrane (2001). The results are consistent with *Banco de la República*'s non-inflationary potential GDP estimates.

#### *Uncovered interest rate parity*

Interest rate parity is a no-arbitrage condition[3], under which investors are indifferent in equilibrium to interest rates on

1 The details of the estimates are presented in Amador & Beltrán (2016, unpublished).

2 According to Acemoglu (2003), there is evidence that this type of technological change is a stronger assumption. Preliminary exercises with neutral technological change in the sense of Hicks resulted in unrealistic estimates.

3 This is a situation in which all assets are appropriately priced and there is no way earnings can be increased through arbitrage.

the assets of two countries. This suggests that the return on local assets will be equal to the expected return, adjusted for risk and exchange rate, on foreign assets. To obtain this estimate we employ the emerging markets bond index (EMBI), as a measure of Colombia's risk premium, to which the natural rate of the United States, published by the Federal Reserve Bank of San Francisco is added, along the 12 months depreciation expectations in the *Monthly Survey of Analysts' Expectations*, and the difference between the inflation targets in the United States and Colombia. The resulting series is filtered by the Hodrick-Prescott method to obtain trend values. Unlike the previous methods, this one merely reflects the effect of external financing conditions on the domestic rate of interest.

### *Hodrick-Prescott Filter (HP)*

The HP filter is one most commonly used time series trend extraction tools. It assumes that permanent changes in the level of the observed interest rate correspond to changes in the level of the natural rate of interest. Thus, the component that reflects only changes in the lowest frequencies (the trend component) pertains to the natural rate.[4]

### *Dynamic Taylor's rule*

The Taylor rule (1993) indicates how a central bank should change the policy interest rate in response to changes in inflation, GDP, and possibly other economic variables. To obtain a natural rate consistent with this method, we estimate the Taylor rule by means of the Kalman filter, assuming the natural rate of interest follows a random walk.

*Implicit common stochastic trend model* It is reasonable to think that, disregarding possible financial frictions, long-term rates reflect market expectations about the future behavior of short-term rates (Sources and Gredig, 2007). By exploiting this relationship, we obtain natural rates through the state-space representation of three different models. The first one only follows the dynamics between short-term and long-term rates. The second controls for inflation expectations. In the third, the relationships between short- and long-term rates in the United States and Colombia are modeled, assuming the natural rate of the second country depends on that of the first, plus a spread that follows a random walk.

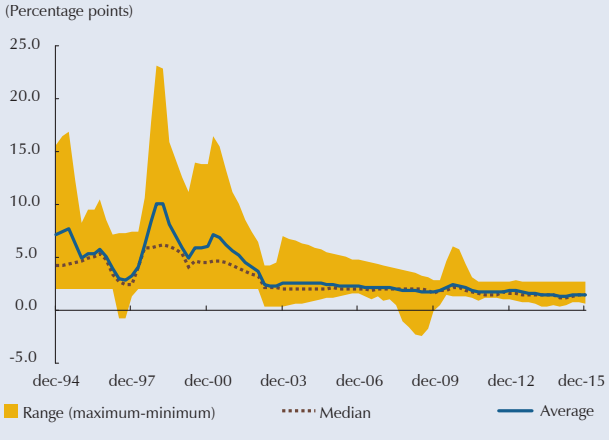
### *New Keynesian adaptive and rational expectations models*

Although the natural rate is unobservable, economic theory suggests ways in which it can be related to variables that are observable. Following Gonzalez et al. (2012), we estimate two versions of a model that includes a Taylor rule, an investment-savings curve (IS), a Phillips curve and equations that describe the behavior of the real interest rate and the real exchange rate. The difference between the two versions of the model resides in the fact that they have different processes for forming inflation expectations: in one, these processes are adaptive; in the other, rational.

## Results and Several Considerations

Graph B3.1 shows the historical evolution of the median, average and range between the maximum and minimum values of the eleven methods for each quarter. Estimates cover the period 1994-2016. It is worth noting that both point estimates and their associated uncertainty[5] change over time. While it is possible to obtain the average or median to summarize the various estimates, these central trend statistics are not necessarily informative, since they ignore the confidence intervals related to each one and the lack of consensus on a preferred method. However, both offer an idea of the evolution of the set of measures over time.

Graph B3.1
Estimates of the Natural Rate of Interest




Note: The methods are explained in detail in Amador and Beltran (2016, unpublished). Only the range between the minimum and maximum estimates is presented; therefore, the uncertainty could be higher than this graph suggests. Also, given the uncertainty and the absence of a preferred method based on consensus, the average and median are not necessarily informative.
Source: Amador & Beltran (2016, unpublished).

4 Interbank interest rate(IIR) forecasts are included to prevent the results from being overly sensitive to the last data point in the time series.

5 Measured by the range between the minimum and maximum at each point in time.

As noted, there is a high degree of dispersion among the different estimates. Judging by the average and the median, it is very likely the natural rate has declined during the period in question. Magud and Tsounta (2012) estimate a real natural rate of 2.3% for Colombia, with information up to May 2012. The estimates presented in this section result in an average of 1.41%, up to 2015 (Table B3.1).

Table B3.1
Estimates of the Natural Rate of Interest

| Model | Year 2015 |
|---|---|
| Solow-Swan model | 0.74 |
| Consumption smoothing | 2.00 |
| Consumption smoothing with habits | 2.68 |
| Uncovered interest rate parity | 0.74 |
| HP filter | 0.81 |
| Dynamic Taylor rule | 1.44 |
| Latent factor | 2.18 |
| Latent factor with expectations | 1.41 |
| Latent Factor US-Colombia | 1.20 |
| NK adaptive model | 1.40 |
| NK rational model | 0.87 |
| Maximum | 2.68 |
| Minimum | 0.74 |
| Average | 1.41 |
| Median | 1.40 |

Note: The methods are explained in detail in Amador and Beltran (2016, unpublished). Only the range between the minimum and maximum estimates is presented; therefore, the uncertainty could be higher than this graph suggests. Also, given the uncertainty and the absence of a preferred method based on consensus, the average and median are not necessarily informative.
Source: Amador & Beltran (2016, unpublished).

The observed downward trend that can be explained by several factors. Among the external ones are the persistently low international interest rates. Models that include external funding components show the possible effect this would have on the Colombian real natural rate of interest for Colombia. Changes in certain local variables, such as the savings rate increase and the lower population growth, also help to explain the downturn in the natural rate. This trend might be offset in the future by changes in sovereign risk premiums associated with scarcer global liquidity and the fiscal effects of a permanent reduction in international prices for oil.

It is important to bear in mind that, according to the methods suggested here, the natural rate of interest can vary significantly over time, which adds even more uncertainty to the exercise. Estimates of the natural rate of interest, as well as its variability in time and uncertainty are included in the broad array of information *Banco de la República* uses to define its monetary policy stance.

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# V. Risks to Macroeconomic Stability

**Nominal and real peso depreciation in 2015 was considerable**, the increase in private-sector borrowing declined, and housing prices slowed.

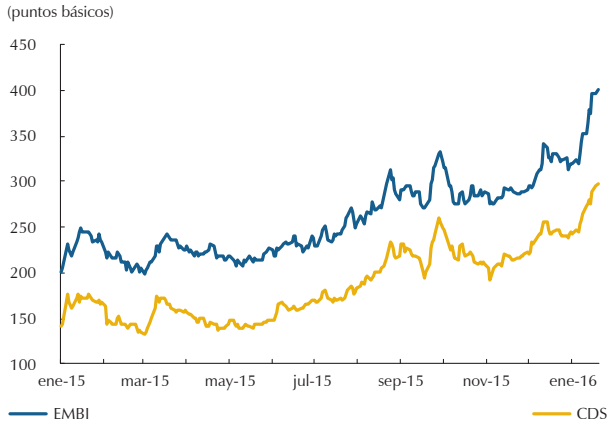
**According to the trends forecast** in this report, the Colombian economy will continue to adjust in 2016 and its macroeconomic imbalances would decrease.

International oil prices have fallen steadily in recent months and far more than anticipated. Peso depreciation has exceeded previous forecasts and the country risk premium has increased, as have foreign interest rates for Colombia. Specifically, between 2014 and 2015, the average price of Brent crude went from USD 99.2 to USD 52.9 per barrel, the peso depreciated 37% against the dollar, the Colombia EMBI and CDS rose by more than 80 bp, and international interest rates, such as the three-month and six-month Libor, posted sustained increases throughout the year (Graphs 52 and 53).

Despite this, the central forecast for 2015 (presented in Chapter I of this report) contemplates a slightly lower current account deficit (in dollars) than the one in 2014, which was historically high. In this projection, the increase in the trade balance deficit, in dollars, largely due to the decline in the value of crude oil exports, would be offset by lower outflows for factor income and foreign services, and by an increase in income from transfers (remittances and others). Industrial exports would accumulate a reduction in 2015, despite nominal and real depreciation.

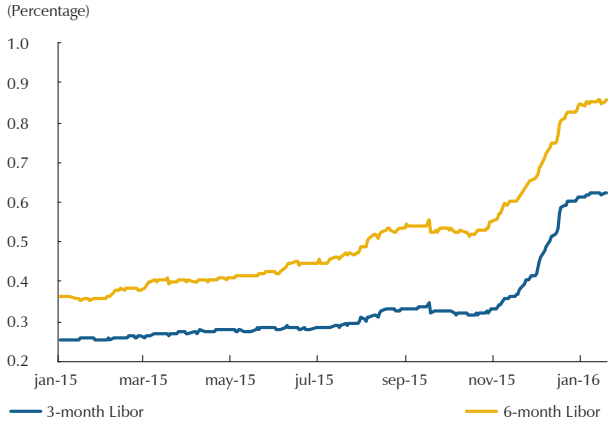
As for financing, the investment portfolio was the main source of funding up to the third quarter, given the drop in FDI, although it was lower than the

Graph 52
Risk Indicators




Note: Data up to 19 January 2016
Sources: Bloomberg (for CDs) and Datastream (for EMBI)

Graph 53
International Interest Rates




Note: Data to 19 January 2016
Source: ICE Benchmark Administration Limited.

record high observed in 2014.[6] Foreign borrowing also helped to fund a larger portion of the deficit last year. Thus, the country continued to receive external financing throughout 2015, but resorted to funding sources that are considered less stable than FDI. Domestically speaking, credit continued to grow at positive rates, but less so than in previous years, as did housing prices.

As mentioned in other reports, continuing to accumulate foreign and domestic liabilities reduces the leeway the economy has to buffer unexpected negative shocks. So far, the impact of the sharp, abrupt and likely persistent decline in national income has been smoothed by financing to cover expenditure, a situation that is mirrored by a moderate slowdown in output. However, if sustainable growth is to be maintained, demand has to accommodate to the new level of income. The decline in output, employment and general well-being is determined by factors such as the speed with which that adjustment occurs and the promptness in reallocating resources to produce tradable goods and services and non-tradables.

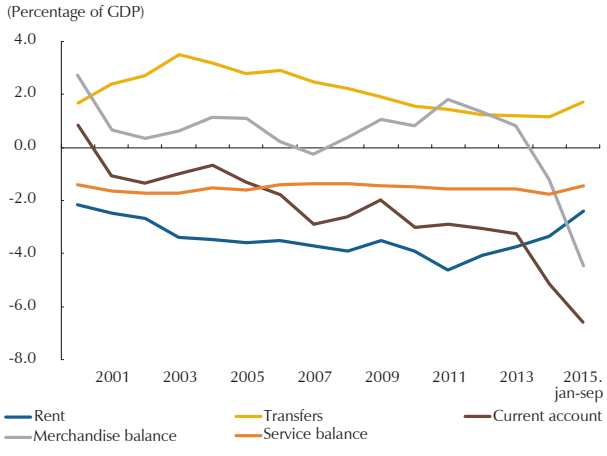
According to the indicators monitored in this chapter, some corrections are already being made. Peso depreciation, less growth in lending (particularly household borrowing), and the slowdown in housing prices all point in that direction. As for the current account, while weak demand from our trading partners has not allowed exports to react, apart from mining products, there have been some recent reductions in imports and a certain amount of recovery in the balance of services. In this context, a decline of nearly USD 3,000 m in the current account is forecast for 2016, given less of a trade deficit and reduced payments for factor income and non-factor services.

The performance of the current account, the real exchange rate, borrowing and housing prices is described in this section. These variables are cited in

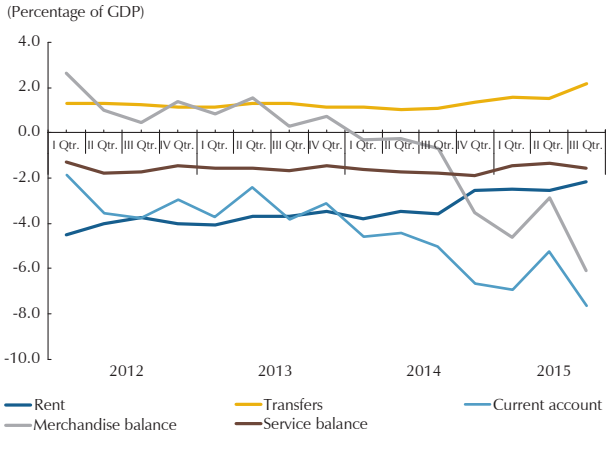
6 Inflows for portfolio investment were unusually high in 2014, thanks to restructuring of the weights in the JP Morgan Emerging Markets Bond Index, which favored Colombian securities. See *Reportes del Emisor*, No. 179: "Analisis del impacto en Colombia de la recomposición de los indices de JP Morgan de deuda local de paises emergentes," (Analysis of How Colombia was Affected by the Restructuring of Weights in the JP Morgan Emerging Markets Bond Index), *Banco de la República*, April 2014.

Graph 54
Current Account and Components Thereof

A. Annual




B. Quarterly




Source: *Banco de la República*.

the literature as being crucial to identifying possible macroeconomic imbalances. An indicator of macroeconomic imbalance that combines the estimated imbalances for these variables is presented as well.[7]

## A. THE CURRENT ACCOUNT AND THE REAL EXCHANGE RATE

The current account deficit showed an increase of USD1,246 m during the course of 2015 up to September, compared to the same period in 2014. As a percentage of GDP, it went from 4.7% to 6.6%, mainly due to the effect of peso depreciation on the value of nominal GDP in dollars.

In general, both the trend and volatility of the current account are explained largely by the trade balance of goods (Graph 54). As mentioned in Chapter I, the latter is seriously imbalanced, due to more of a reduction in exports than in imports. While exports of goods declined 33% during the course of 2015 to September, mainly because of lower prices for the country's major exports, imports fell 13.3%.[8] Foreign trade in services has reacted more quickly to sharp real depreciation than the balance of trade in goods; exports in this sector have increased and imports have declined. In addition, an almost 50% reduction in the earnings of subsidiaries and branches of foreign investors in Colombia[9] and the increase in revenue from current transfers (worker remittances and others) helped to exert less pressure on the current account deficit (Graph 54).

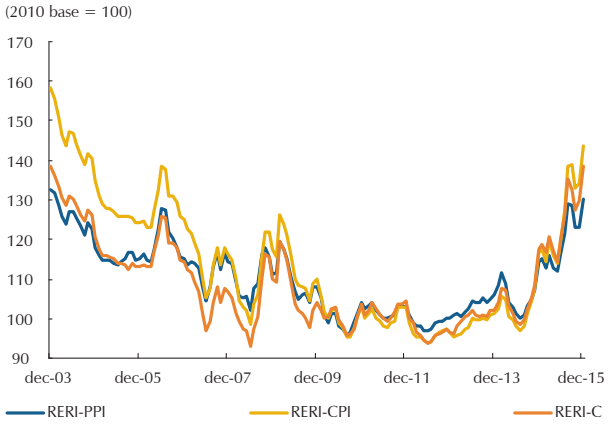
The drop in prices for the country's major export products, which occasioned a sharp reduction in terms of trade, in addition to being reflected in the trade deficit, has contributed to the significant amount of real depreciation. At the

7 See Arteaga, Huertas and Olarte (2012). "Indice de desbalance macroeconómico," (Macroeconomic Imbalance Index), *Borradores de Economía*, No. 744, *Banco de la República*.

8 According to the figures from Colombia's balance of payments to September 2015.

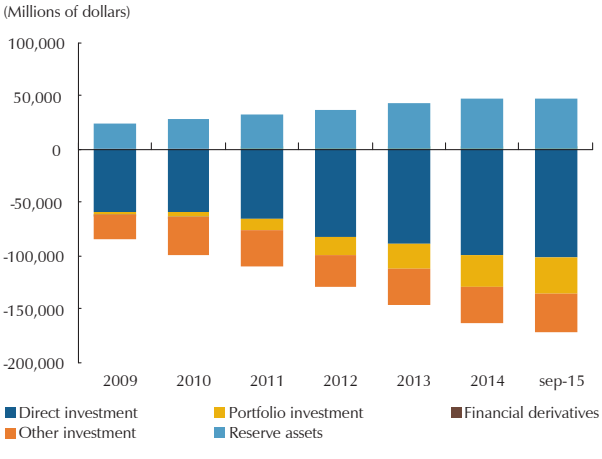
9 The reduction is explained mainly by the drop in international prices for major export products (oil, petroleum derivatives and coal) and the lower value in dollars (due to depreciation of the peso against the dollar) of profits generated in Colombians pesos by subsidiaries and branches in the non-tradable sectors.

Graph 55
Real Exchange Rate Indexes




Observation: 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. In the RERI-C for competitiveness, the comparison is to our main competitors in the United States, specifically in that country's markets for coffee, bananas, flowers and textiles.
Source: *Banco de la República*

Graph 56
Structure of Colombia's International Investment Position




Source: *Banco de la República*.

end of 2015, and compared to our major trading partners, it was to 14% annually, according to the PPI deflated index (RERI-IPP) and 23% for the CPI deflated index (RERI-CPI). [10] Compared to our major competitors in the US market for coffee, bananas, textiles and flowers, real depreciation was 18% (RERI-C).[11] Thus, the various rates in December 2015 were at levels similar to those on record at mid-2004. The increase in risk premiums and the drop in government revenue, which would imply less than expected momentum in government consumption, also would be affecting this performance (Graph 55).

Portfolio investment was the primary source of financing during the course of 2015 up to the third quarter. It accounted for 61% (USD9.110 m), despite a decline of 15% (slightly more than USD1.600 m) with respect to the cumulative amount witnessed in January-September 2014, when there was an unusual influx of capital due to restructuring of the sovereign debt ratios in the JP Morgan Emerging Markets Bond Index. However, direct investment fell 42%, [12] having gone from USD10.169 m to USD5.857 m. Foreign borrowing registered USD1.776 m in net inflows, in contrast with the net payments observed in the same period the year before (USD3,725 m). Notably, despite the significant influx of portfolio capital in the last two years, direct investment is still Colombia's main external liability (Graph 56).

## B. INDEBTEDNESS

Private borrowing at the end of 2015 was estimated at approximately 63% of GDP (44% for companies and 19% for households) (Figure 57). It con-

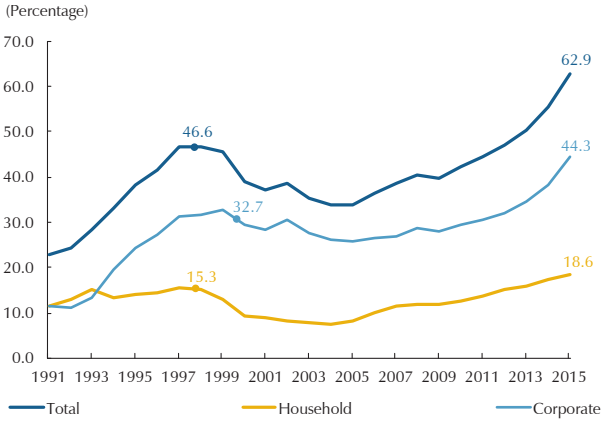
10 Average deprecation for the year is similar.

11 If compared to July 2014, when the indexes were the lowest in the last two years, real deprecation at December 2015 was 30% according to the RERI-PPI, 48% according to the RERI-CPI and 41 % according to the RERI-C.

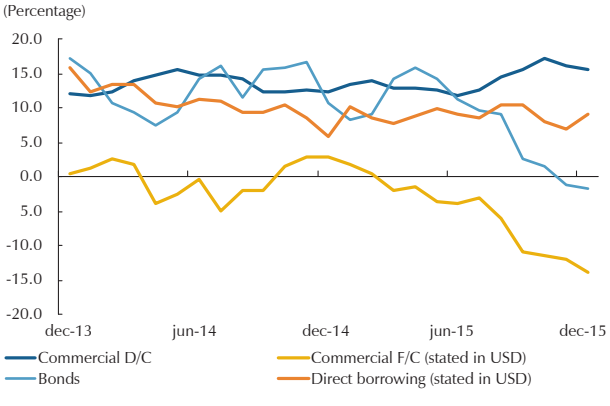
12 Foreign direct investment declined 26%, while Colombian direct investment abroad increased 43%.

Graph 57
Corporate and Household Borrowing[a/]

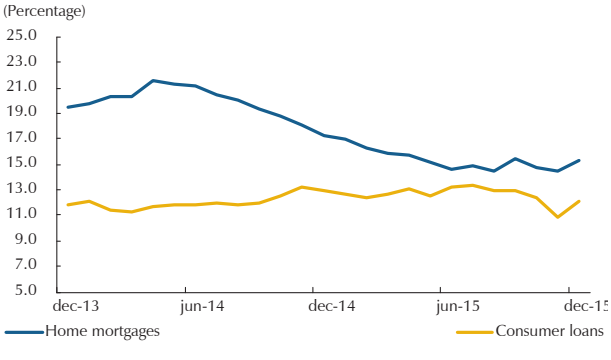
A. Balance/GDP




B. Corporate
(Annual change)




C. Households
(Annual change)




Note: This includes the loan portfolio of credit institutions, mortgage securitizations, bonds issued by the non-financial sector on the local market and direct foreign borrowing. It does not include the portfolio of entities supervised by the Financial Superintendence of Colombia, nor the Fondo Nacional de Ahorro. The portfolio of these entities at June 2015 is estimated at approximately 2.5% of GDP.
Sources: Financial Superintendence of Colombia and Colombia Stock Exchange; *Banco de la República*'s calculations

tinues to grow more than nominal GDP. As for companies, direct borrowing[13] maintained rates of growth in dollars slightly below those observed in 2014 and exhibited some substitution of loans in foreign currency (F/C) for loans in local currency (D/C) as of the second half of 2015.[14] Loans in domestic currency accelerated, while corporate bond issues in the real sector were stagnant.[15] With respect to household debt, the increase in home mortgages continued to slow, as it has since 2014, while growth in consumer loans was more moderate during the final months of the year (Graph 57).

According to the scenarios described in the previous chapters of this report, the conditions the country would face this year suggest that borrowers and lenders may be more vulnerable. As mentioned in Chapter I, external financing is expected to decline during 2016 and to become more expensive.

Similarly, in an economic slowdown where one could see a decline in corporate sales, jobs and household income, banks would tend to tighten their requirements for lending. Some of those interviewed for the December 2015 edition of the *Quarterly Survey of the Credit Situation in Colombia* expect this to happen. In fact, the economic outlook in Colombia and the emergence of credit risk are the two factors of most concern to lenders, according to the *Risk Perception Survey of the Financial System* conducted in November and December 2015. The following are other factors that could slow the momentum in financing in pesos and increase its cost.

13 In this case, direct borrowing corresponds to loans that are contracted without the intermediation of local banks and represent about 30% of corporate borrowing.

14 See the Survey of Foreign Borrowing and Lines of Credit, December 2015.

15 During 2015, bonds were issued only in the Colombian market: Terpel, Promigás, EPM and ISA. All these issues were in the first half of the year.

- The increases in *Banco de la República*'s policy rate since September 2015 make primary liquidity more expensive. This added cost should be passed on to other interest rates. The higher cost of credit and, hence, the financial burden, discourage the demand for credit. Moreover, higher inflation, which weakens real income, and the increase in indicators that measure the country risk premium, which is reflected in various sectors of the economy, could prompt lenders to increase their requirements for granting loans.
- The foreign interest rate hikes, the volatility of the exchange rate and expectations about its future behavior[16] have contributed to a situation where large companies with access to external financing are continuing to restructure their liabilities towards those denominated in pesos, as they have for the last few months. This could reduce the amount of resources available for smaller customers, such as small and medium sized businesses and households.
- These same factors also could prompt a restructuring of portfolios in the private sector in favor of foreign assets. Although this would not be easy for small savers (and families), if institutional clients do so, it could have an impact on some entities and the cost of their financing.[17]
- As outlined in Chapter I, capital inflows to the country are expected to decline this year. Several authors suggest these flows accentuate credit cycles[18] and, consequently, less of an influx of capital could mean fewer loanable funds in pesos.
- Insofar as the 4G concession projects require funding from local banks, with all else being constant, the amount of resources available to loan to other customers could decline.[19]
- Banks, as part of their internationalization process, may have incentives to adopt the Basel III recommendations (although they are not required to do so under Colombian law). According to several docu-

*A number of factors could slow the momentum in financing in pesos and make it more expensive.*

16 According to the February 2016 edition of *Banco de la República*'s *Monthly Survey of Economic Expectations,* economic analysts expect the Colombian peso to be relatively stable by the end of 2016 and in 2017 (with around 2% annual depreciation in 2016 and 4% appreciation in 2017).

17 In this regard, see Cabrera, Pirateque, and Hurtado (2015). "Concentración y competencia en los mercados de depósitos y créditos" (Concentration and Competition in Deposit and Loan Markets). *Informe Especial de Estabilidad Financiera, Banco de la República*, September 2015.

18 See, for example, Igan and Tan (2015), "Capital Inflows, Credit Growth, and Financial Systems," Working Paper No. 15/193, IMF; Furceri, Guichard, Rusticelli, (2011). "The Effect of Episodes of Large Capital Inflows on Domestic Credit," Working Paper No. 864, OECD Economics Department.

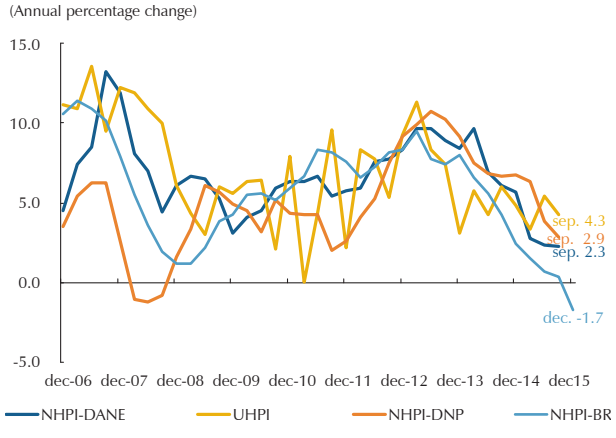
19 According to the president of the National Infrastructure Agency, current plans for infrastructure (4G plus other projects that are underway) require an annual investment of approximately COP3 trillion, the bulk of which will have to be financed. See http://www.portafolio.co/economia/aranque-proyectos-viales-necesita-3-billones-este-ano .

ments published by the National Association of Financial Institutions (ANIF), this would limit their ability to market loans.[20]

Therefore, a continuation of less growth in household and corporate debt is to be expected. This scenario would be consistent with the tightening of external conditions and the decline in national income.

## C. HOUSING PRICES

Graph 58
Home Prices in Colombia (Relative to the CPI)[a/]




a/ The data for the NHPI-DANE, the UHPI and the NHPI-DNP is up to the second quarter of 2015. The latest data for the NHPI-BR is up to the third quarter of 2015.
Sources: DANE, DNP and *Banco de la República*

Housing prices relative to the CPI have slowed for almost two years. While rates are still at historic highs, the pace of growth, in real terms, has declined considerably (Graph 58). Figures published by Camacol for 2015 show an increase of 3% in the number of units sold, which is well below the rate observed in past years.[21] As for the type of housing, low-income housing (LIH) declined 8%, primarily due to the base effect implied by the *Casa-Ahorro Program* (*Home Saving Program*).[22] The increase in non-low-income housing came to 10%, bolstered by the momentum in the price segment between 135 and 335 SMMLV, which rose 14.8% (Graph 59). Sales and project launches in this last group accelerated during the second half of the year, following the announcement of a program to subsidize mortgage interest rates, which was launched formally in January 2016.[23] It is important to point out that sales in the price segment over 335 SMMLV also rebounded during the second half of the year and ended 2015 with increase of 3.5% compared to 2014.

During 2016, in addition to the interest-rate subsidy for non-LIH housing, a component of the Mi Casa Ya Program (*My House Now Program*)[24] will

20 See, for example, Clavijo et al. (2015). "Regulación bancaría: sus costos y efectos sobre la bancarización (Banking Regulation: Its Costs and Effects on Banking), ANIF-Bancolombia.

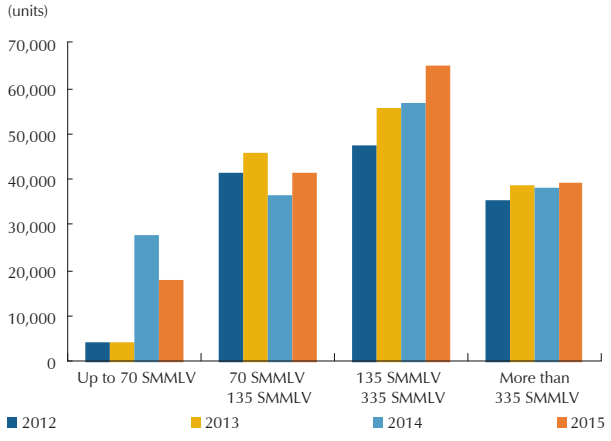
21 The annual increase between 2010 and 2014 averaged 10%.

22 The objective of the program is to encourage the purchase of priority low-income housing (VIP, priced up to 70 SMMLV) by families who earn less than two SMMLV, have saved 5% of the value of the home and have a preapproved loan. In this case, the government provides between 25 and 30 SMMLV towards the down payment and a subsidy on the interest rate (5 pp). LIH home sales increased 28% in 2014.

23 The subsidy would be equivalent to 2.5 percentage points.

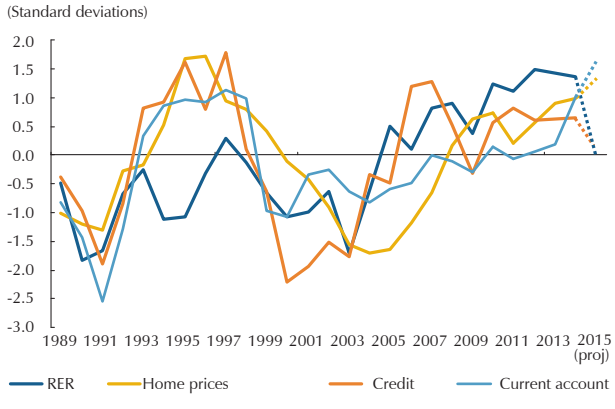
24 This program is designed to encourage the purchase of non-VIP housing (priced between 70 and 135 SMMLV SMMLV) by families who earn between two and four SMMLV. The government provides a portion of the down payment (12 to 20 SMMLV) and subsidizes 4 pp of the interest rate.

Graph 59
New Home Sales, by Price Range



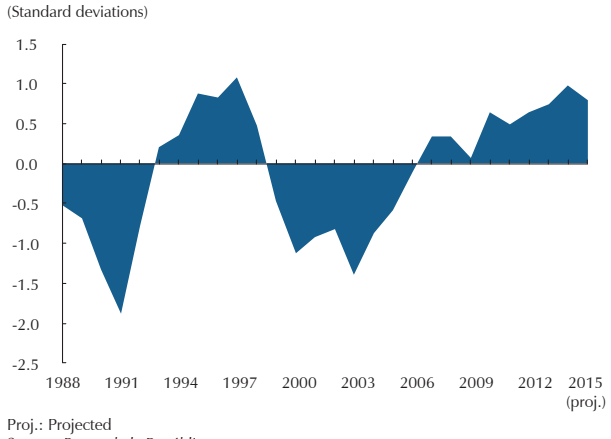

SMMLV: Minimum monthly wage provided for by law
Source: Camacol

Graph 60
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. This means positive imbalances, in all cases, indicate gaps.
Source: *Banco de la República*

Graph 61
Macroeconomic Imbalance Index




Proj.: Projected
Source: *Banco de la República*

operate for the purchase of LIH housing priced between 70 and 135 SMMLV. The supply in the segments where the government's programs are focused has increased by about 20% annually, which should help to mitigate the price hikes. In addition, the deterioration in household income due to rising inflation and the slowdown in job creation; the observed and anticipated increase in interest rates on credit that raise the cost of financing and the financial burden for households; and agent preferences for acquiring foreign assets are all factors that could continue to weaken the demand for housing. Accordingly, the rate of growth in new and existing housing is expected to continue to slow.

## D. MACROECONOMIC IMBALANCE INDEX

The current account deficit relative to GDP increased in 2015. At the same time, there was real peso depreciation and less growth in lending and home prices. Accordingly, the technical staff at *Banco de la República* calculates the gap in the current account,[25] compared to its long-term estimate, would be larger than in 2014, while the gap in the other variables presented would decline, particularly in the case of the real exchange rate (RER) (Graph 60). This suggests there would have been a slight correction in the aggregate imbalance during the year (Graph 61).

Compared to the estimate in the September 2015 edition of this report, the imbalance estimated for the current account rose slightly, according to the increase in the forecast for the deficit, while the others declined.

25 This is understood as the difference between the observed value and the estimated long-term value. In the case of the real exchange rate (RER), the negative is presented, so a positive imbalance in all cases indicates a negative gap.

# Attachment

## Macroeconomic Forecasts by Domestic and Foreign Analysts

The latest forecasts by domestic and foreign analysts for the major economic variables in 2016 and 2017 are summarized in this section. At the time they were consulted, the analysts had access to data up to 22 January 2016.

### 1. Forecasts for 2016

The domestic analysts expect 2.58% economic growth, on average. This is 30 basis points less than was estimated in the *Inflation Report* for the previous quarter. The foreign analysts who were consulted are forecasting 2.55% GDP growth, on average.

Table A1
Forecasts for 2016

| | Real GDP Growth (Percentage) | CPI Inflation (Percentage) | Nominal exchange rate end of: | Nominal fixed-term deposit rate (Percentage) | Fiscal deficit (Percentage of GDP) | Unemployment Rate in the Thirteen Major |
|---|---|---|---|---|---|---|
| **Domestic Analysts** | | | | | | |
| Alianza Valores | 2.00 | 6.33 | 3,700 | 6.75 | 4.50 | 10.20 |
| ANIF | 2.50 | 4.70 | n. d. | 6.40 | 2.70 | 10.10 |
| Banco de Bogotá[a/] | 3.20 | 4.40 | 3,050 | 6.14 | 2.50 | 8.60 |
| Bancolombia | 2.60 | 4.40 | 3,410 | 6.46 | 4.30 | 9.20 |
| BBVA Colombia[a/] | 2.00 | 4.50 | 3,189 | 6.24 | 3.90 | 10.80 |
| BGT Pactual | 2.30 | 4.50 | 3,050 | n. d. | 3.60 | 9.60 |
| Corficolombiana | 2.80 | 4.50 | 2,600 | 5.00 | 3.70 | 9.30 |
| Corpbanca[b/] | 2.90 | 4.50 | 3,260 | 5.10 | 4.40 | 9.60 |
| Corredores Davivienda[c/] | 2.60 | 4.50 | 3,300 | 5.91 | 3.60 | 9.45 |
| Credicorp Capital[d/] | 2.30 | 4.50 | 2,800 | 5.50 | 3.10 | 9.20 |
| Davivienda | 2.60 | 4.50 | 3,300 | 5.91 | 3.60 | 9.45 |
| Fedesarrollo | 2.50 | 5.50 | n, d, | n. d. | 3.40 | n. d. |
| Ultraserfinco[e/] | 3.20 | 5.50 | 2,950 | 5.95 | n. d. | 8.70 |
| **Average** | 2.58 | 4.79 | 3,146 | 5.94 | 3.61 | 9.52 |
| **Foreign Analysts** | | | | | | |
| Citi | 2.40 | 4.30 | 3,340 | 5.80 | 3.60 | 9.4 |
| Deutsche Bank | 2.80 | 4.60 | 3,275 | n. d. | 3.80 | 9.2 |
| Goldman Sachs | 2.80 | 4.20 | 3,333 | n. d. | 3.80 | n. d. |
| JP Morgan | 2.20 | 4.60 | 3,100 | n. d. | 3.60 | n. d. |
| **Average** | **2.55** | **4.43** | **3,262** | **5.80** | **3.70** | **9.3** |

n.d. Not available
a/ The projected deficit pertains to the national government.
b/ Formerly Banco Santander
c/ Formerly Corredores Asociados
d/ Formerly Correval
e/ Formerly Ultrabursátiles
Source: Electronic survey

Table A2
Forecasts for 2017

| | Real GDP Growth | CPI Inflation | Nominal Exchange Rate End of: |
|---|---|---|---|
| | (Percentage) | | |
| **Domestic Analysts** | | | |
| Alianza Valores | 2,80 | 4,89 | 3.900 |
| ANIF | 3,40 | 3,50 | n. d. |
| Banco de Bogotá | 3,80 | 3,50 | 3.000 |
| Bancolombia | 2,90 | 3,10 | 3.220 |
| BBVA Colombia | 3,00 | 3,20 | 2.800 |
| BGT Pactual | 3,00 | 3,30 | 3.120 |
| Corficolombiana | 3,50 | 3,00 | 2.500 |
| Corpbanca[a/] | 4,00 | 3,00 | 3.000 |
| Corredores Davivienda[b/] | n. d. | n. d. | n. d. |
| Credicorp Capital[c/] | 3,20 | 3,20 | 2.600 |
| Davivienda | n. d. | n. d. | n. d. |
| Fedesarrollo | 3,00 | 4,00 | n. d. |
| Ultraserfinco[d/] | 3,70 | 3,38 | 3.500 |
| **Average** | **3,30** | **3,46** | **3.071** |
| **Foreign Analysts** | | | |
| Citi | 3,00 | 3,30 | 3.000 |
| Deutsche Bank | 3,20 | 3,80 | n. d. |
| Goldman Sachs | 3,20 | 3,00 | 3.399 |
| JP Morgan | 3,50 | 3,00 | 3.200 |
| **Average** | **3,23** | **3,28** | **3.200** |

a/ Formerly Banco Santander
b/ Formerly Corredores Asociados
c/ Formerly Correval
e/ Formerly Ultrabursátiles
n. d.: Not available
Source: Electronic survey

The domestic analysts are expecting 4.79% inflation, while the foreign analysts anticipate prices will have increased 4.43% by the end of the year. Both projections are outside the target range set by the Board of Directors of *Banco de la República* (BDBR) for 2015 (between 2.0% and 4.0%).

In terms of the exchange rate, the domestic analysts expect the representative market exchange rate (RMER) to end the year at COP 3,146.27 per dollar, on average, compared to COP 2,900.91 estimated in the survey taken into account in the previous report. The foreign analysts project a RMER close to COP 3,262 by the end of the year.

As for the interest rate on time deposits (DTF), the domestic analysts are predicting 5.94%, on average. This is 83 bp higher than the estimate in the last edition of this report. They also expect the unemployment rate to be 9.5%.

## 2. Forecasts for 2017

The domestic analysts are forecasting 3.30% economic growth for 2017, while the foreign analysts expect it to be 3.23%. With regard to inflation, the domestic and foreign analysts are predicting 3.46% and 3.28%, respectively. In terms of the nominal exchange rate, the domestic analysts are forecasting COP3,071, on average, while the foreign analysts expect it to average COP 3,200.

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